



GEOGRAPHY



Resources



Our Earth is a unique planet which has opportunities for survival and sustenance of life. Our **natural environment** is a vast storehouse of innumerable usable substances. We need these things to fulfil our basic needs as well as to satisfy our urge for a better living.

Dalu is a tribal living on the fringes of a forest. He collects forewood and honey from the forest and sells it in the local market. Sitanath is a farmer in the nearby village. He makes his living by tilling the soil to grow crops. His brother Naresh works in a factory in the town where iron from the mines are processed into steel.

The forests, the soil and the mines are providing **usable substances** that have utility for Dalu, Sitanath, Naresh and all alike. Hence these usable substances are resources. The utility of the **substances** provides them **worth** or **value** and they become resources. They may or may not have **economic value**. But as

long as they **satisfy our wants** they are resources. For example, the forest has **economic** or **commercial value** for the people who sell products gathered from it. But for you and me it has only **aesthetic value**. Your intelligence, your talents may not have economic value now. But once you culture them and use them to earn money they become **economically valuable resources**.

Similarly, anything which is patented and sold by a firm is economically valuable. (Patent means the exclusive right over any idea or invention.)

RESOURCES

The **natural substances** that have **utility** and **functionality**, *i.e.*, the **capacity to fulfil human needs** are termed as **resources**. Resources are those materials which are made available and usable by the technology present with the objective of **satisfying human wants**. For example, coal is only a piece of

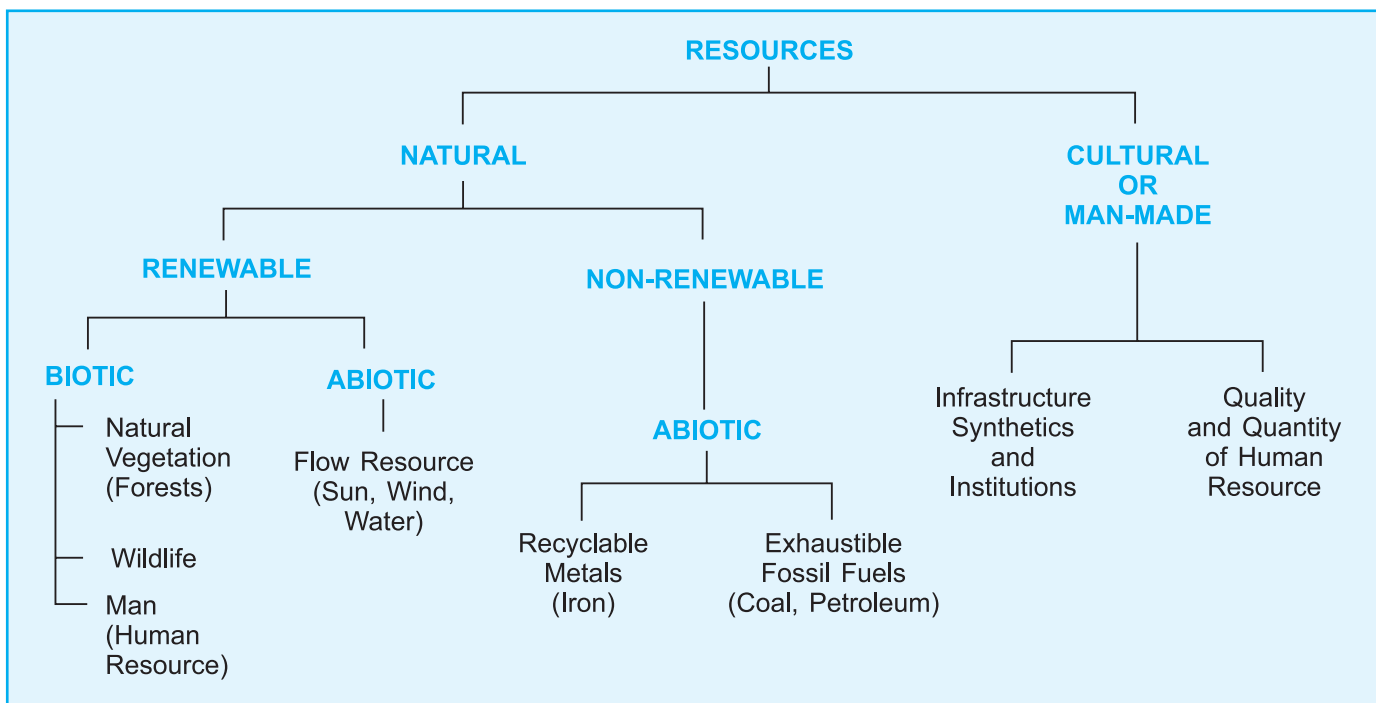


Fig. 1.1 : Classification of resources

rock until power is generated from it or by-products are produced.

CLASSIFICATION OF RESOURCES

Resources are generally classified into **natural**, Man-made and human resources.

NATURAL RESOURCES

Natural resources are the contribution of **nature**. Whatever exists in nature and is usable by man is termed as a natural resource. The air we breathe, the water we drink, the animals and plants around us which we use for our needs and the metals we use to manufacture things are all natural resources.

TYPES OF NATURAL RESOURCES

Natural resources are classified into different groups depending upon their level of development and use, origin, stock and distribution.

1. **On the basis of their origin** natural resources can be divided into two main categories, namely :

- (a) Biotic Resources
- (b) Abiotic Resources.

(a) **Biotic resources** are substances obtained from **living beings**. They include vegetation, birds, domestic animals and wildlife. Everything within the **biosphere** which has some utility for man is a **biotic resource**. Vegetation can give rise to economic activities like forestry and lumbering, pastoral farming and agriculture. Animals and fishes can be used for livestock raising, dairy farming and fisheries.

Man himself is a **biotic resource**. He is often termed as **human resource**. It is the



Fig. 1.2 : Biotic Resource – Forests

most important resource because the use and development of all other resources is determined by humans. The humans with their intelligence transform naturally occurring substances into usable resources.

(b) **Abiotic resources** are **non-living substances**. They include air, water, land or soil, rocks and minerals in the Earth's crust. They can be used directly, for example, the land can be used as a site for a house and rocks can be used to build the house. They can be used indirectly, for example, minerals can be extracted from the Earth and be used in industries to make various products.



Fig. 1.3 : Abiotic Resource – Rocks Containing Minerals

2. **On the basis of their exhaustibility**, resources may be classified into the following groups :

- (a) Renewable or inexhaustible resources
- (b) Non-renewable or exhaustible resources.

(a) **Renewable or Inexhaustible Resources:** **Flow resources** are best examples of **inexhaustible resources**. They include sunlight, wind, water etc. From time immemorial water and air are being used by man. They can be repeatedly used as they are replenished by natural process. As their stock is **continuous**, they are called **flow resources**. But the quantity of sunlight is not affected due to its unjudicious use. With advancement of science and technology we are being able to make better use of these flow resources. **Power** is also generated now from **solar energy**. The force of wind and waves and even heat from Earth's interior is now being used to generate energy.

Renewable resources are those which do not get exhausted with use. They may be temporarily diminished with use, but are **renewed** again by natural



Fig. 1.4 : Solar Energy – A Flow Resource

process or proper management. For example, fertility of soil in agricultural lands is reduced with use, but may be increased again by addition of manures.

Biotic resources are **renewable resources**. They can multiply and are naturally renewed by the process of reproduction. For example, forest areas can be increased again by **afforestation**.

(b) Non-Renewable or Ex-haustible Resources :

Exhaustible resources are substances whose stock **decrease** and **gradually disappear** with use. They cannot be increased or recovered, so they are called **non-renewable resources**. They are **abiotic resources** whose quantities are more or less fixed because their formation takes millions of years. They get **exhausted**, i.e., they are usually **destroyed with use**, e.g., fossil fuels and minerals.

3. Based on the stages of development resources may be classified into :

- (a) Potential Resources
- (b) Actual Resources.

(a) Potential Resources : The power of water, wind and waves can be harnessed to produce energy. Mineral deposits lie buried in mountains and oceans. Though these resources have the capacity to fulfil human wants, they may not be utilised until **technical knowhow** makes them accessible and usable. Even now there are vast reserves of resources which cannot be used presently with available technology or infrastructure. These resources which exist but cannot be

WORDOLOGY

‘Afforestation’ means increasing vegetation cover by planting new trees.

exploited presently remain as **stock for future use**. They are termed as **Potential Resources**, for example, water in the oceans which we cannot use for drinking purpose. By the development of **desalinisation** project we can solve the problem of shortage of water. But the process is difficult and extremely costly. We do not have proper expertise to use it, but our future generations may be able to do so with further advancement of science and technology.

(b) Actual Resources : Natural substances whose location and condition have been determined and which are already being utilised by present generation are termed as **actual resources**. The area with any particular resource is **surveyed**. The **quantity and quality** of the resource is determined. It is then obtained and put to **valuable use**. The coal and iron reserves of USA which have helped in rapid industrialisation of the country are its actual resources.

4. On the basis of ownership, resources may be classified into the following types :

- (a) **Individual or personal resources** owned by an individual, e.g., land, house, wells, orchards, etc.
- (b) **Community resources**, e.g., ponds, parks, playgrounds which can be used by all members of the community.
- (c) **National resources**, e.g., forests, wildlife, mines, water and land resources within political boundaries of a nation and everything that belongs to a country are its national resources.
- (d) **World resources** are the sum total of resources of all countries.

5. On the basis of distribution,

- (a) **Ubiquitous resources**, e.g. sunlight, wind, etc. which are found everywhere.
- (b) **Localised resources**, e.g., coal, petroleum which are found in particular places on the earth.

UTILISATION OF NATURAL RESOURCES

The utility of a resource is determined by :

- the place where the resource is found, *i.e.*, its accessibility,
- the form in which it occurs, *i.e.*, its quality,
- the awareness of the people about its presence and use and
- the cost involved in acquiring the resource.

MAN-MADE RESOURCES

Over the years with advancement of science and technology, man made newer and better things by using natural resources to lead a comfortable life. These new things produced by man are called **man-made resources** or **cultural resources**. For example, cotton is a natural resource, but man uses his expertise and weaves clothes out of it. This is a man-made resource. In course of time, he imitated nature and produced artificial synthetic fibres like nylon and polyester and synthetic rubber. These replaced the natural ones in many cases because of their better quality or due to shortage of natural ones.

HUMAN RESOURCES

Of all the resources of the world, man himself is the most important resource. He transforms natural objects into resources and utilises them for the benefit



Fig. 1.5 : Human Resources

WORDOLOGY

Desalination : Removal of salinity from sea water by scientific procedure, using modern sophisticated technology.

of his family and society. He is the most important resource creating factor because he is both the producer and consumer of all other resources. The pace of development of any country depends on the quality and quantity of human resource.

PRINCIPAL RESOURCES OF THE WORLD

Agricultural resources include cereals and other food crops and cash crops. They are produced by farming for consumption, sale or for agro-industries.

Pastoral resources include animal products like milk, meat, fur, hide, skin, wool, etc. They are obtained by livestock rearing, sheep rearing or dairy farming.

Mineral and Energy Resources : **Mineral resources** are extracted from deep beneath or surface of the Earth by mining. They are processed, refined and transformed into finished products, e.g., iron ore, manganese, mica, etc. Some minerals like coal, petroleum or other abiotic resources like solar energy, wind, water can generate power. They are termed as **Energy Resources**. Both mineral and energy resources are indispensable for development of any country.

CONSERVATION OF RESOURCES

Gandhiji had once remarked, "There is enough for everybody's need but not for anybody's greed." This statement reflects his concern for **resource conservation**.

Man in his attempt to live a comfortable life and acquiring wealth, started a **race of obtaining more and more resources** from his environment. He has become **reckless** in his use of resources. In the process, he is **harming the environment** and exhausting the **available resources**. Resources are becoming poorer in quantity and quality due to its over use. **Uncontrolled exploitation** by man, his greed and selfish activities, have affected the biotic resources. Along with it, **the environmental factors** like change of habitat or climate, which have been triggered by man's indiscriminate exploitation of nature, have made many plants and animals extinct. If we are not careful, we may wipe out the existing plants and animals and ultimately ourselves.

Nature is a vast storehouse of resources. But these are neither endless or unlimited nor are these well distributed throughout the world. The need of the hour is to **conserve** the present natural resources to balance our present use in such a manner that we can conserve it for future. This is termed as sustainable development. **Alternative sources**, especially renewable resources, have to be used instead of non-renewable resources. Use of fossil fuels like coal and petroleum have to be controlled. Their continuous use in large quantities will not only end them up in near future, but also cause pollution to the environment. So we have to be **conscious and careful** while utilising the resources.

SUSTAINABLE DEVELOPMENT

Balancing the need to use resources and also conserving them for the future is called sustainable development.

Principles of Sustainable Development

- Respect and care for all forms of life
- Improve the quality of human life
- Conserve the earth's vitality and diversity
- Minimise the depletion of natural resources
- Change personal attitude and practices towards environment
- Enable communities to care for their own environment.

The future of earth and its people depends up on our ability to maintain and preserve the life support system. We should ensure that :

- All uses of renewable resources are sustainable
- The diversity of life on the earth is conserved
- The damage to natural environmental system is minimised

Then only, we will be able to take care of future generations.

Points to Remember

- Resources are classified into three groups, i.e., natural resources, man-made resources and human resources.
- Biotic resources are substances obtained from living beings, whereas abiotic resources are non-living substances.
- Non-renewable resources get exhausted with use, but renewable resources are inexhaustible or flow resources.
- The stock of resources for future use is called potential resource.
- The resources which are already being utilised by present generation are termed as actual resources.
- Human beings are considered as human resource.
- Sustainable development refers to carefully utilising resources so that besides meeting the requirements of the present, it also takes care of future generations.

Glossary

RESOURCES	:	Substances that have utility and capacity to fulfil human needs and satisfy human wants.
NATURAL RESOURCES	:	Gifts of nature that can be used with present technology and which can satisfy human wants.
BIOTIC RESOURCES	:	Useful substances obtained from living things.
ABIOTIC RESOURCES	:	Non-living substances that have utility for humans.
FLOW RESOURCES	:	Inexhaustible resources which are unaffected by use, i.e., they can be repeatedly used without fear of exhaustion.
POTENTIAL RESOURCES	:	Resources which cannot be utilised presently but with advancement of technology may be used by future generation for their economic progress.

TIME TO LEARN

TASKS FOR SA

A. Multiple Choice Questions (MCQs)

1. Which of the following is not a natural resource?

- (a) Air (b) Minerals (c) Polyester (d) Petroleum

2. Which of the following is an abiotic resource?
 (a) Vegetation (b) Man (c) Animal (d) Land
3. Which of the following is a non-renewable resource?
 (a) Sunlight (b) Water (c) Wind (d) Minerals
4. Which of the following is not a flow resource?
 (a) Air (b) Sunlight (c) Wind (d) Iron ore
5. Parks, ponds and playgrounds are examples of which type of resource?
 (a) Personal resources (b) Community resources
 (c) National resources (d) Potential resources
6. Which of the following is not a product of pastoral resource?
 (a) Grass (b) Milk (c) Meat (d) Wool

B. Match the following

- | | |
|--|-------------------------|
| 1. Synthetic rubber | (a) World resources |
| 2. Vegetation cover | (b) Potential resources |
| 3. Coal and petroleum | (c) Pastoral resources |
| 4. Sum total of resources of all countries | (d) Biotic resources |
| 5. Animal products | (e) Man-made resources |
| 6. Stock for future use | (f) Fossil fuels |

C. State whether the following statements are True or False.

1. Biotic resources are non-living substances.
2. Fertility of soil in agricultural land is a renewable resource.
3. Parks and playgrounds are considered personal resources.
4. Coal and petroleum are pastoral resources.
5. Sunlight is considered a ubiquitous resource.



D. Fill in the blanks with the words given below :

Abiotic Nature exhaustible conserved Mineral

1. Non-living substances are considered _____ resources.
2. _____ resources are extracted from deep beneath or the surface of the earth.
3. For sustainable development, the diversity of life on the earth should be _____.
4. _____ resources are substances whose stock decreases with use.
5. Natural resources are contribution of _____.

E. Short answer type questions.

1. What is meant by human resource?
2. Give the meaning of sustainable development.
3. 'Water is a potential resource.' How can we solve the problem of shortage of water?
4. What do you mean by human-made resources?
5. Mention two ways to conserve resources.

[HOTS]

F. Long answer type questions.

1. Give the classification of resources on the basis of their exhaustibility. Give two examples of each.
2. Distinguish between abiotic and biotic resources.
3. Natural resources are the contribution of nature. What are the factors which determine the utility of resources? **[Value Based Question]**
4. What is meant by sustainable development? What are the principles of sustainable development?
5. Why is consumption of resources higher in developed nations than developing nations? **[Value Based Question]**

TIME TO DO

TASKS FOR FA

G. Assignment

Given below are examples of some resources. Classify them on the basis of ownership :

Forest, grazing grounds, plots of land, village ponds, canals, railways, playgrounds, maganese nodules in the bed of Indian Ocean, wells, houses, pet dog, wildlife, iron ore deposits in a country, orchards, public parks, coral reefs, shopping malls, rivers.

Individual Resources	Community Owned Resources	National Resources	International Resources

H. Word grid

Solve the puzzle by following your search horizontally and vertically and circle the answers for the following clues :

1. Resources which do not get exhausted with use.
2. Natural substances that have utility and functionality.
3. Substances obtained from livings beings.
4. An example of abiotic resource.
5. An example of pastoral resource.
6. Exhaustible resources whose quantity is more or less fixed.
7. Resources owned by an individual.
8. A mineral resource used to generate power.
9. The exclusive right over any idea or invention.
10. A unique planet.

P	H	B	A	N	W	E	D	M	R
E	S	J	B	Z	P	A	P	I	E
R	L	M	I	N	E	R	A	L	S
S	U	C	O	A	L	T	T	K	O
O	C	A	T	D	B	H	E	F	U
N	Y	Q	I	C	X	V	N	T	R
A	A	E	C	B	I	O	T	I	C
L	M	B	I	O	C	R	K	E	E
R	E	N	E	W	A	B	L	E	S

I. Group discussion

1. Discuss in the class, how we can conserve resources at our homes and in the school.
2. Divide the class into two groups. Ask group A to discuss 'how technology leads to creation of resources.' Group B will discuss 'how technology leads to destruction of resources'.
Draw inference as to the role of human beings in utilising technology to create and exploit resources.

LIFE SKILLS

Collect newspaper cuttings and pictures from magazines to highlight the need to conserve natural resources and some measures taken in this regard. Find out how a community can help in resource development of a region.