



Resources: Utilisation and Development

Nature has bestowed upon our Mother Earth with large varieties of rocks, soils, minerals, vegetation, animals, etc. We use these gifts of nature to fulfil our day to day needs. We need air to breathe, water to drink and food to eat. We get all these things from the earth. Hence, all the things on earth, which are necessary for our existence on this planet, are known as **resources**. Even human beings are considered as a resource because human beings are an asset. It is only with the help of human skill that the other resources can be developed.

Human needs and wants are neither uniform in all parts of the world nor static over the years. They generally grow and become complex with the process of change in the society. In ancient times, emphasis was mainly given on satisfying the basic needs, such as food, clothing and shelter which was derived from the natural environment. Even today, the pygmies of Africa eat edible plants, roots, flowers, fruits, and hunt animals. In advanced societies, greater emphasis is laid on the utilisation of resources for satisfying the multifarious needs of human beings.

Utility and value of a resource varies from time to time and place to place. Earlier human civilisations flourished along the river valleys as they used water for irrigating fields. Now, human beings are using water for generating energy, irrigation, navigation and industries, etc. China and United States of America (USA) are generating more wind energy than India.



Prehistoric hunting



River—used for navigation



Do You Know?

- Over-irrigation is responsible for water logging and makes the soil infertile.
- Rivers are suitable for navigation in the middle and lower course.

UTILISATION OF RESOURCES

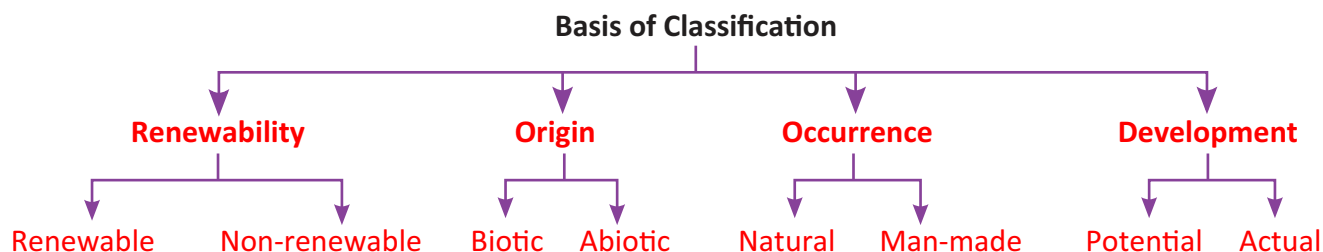
Resources become usable when they are processed. For example, cotton is converted into yarn. On further processing, it is converted into fabric, then finally into garments. Thus, at various stages value addition is possible by applying skill and technology. Generally, the utilisation of resources depends upon various factors, such as:

- Availability of resources
- Skill of human beings
- Availability of capital
- Availability of water
- Advancement of technology (tools, machines, etc.)
- Availability of transport and communication facilities, etc.

In the initial stages of economic development, availability of resources played a very important role. With the advancement of technology, availability of capital and skilled labour became a necessity for the utilisation of resources. For example, USA is termed as a **developed country** because it is economically self-sufficient and technologically advanced. On the other hand, India is still in a **developing stage**. Though resources are essential for development, but their mere presence does not guarantee development. Other factors also play a crucial role.

CLASSIFICATION OF RESOURCES

Read carefully the following flowchart.



Let us now learn about each one by one.

Classification Based on Renewability

Renewable resources are also known as **inexhaustible resources**. Resources, which can be renewed either naturally or by human efforts, are known as **renewable resources**, for example, solar energy, air and water. Some of the renewable resources are always available and do not get exhausted by human activities, for example, solar and wind energy. The quality of these resources can be affected by improper usage.



Wind mill (renewable resource)

Resources, which take millions of years to form or renew, are known as **non-renewable resources**. They are also known as **exhaustible resources** as they cannot be renewed. Energy resources, such as coal, petroleum, natural gas and other minerals are the examples of non-renewable resources. There is a concern about their over-exploitation. They are available in limited amount on the earth's surface and complete utilisation of such resources would result in their exhaustion. These resources have to be used very carefully as complete exhaustion of these resources would have an adverse effect on the future generations. Some of the minerals like metallic ores (gold and silver) are recyclable. These metals may be used again and again after processing.



Coal (non-renewable resource)

Classification Based on Origin

Resources, which are obtained from biosphere and have life (living beings), are known as **biotic resources**. For example, birds, animals, fish, forests, etc., are biotic resources. The biotic resources provide a variety of useful products. They have the capacity to reproduce and regenerate. All biotic resources are renewable, but some take a long period of time to be renewed, for example, the forests.

All non-living resources are known as **abiotic resources**, for example, land, water, minerals, etc. The abiotic resources are not renewable except water which is inexhaustible. These resources are in great demand for the development of various industries and agriculture.

Classification Based on Occurrence

Resources, available from nature in the form of water, minerals, forests, etc., and used by human beings to satisfy their needs, are known as **natural resources**. Many of these natural resources (e.g. water) are essential for the survival of human beings and form the base for the development of a country.



Water (natural resource)



Buildings (man-made resource)

Resources created by human beings to satisfy their needs are known as **man-made resources**, for example, roads, buildings, machines, etc. These resources are essential for us, but they are also developed from natural resources.

The quality and the quantity of people of a country determine its human resource. Healthy and well-educated people contribute to their respective societies in positive ways. Malnourished and illiterate people, on the other hand, cannot contribute much to their respective societies. Human resources are well-developed in Japan as people are skilled and technically developed. African nations, inspite of being rich in resources, are less developed as most of the people are unskilled and illiterate.

Classification Based on the Development of Resources

Available resources in a country, which are not fully tapped, are known as **potential resources**. For example, petroleum can be found in old sedimentary rocks of Himalayas or hydroelectricity can be generated by the force of falling water. The potential resources need detailed survey for estimating their quantity and quality. A preliminary assessment by the US Geological Survey suggests that the Arctic sea-bed may hold as much as 25% of the world's undiscovered oil and natural gas reserves. By one estimate, 400 billion barrels of oil might lie beneath the Arctic sea-bed.

The **actual resources** of a country are those which have been thoroughly surveyed and their quantities have been ascertained. The exploration, development and utilisation of an actual resource depends upon the technology available. For example, Saudi Arabia has 25.9% of the world oil reserves.



Oil wells

SUSTAINABLE DEVELOPMENT AND CONSERVATION

Sustainable development means development that takes place without damaging the environment. It meets the needs of the present without compromising the needs of future generations. Therefore, resources should be utilised judiciously so that after fulfilling our present requirements, they are also conserved for the future generations. Most of our resources are limited in their supply. Over-use of many valuable resources has led to their degradation or deterioration in quality, for example, soil, land and water resources. Therefore, it is essential that we:

- use all renewable resources judiciously.
- minimise the depletion of natural resources.
- conserve the varied species.

The use of resources varies from one country to another. Due to technology and skilled human resource, the developed countries like United Kingdom (UK) and USA make optimum use of resources as compared to the developing countries like India. Distribution of resources across the world is highly uneven. Rapid population growth has resulted in over-utilisation of the natural resources. This has led to drastic depletion and degradation of natural resources. For example, over-utilisation of soil has resulted in the depletion of the fertility of soil in many parts of the world. Thus, there is an urgent need to maintain a balance between population, resource planning and conservation. Resources should be used judiciously, otherwise mankind will have to face dire consequences.

Over the last few decades, there has been a tremendous increase in the concern for the conservation and management of resources as they are rapidly depleting and need to be conserved.

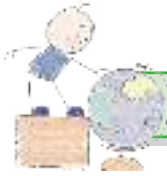
Conservation means sustainable and optimum utilisation of resources. We must realise that nature and its resources are not merely ours. They also belong to the future generation. Thus, it is necessary to use the resources more efficiently and reduce wastage. Development of technology, human skill and population control is essential for a long-term sustainability of natural resources.

We have to create sustainable community for the sustenance of life on the planet, else the ecological balance will be disturbed. Our Earth is the only habitable planet. So, spread awareness for saving earth from further deterioration. Follow 5 R's, i.e. reduce, reuse, recycle, refuse and rethink. Use the resources according to the 'need' and not according to the 'greed'. Care for nature, it will care for you.



Keywords

- **depletion:** when quantity or number of something continuously reduces.
- **deterioration:** process of gradually becoming worse.
- **irrigation:** watering the land or crops through canals, tubewells, drip or sprinkler method, etc.
- **navigation:** movement of ships, boats, etc., from place to place through waterways.
- **skill:** ability to perform certain task with efficiency.
- **static:** lacking in movement or not changing.



Something To Know

A. Tick (✓) the correct option.

- Future generations will depend on solar energy because it is—
(a) biotic (b) man-made
(c) inexhaustible (d) non-renewable
- Which one of the following resources can be recycled?
(a) gold (b) coal
(c) land (d) natural gas
- All the abiotic resources include—
(a) living beings (b) non-living things
(c) inexhaustible resources (d) renewable resources
- Available resources which are not being tapped fully for the time being are called—
(a) actual resources (b) man-made resources
(c) biotic resources (d) potential resources
- Which one does not promote conservation of resources?
(a) use resources more efficiently. (b) optimum utilisation of resources.
(c) use as much resources as required. (d) reduce wastage of resources.

B. Fill in the blanks.

- _____ can be used again and again after processing.
- On the basis of occurrence, resources are classified into two categories— _____ and _____.
- With advancement of technology, availability of _____ and _____ labour are necessary for resource utilisation.
- Developed countries are economically self-sufficient and _____ advanced.
- The _____ resources need a detailed survey for estimating their quantity and quality.

C. Write a technical term or an appropriate word for each of the following statements.

1. Any material which is used to satisfy human needs.
2. Resources which cannot be renewed.
3. Resources which are created by human beings.
4. The resources which are surveyed and developed.
5. Sustainable and optimum utilisation of resources.

D. Answer the following questions in brief.

1. 'Utility and value of a resource vary from time to time and place to place.' Give any three examples to support the statement.
2. Why are human beings considered the most important resource for development?
3. Differentiate between biotic and abiotic resources. Give examples for each.
4. Why is there a need for resource planning? Give any three reasons.
5. Mention any six factors on which the utilisation of resources depend.

E. Answer the following questions.

1. 'Human needs and wants are neither uniform in all parts of the world nor static over the years.' Explain the statement giving suitable examples.
2. Distinguish between renewable and non-renewable resources. Which one of the two would you prefer to use and why?
3. What is meant by sustainable development? Why is sustainable development the need of the hour?
4. Describe the various basis of classification of resources with the help of examples.



Value Based Question

Gandhi said, "there is enough for everybody's need and not for anybody's greed." Earlier humans adopted simple lifestyle by consuming minimum resources from nature. With the advancement in technology, our resource consumption has increased manifold. It created a void in nature. At present, resources are depleting at a fast rate resulting in climate change, loss of biodiversity and dearth of resources. There is a tremendous consumption of water, energy, food and minerals. For a sustainable society, we all have to

change our lifestyle. Especially, the youth has to reduce consumption of resources so that production can be controlled. Minimise the wasteful consumption of resources for a better tomorrow. Adopt sustainable consumption pattern. We have only habitable planet. Care for it.

1. Technological advancement is a boon as well as a bane to human civilisation. Give one example each to support the statement.
2. Highlight any two advantages of sustainable lifestyle.
3. As a young Indian how can you contribute in reversing the adverse impact of human interference on environment?



Map Skill

On an outline political map of the world, show any three developed and developing countries each.



Something To Do

1. Prepare a pictorial chart showing the classification of resources giving at least a suitable example of each category or resource.
2. Suggest any five ways to reduce the wastage of resources.

3. Look around your home and neighbourhood, and list the ways in which water wastage can be stopped.



Natural Resources: Land, Soil and Water

Earth is a unique planet in the solar system. Life is possible on the earth because of the four spheres—lithosphere, atmosphere, hydrosphere and biosphere. Earth's surface is divided into two parts, i.e. land and water. Land covers about 30% of the total surface area of the earth and water about 70% of its total surface.



Planet Earth

LAND RESOURCES

The most important natural resource upon which all human activity is based is land. It is used for growing crops, building houses, constructing roads and railway tracks, establishing industries, grazing animals, mining, etc. In short, almost all human activities related to food, shelter and clothing take place on land.

Lithosphere consists of loose surface material called **soil**. It is a combination of organic and inorganic matter. The organic component which consists of dead and decomposed parts of animals and plants is known as **humus**. The inorganic component is formed by rock particles and minerals, such as lime, iron, etc. Soil is formed as a result of the long, continued weathering process of rocks. It also contains water and air, which occupy its pore spaces.

About 90% of the world's population is inhabited in the plain areas of the alluvial soils of the tropical and sub-tropical areas. These are the areas of intensive crop cultivation with high yields. All these areas support dense population. In contrast, sparse population is seen in areas of high altitudes, deserts and equatorial forest regions where slopes are steep, temperature is either too hot or too cold, soils are thin and infertile. These areas are inhabited by people who are engaged in hunting, gathering, fishing and shifting agriculture.

Land Use

Land is used for various purposes, such as cultivation of crops, building of houses, construction of roads and railways, grazing of animals, etc. This is commonly known as **land use pattern**. The percentage of land used for various purposes varies from one region to another. The utilisation of land is determined by the continuous interplay of the **physical factors**, such as relief, soil, climatic conditions, mineral resources, etc., and the **human factors** like density of population and the technological and social requirements of the people.

The study of land use pattern is important for the economic planning of a nation. It helps in assessing shortcomings in the land utilisation. Countries decide the land use according to their development goals and availability of natural resources.

According to the scientific norms, 33% area of the world should be under forest to maintain ecological balance. At present, only 31.6% area of the world is covered by forest. Out of this, 93% of the forests are naturally occurring, while the other 7% are man-made. The earth's forest cover is unevenly distributed with some countries having most of their land covered by forest while others have only limited forest cover. It is very important for us to take initiative to conserve forests by discouraging deforestation and encouraging afforestation.



Do You Know?

- Surinam has the maximum forest cover in the world.
- India has the maximum arable land in the world followed by the United States and China.

The availability of land on earth is limited. There is conflict over the access and rights of this natural resource. It has also resulted in tough competition between the agriculture and other sectors over usage of land. Moreover, land also suffers from various problems, such as soil erosion, degradation and deforestation.

It is crucial to reduce land degradation and ensure the optimum use of land resources for the benefit of the present and future generations. Land management is a holistic approach for achieving productive and balanced ecosystem by integrating socio-economic needs of the people.

SOIL RESOURCES

A large part of the earth's land surface is covered with soil. As a resource, soil is of immense value to the farmers. Agricultural production is mainly dependent upon the fertility of soil. Rich and deep soil cover, with a high degree of fertility, favours agricultural production. On the other hand, if the soil cover is shallow and lacks fertility, agricultural production will be less. Therefore, a thick layer of fertile soil is very important for the growth of plants.

Though indirectly, animals also depend upon the soil to satisfy their basic needs, as soil gives nutrients to plants. It gives shelter to insects and animals like rats, snakes, ants, earthworms, etc. Soil is also used for making bricks and pottery.

Factors Affecting Soil Formation

Soil formation is influenced by five factors — the parent rock, the topography, the climate, the vegetation cover and time. Let us study each one of them.

- **The Parent Rock:** The original rock from which soil is formed by the process of weathering is known as the **parent rock**. For example, the black soil of India is derived from the lava rock.
- **The Topography:** Topographical variations, such as mountains, plateaus and plains affect the thickness of a soil cover. In mountainous regions, on the steep slopes, the top layer of soil is shallow and thin. On the other hand, at gentle slopes, the soil cover is thick and deep. Soil cover is always thick in plains. For example, the northern plains of India have thick soil cover as compared to the Himalayas. Even within mountains, river valleys have thick soil cover.
- **The Climate:** Climatic factors, like temperature and rainfall, affect the soil formation. In the areas of high rainfall and extreme temperature, rocks are easily weathered.

In Rajasthan, due to extreme difference in day and night temperatures, rocks expand and contract, which results in quick formation of the soil. In regions of heavy rainfall, soluble rock material easily gets dissolved and washed away by the running water. Thus, it affects the soil formation.

- **The Vegetation Cover:** At times, plants grow in the cracks existing in a rock. With time, roots of these plants start penetrating in the cracks and make them wider. As a result, cracks disintegrate into smaller pieces and help in the soil formation. Remains of dead or decomposed plants and animals provide humus to the soil, which enriches the fertility of the soil. The soil of densely forested area is generally very rich in humus content.
- **Time:** Time gives maturity to the soil. Although, soil is a renewable resource, yet it takes thousands of years to develop a very thin layer of soil on the earth's surface. For example, the Nile delta and delta formed by the Ganga and Brahmaputra rivers have very deep and fertile soil.

Fertile soil is essential for agriculture. It helps in maintaining food security of the world. But it has been observed that the fertility of soil is severely damaged by soil erosion. In **soil erosion**, the top layer of the soil is removed by natural agents, such as water, wind, glacier, etc., and by mankind's unwise actions, such as deforestation, over-grazing and mining. The need to conserve soil from erosion has become one of the major environmental concerns.



Soil erosion

Soil Conservation

Soil conservation means prevention of soil from being eroded. Various methods for soil conservation are:

- **Afforestation** is the process of planting more trees and seeds on the land. It reduces the surface runoff and binds the soil.
- Rows of trees or shelter belts are planted in desert regions to protect the fields from wind erosion.
- Overgrazing by animals like sheep and goats must be checked. Fodder crops should be raised. The free movement of animals in the fields should be restricted.
- Steps should be taken to check reckless cutting or felling of trees.
- Floods should be avoided by building dams across the rivers.
- Terrace farming and contour ploughing should be encouraged across the hill slopes.
- Scientific agriculture practices like rotation of crops, strip cropping, etc., should be systematically followed.



Afforestation



Dam across the river



Contour ploughing



Do You Know?

- **Terrace farming** means growing of crops on level steps or terraces constructed on hill sides.
- **Contour ploughing** is a technique of ploughing parallel to the contours of a hill slope rather than up and down the slope, so as to reduce soil erosion.

WATER RESOURCES

Water is one of the most precious resource. Earth is also called a **watery planet** because nearly 70% of the earth's surface is covered with water. About 97% of the earth's total water is present in the oceans and seas. This is saline water which supports incredible biodiversity of marine life, but is not suitable for human consumption or for watering crops. The remaining 3% is fresh water, which is found in the following forms:

- 0.32% is available in lakes, rivers, atmospheric and soil moisture, etc.
- 2.0% is in the form of ice caps and glaciers.
- 0.68% is available as ground water.

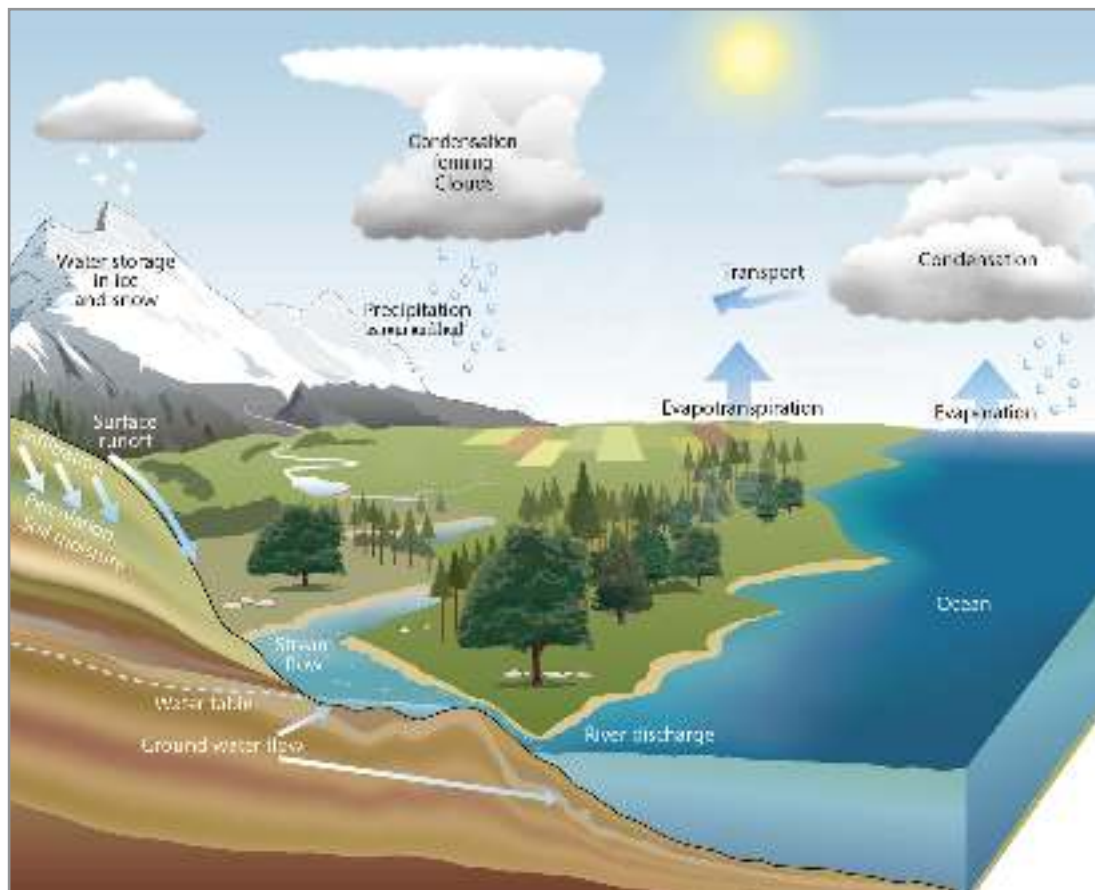


Do You Know?

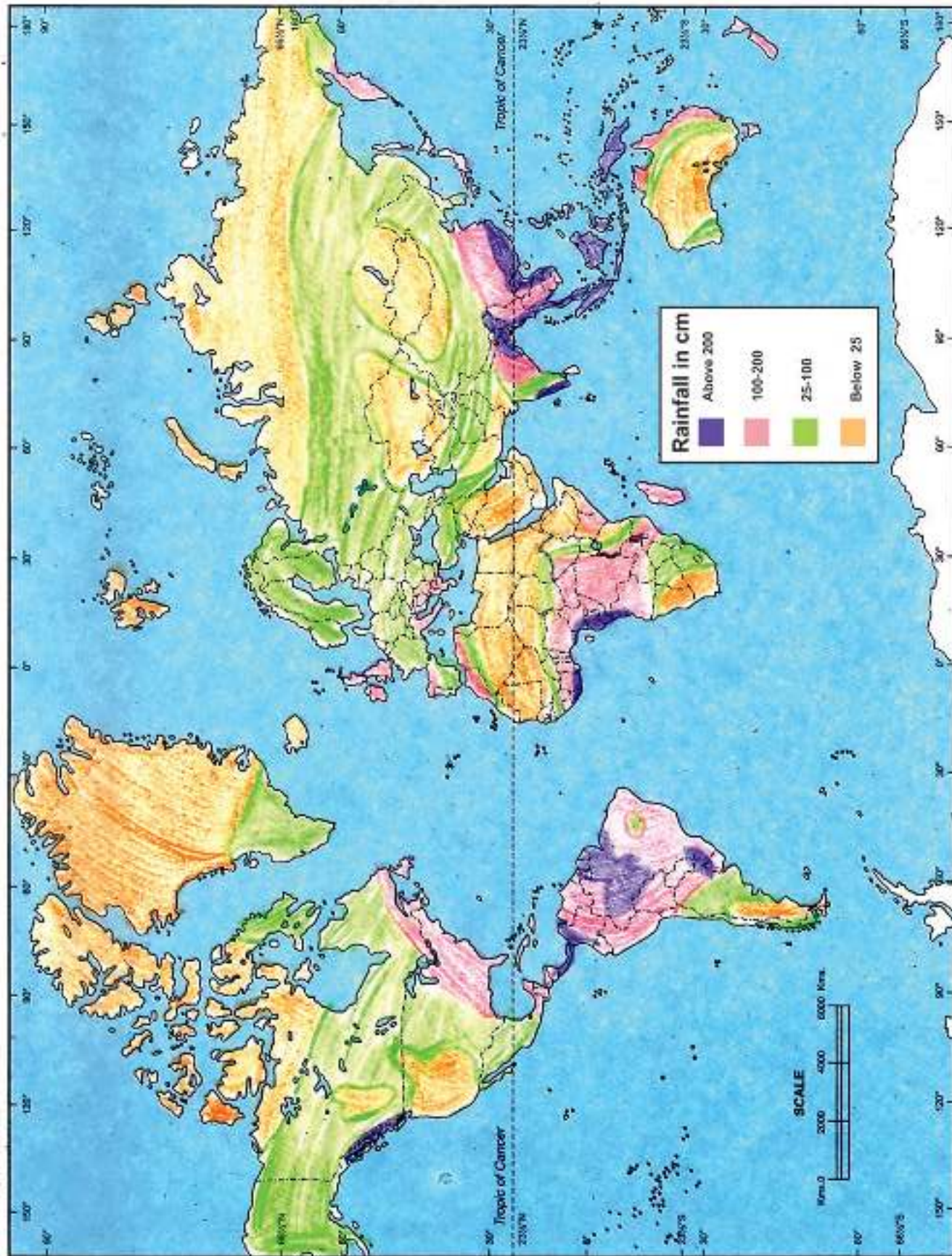
Surface water means water which is present above the earth's surface in the form of rivers, streams, lakes, etc.

The main source of fresh water is rainfall. The rain water continuously gets recycled in nature through evaporation, condensation and precipitation, which is known as **hydrological cycle**. Most of the fresh water on the earth is found in the rivers, streams, lakes, ponds, ice caps and underground water.

The distribution of fresh water resources on the earth's surface is uneven.



Hydrological cycle



World: Distribution of Rainfall

Fresh water is found in abundance at places which receive heavy rainfall, whereas availability of water is less in the areas where rainfall is low. The average annual precipitation of the world is estimated to be 1,050 millimetres per year or 2.9 millimetres per day.

The map given on the adjacent page indicates the uneven distribution of rainfall in the world.

Areas of High Rainfall: Equatorial regions in South America, Africa and South-East Asia.

Areas of Low Rainfall: Tropical deserts—Sahara, Arabian, Central and Western Australia, Kalahari, Central and Northern Eurasia, Central Asia, Polar areas, etc.

Pollution of Water

The quality of water in some rivers is adversely affected as the untreated industrial waste and urban waste is dumped into them. This makes the river water unsuitable for consumption. The polluted water, if consumed, causes many diseases like cholera, jaundice, typhoid, etc. It also disturbs the ecosystem. Hence, serious efforts are being made to clean water in the rivers.

Multipurpose River Valley Projects have been developed all over the world to utilise water. These projects serve many objectives at the same time. Under a multipurpose river valley project, a dam or series of dams are constructed across the river for storing water. This stored water is used for several purposes, such as irrigation, generating hydroelectricity, afforestation, flood control, navigation, etc.

Damodar River Valley Project and Hirakud Dam in India, Aswan in Egypt and Hoover Valley Project in USA are some of the major multipurpose river valley projects.



Do You Know?

Millimetre is a unit of length equal to 1/1000 metre.



Pollution of water



Hirakud dam, India



Hoover dam, USA

The dams are very useful for various purposes. But large dams have come under a lot of criticism from environmentalists, as they are causing ecological problems, like—

- Extensive forests submerged under water.
- River water gets diverted.
- Population gets displaced.
- Aquatic life gets affected.
- Result in soil erosion.
- During excessive rain, floods are caused.

Water Conservation Methods

Water is an indispensable resource. The sources of water are limited and are reducing every year. Due to the effects of global warming, the frequency of rain has also become unpredictable, therefore, it is very essential for us to conserve it. Following are some of the ways by which water can be conserved.

- Water harvesting is one of the methods of saving surface water runoff.
- The surface water runoff can be minimised by having vegetation cover to improve underground storage.
- The demand of water for industries can be met by the recycled water.
- The domestic demand can also be reduced by using modern methods of recycling. The already used water can be reused for watering plants, flushing toilets, etc.
- Water can be saved by adopting modern methods of irrigation, such as drip or trickle irrigation technique and sprinkler method of irrigation.



Water recycling plant



Trickle method



Sprinkler method

- The rain water can be impounded by making dams across the rivers.
- Water can be conserved by installing water fixtures, such as sensor taps in public places.
- Maintenance of lakes and ponds also helps in increasing the aquifer (water table) of underground water.
- Water can be conserved by educating and sensitising people towards the urgent need to conserve water and not to waste fresh water.



Water conservation



Keywords

- **altitude:** height above the mean sea level.
- **ecosystem:** interdependency or inter-relationship of biological elements of the environment on their physical environment.
- **deforestation:** cutting down of large number of trees in an area or clearing of the forest cover.
- **drip irrigation:** it is a form of irrigation in which water drips in small quantity on roots of the plants.
- **glacier:** moving mass of ice like a river.
- **precipitation:** process in which water vapours fall on the ground in the form of rain, snow, hail and sleet.
- **sprinkler method:** an irrigation technique of spraying water on the plants like rain.
- **topography:** physical features, relief or landforms like mountains, plateaus, plains, etc.
- **water harvesting:** storing the rainwater through various methods.
- **water table:** the level below which the ground is completely saturated with water.
- **weathering:** process of disintegration of rocks into smaller pieces till it gets converted into soil.



Something To Know

A. Tick (✓) the correct option.

1. Which type of erosion leads to desertification?

(a) soil erosion

(b) wind erosion

(c) water erosion

(d) wave erosion

2. Which one of the following is suitable for restoring soil fertility?

(a) terrace farming

(b) contour ploughing

(c) shifting agriculture along the hill slopes

(d) rotation of crops

3. Which of the following is not in favour of multipurpose river valley projects?

(a) control floods

(b) generate hydroelectricity

(c) large scale displacement of people

(d) provide water for irrigation

4. Maintenance of lakes and ponds is essential for—

(a) increasing surface water runoff

(b) increasing water table

(c) increasing soil fertility

(d) recycling of water

5. Which factor is more responsible for the quick formation of soil in Rajasthan?

(a) soluble rocks

(b) vegetation cover

(c) extreme difference in day and night temperature

(d) rainfall

B. Fill in the blanks.

1. Earth's surface is divided into _____ and _____ zones.

2. To maintain ecological balance, _____ % of the land should be under forest.

3. Planting of trees is commonly known as _____.

4. The main source of fresh water is _____.

5. Earth is known as _____ planet due to the presence of water on it.

C. Write a technical term or an appropriate word for each of the following statements.

1. It is formed by decomposed parts of plants and animals. _____
2. The original rock from which the soil is formed. _____
3. It is formed as a result of long continued weathering process of rocks. _____
4. A project which serves various purposes at the same time. _____
5. The process in which the top layer of the soil is removed by the natural and human activities. _____

D. Answer the following questions in brief.

1. Why is soil considered an important resource? Give any three reasons.
2. Highlight any three causes of soil erosion.
3. Explain hydrological cycle with the help of a diagram.
4. How does river water get polluted? Explain.
5. Identify any three ecological problems caused by building large dams.

E. Answer the following questions.

1. Explain any five factors responsible for the formation of soil.
2. What is meant by land use pattern? Why is it important to study the land use pattern? List the factors influencing the utilisation of land.
3. What are Multipurpose River Valley Projects? Name any two such projects. List the main objectives of a multipurpose river valley project.
4. Suggest any five steps to conserve soil.
5. Suggest any five methods for the conservation of water.



Value Based Question

Ganga—A Living Entity

The Honourable High Court of Uttrakhand has given 'living entity' status to River Ganga. It means that now onwards Ganga has to be treated as a 'living person' with all corresponding rights, duties of a living person in order to conserve Ganga river system.

In spite of initiatives by various governmental and non-governmental agencies, Ganga and its tributaries are still abused by the people. The river is polluted by domestic, agricultural and industrial effluents. This river system is a lifeline of northern India. That is why, its health has to be restored for the benefit of people.

1. Why has River Ganga been called the lifeline of the people?
2. Suggest any three immediate steps to restore the health of River Ganga—A Living Entity.



Map Skill

On an outline political map of the world, show the following multipurpose river valley projects—

- (a) Aswan dam in Egypt
- (b) Hoover dam in USA
- (c) Damodar River Valley Project in India
- (d) Hirakud dam in India



Something To Do

1. Collect information about some Multipurpose River Valley Projects of India and then complete the following table.

Name of the Project	River	Beneficiary States
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

2. Find out the causes of water pollution in the River Yamuna or a river of your state.