CHAPTER

1 Resources

OBJECTIVES

In this chapter we will learn about:

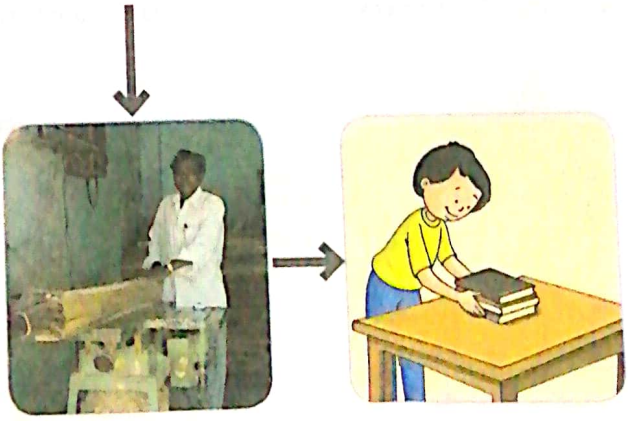
- Resources and their utility
- Types of resources
  - Natural resources
  - Man-made resources
  - Human resources
- Conservation of Resources

Resources and their utility

A **Resource** is anything that can be used to fulfill a need. We do not think about the resources that we consume daily. Without these resources, we cannot function smoothly. For example, to travel you use a car which runs on petrol. Petrol is a natural resource since it is being used by you to run your car. Similarly, the coal you use to produce electricity, the paper used in your textbooks and the water that you drink are all examples of resources.

You must now want to know how a thing becomes a resource. A thing becomes a resource when it has some utility. For example, a piece of log may have no utility for you but when a carpenter converts it into a table, it becomes usable. In other words, whatever things can be used by you, have some utility. It is this utility or usability that makes an object or a substance, a resource. The use or utility of a thing gives it a value. In the given example, the table made by the carpenter has utility. You can keep your things on it. Hence, this table has use. It can also be said that since the table can be used, it has its own value. All resources have utilities and values.

Some resources have economic value. By the term economic value, we mean the worth of a product or service as determined by the market. The worth of a product is the price it fetches in the market. For example, a table made out of rosewood can cost up to ₹ 10,000 per piece.



The carpenter uses wood to make table.
The table has utility and value

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Activity-1

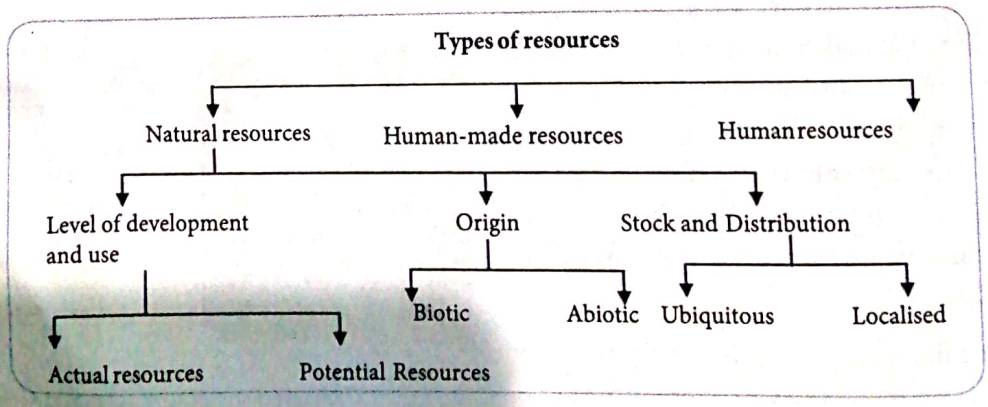
Utility and value!

The use or utility of an item makes it a resource. Every resource has some value. Look around your house and name any 10 resources that you use frequently. Also mention the utility of that resource. One is mentioned as an example.

	Resource	Utility
1.	Ladder	Is used to reach lofts, fans and lights on the ceilling.
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

The resources can be of three types. They are:

1. Natural Resources
2. Human-made Resources
3. Human Resources



The chart given above shows the classification of resources.

Now let us stu

- **Natural R**

Natural resou in the enviro modification. breathe, the m plants, etc. N into three typ

a) **Level of**

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- **Actual** which h determi used. F obtained has the found i Chhatti diamon the cou of Utta

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Various types of natural resources

Now let us study about these in detail.

- **Natural Resources**

Natural resources are those which occur naturally in the environment and can be used without much modification. For example, river water, the air that we breathe, the minerals present in soil, even the animals, plants, etc. Natural resources can be further classified into three types, depending upon their utility.

a) Level of development and use

Based on the level of development and use, resources can be classified into two groups: Actual resources and potential resources.

- **Actual resources:** Actual resources are those, which have been surveyed and their quantity determined. These resources are currently being used. For example, petroleum and natural gas obtained from the Mumbai offshore fields. India has the world's largest deposits of coal, which are found in Jharkhand, Odisha, West Bengal, Bihar, Chhattisgarh and Madhya Pradesh. The Panna diamond belt, the only diamond producing area in the country, is in Madhya Pradesh and some parts of Uttar Pradesh.

Mumbai offshore oil fields

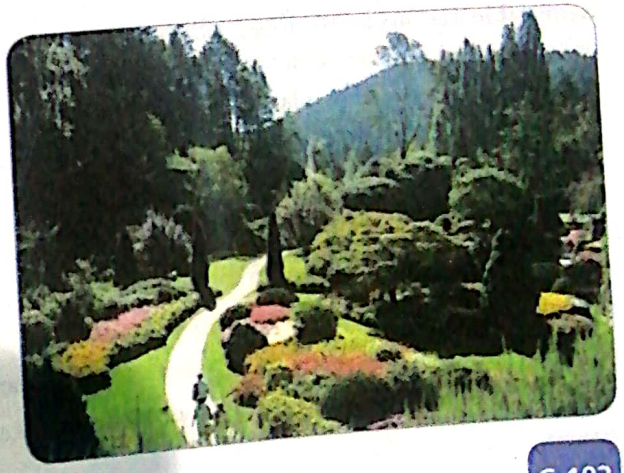
- **Potential resources:** Potential resources are those which exist in a region and may be used in the future. Their quantity is not estimated and they are not in current use. This is because we may not have the required level of technology to use that resource. Uranium deposits found in Ladakh is an example of potential resource. Uranium can be used to develop nuclear energy and power.

Many mineral oil deposits exist in the world. These are considered as potential resources until they are drilled, brought out and put into use. When they are put into use, they are called actual resources. Similarly, 100 years ago, even wind was a potential resource, but today the energy of the wind has been harnessed.

b) Origin

According to the origin of the resource, it can be classified into two types—Biotic and Abiotic.

- **Biotic resources:** Biotic resources are those which are obtained from the biosphere like animals, birds, fish, forests, etc.



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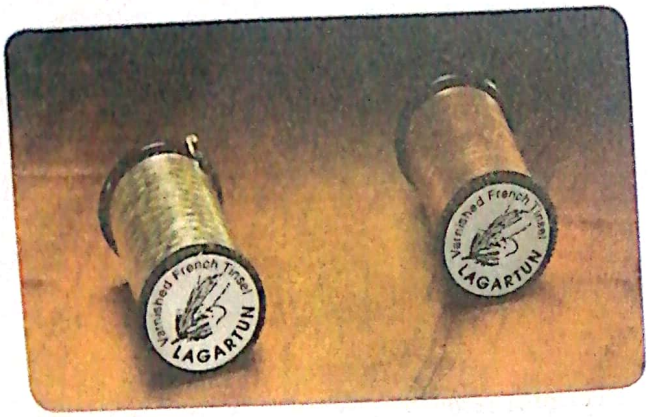

- **Abiotic resources:** Abiotic resources are non-living things like water, air and minerals like silver, gold, copper, etc.

c) **Stock and distribution**

A cording to the distribution or location of resources, they can be classified into *ubiquitous or localised.*

- **Ubiquitous Resources:** Some natural resources can be found everywhere. These are known as Ubiquitous resources like the air that we breathe.
- **Localised Resources:** Some natural resources are not found everywhere but are restricted to a particular area. These are known as localised resources. For example, minerals like copper, iron ore and coal are found only in certain areas. Since the localised resources depend on many factors including terrain, climatic conditions, altitude, etc., they are unevenly distributed along the Earth's surface.

Natural resources can also be broadly classified as **Renewable** and **Non-renewable resources.**

Renewable resources are those which are renewed or replenished quickly. Some examples of renewable resources are air, water, plants, trees, solar energy, etc. Renewable resources are also of two types—

Exhaustible and Inexhaustible resources. Some resources are continuously available and their quantity is not affected by human consumption. These are known as Inexhaustible Resources like air and solar energy. No matter how much we use them, they will never finish. On the other hand, there are some renewable sources which can be depleted completely. For example, wildlife is a natural renewable resource. We call it renewable as animals can sustain themselves through reproduction. However, certain species of animals may become completely extinct due to excessive human interference. These are known as Exhaustible Resources.

Non-renewable resources are those which have a limited stock or availability. For the same reason, they are also known as 'stock resources'. Once the stock gets exhausted, it may take thousands of years to be replenished. This means that the time taken by these resources to get replenished is much more than the human life span. This is because their rate of formation is very slow. For example, fossil fuels are non-renewable resources. Coal, oil, and natural gas are fossil fuels. Fossil fuels come from plants and animals that died and were buried millions of years ago. Once these resources are exhausted, we will certainly not see them in our lifetime or that of the next generation.

Windmills generating electricity

Quick Facts

The different types of natural resources known to man are:

- Geological resources: These include resources like minerals, oils, gas, rocks, etc.

- Hydro-geological resources: These include all the underground water, surface water (sea, river, stream, ponds) and ice.
- Atmospheric resources: These include air, rainfall and sunlight.
- Edaphic resources: These include different types of soils and the vast biological wealth stored in them.
- Forest resources: These include all types of forests and other naturally grown plant sources.
- Crop resources: These include all cultivated crops and their uses.
- Marine and aquatic resources: These include plants, animals and mineral resources in marine and other aquatic ecosystem of world.
- Animal resources: These include vast animal resource comprising of all domesticated animals.
- Wildlife resources: These include all types of wild animals.
- Human resources: This is the human population.
- Microbial resources: These include different types of microbes, which are useful to mankind in many ways.

Activity-2

Sort them out!

Classify the following under the three respective categories of natural resources:

Air, iron, sand, petroleum, wind, coal, fish, forest, gold, pearls.

Biotic	Renewable	Non-renewable

- **Human-made Resources**

As the name suggests, when naturally available raw material is used by humans to create a new resource for their own use, it is known as a human-made resource. For example, people can mix iron with coal and limestone to produce steel. Steel is one of the most important resources used in construction of buildings, bridges and other infrastructure. Trees are used to make paper and wood is used for construction and furniture, therefore, while a tree is a natural resource, paper is a human-made resource.

- **Human Resources**

Human Resources refer to the number (quantity) and ability (mental and physical) of people. In fact, human beings are a very special resource because they

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have the ability to tap the natural resources to create more resources. For this, people require knowledge, skill and technology. The combination of these three enables the person to discover other resources. For example, water is a natural resource which was earlier used mainly for drinking. Today water is tapped by hydroelectric stations to produce electricity. Without the development of knowledge and technology, water could not have been used for such a purpose. Through education and training, people's skills can be enhanced. This leads to development of more and more resources. Human resource development is the process by which the quality of people's skill is enhanced so that they can apply their knowledge and ability to develop other resources.

Activity-3

Supporting each other!

Humans are all inter-dependant on each other. Surgeons perform complex operations but to do so they require very fine tools and technology. These surgeons do not prepare the surgical instruments themselves. Engineers design it for them. Think about three similar examples which prove that we are all dependant on each other.

1. _____

2. _____

3. _____

Conservation of resources

Ram and his colleagues used to live in the same vicinity. They all travelled to their office in individual cars everyday at almost the same time. One day someone gave them the idea of pooling. They decided to try it out by going together in one car every day. Each member would use his/her car on one day of the week. This way, they were able to save not only their own money for fuel but also save our most important natural resource – oil.

Since the early days human beings have been using natural resources available on the planet. Today, it is estimated that about 7.2 billion people are living in the world. However, the resources of the Earth have remained the same since the beginning. Due to the current population growth and individual consumption, the 'pressure' on our planet has doubled in just 45 years. As our needs grew, we have continued to exploit the natural resources. As a result, the resources have started getting exhausted. What seemed to be unlimited before, has become limited and is depleting faster than we imagined. We are already running out on the fossil fuels. In fact, we are consuming it at far greater speed than the Earth can replace naturally. Some resources like air are surplus but we have polluted it so much that issues like **global warming** has already started to take its toll. Modern industries, factories, cities and towns have replaced the natural habitats of plants and animals. Therefore, conservation of natural resources should be a top priority for all mankind if we wish to see a brighter tomorrow for ourselves and future generations.

As the human population continues to grow, it is becoming increasingly important for us to recognise that some of its natural resources are limited. There is a famous saying from Margaret Mead, an American cultural anthropologist, 'Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.'

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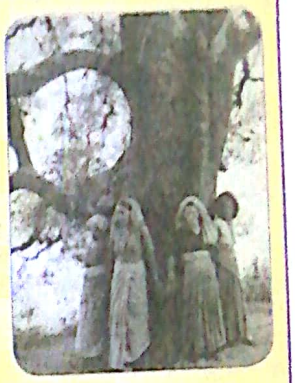
The proper management of natural resources to prevent their exploitation and destruction as well as giving them time to renew is called 'Resource Conservation'. Balancing the need to use resources and also conserving them for the future is called 'Sustainable Development'. There are many ways in which we can conserve resources. They are:

- Reducing or limiting the consumption of resources.
- Recycling available resources.
- Taking steps to save non-renewable resources.
- Making use of more non-conventional sources of energy like solar energy (radiant light and heat from the sun), biogas (gas produced by the breakdown of organic matter), geothermal energy (the heat from the Earth), etc.

Quick Facts



The word chipko means 'to hug' or 'to embrace' in hindi. The modern Chipko Movement started in the early 1970s in the Garhwal Himalayas of Uttarakhand. This movement was started by Sunderlal Bahuguna.

Do you know that a similar movement was also started around 260 years back? In Rajasthan, a large community of people laid down their lives in order to protect the trees from being felled on the orders of the *Maharaja* (King) of Jodhpur. After this incident, the *maharaja* passed a royal decree preventing the cutting of trees in all Bishnoi villages.

Activity-4

Save the resources — Save Earth!

Listed below are the names of some common but important resources. Find out how man has been misusing these resources and what you can do to save them.

Resource	How do we use this resource?	Can we live without this resource?	How to save this resource?
Water	For drinking, cleaning, cooking	No	– Avoid wasting water while taking a bath. – The water in which vegetables have been washed can be used to water plants. – While brushing teeth, make sure that the tap is not on. – Use a washing machine which consumes less water as compared to other machines. – Check for water leakages in your homes at regular intervals.

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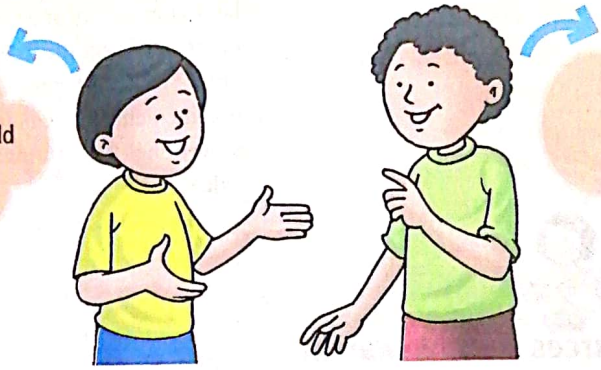
Trees			
Fossil fuels like coal and petroleum			
Air			

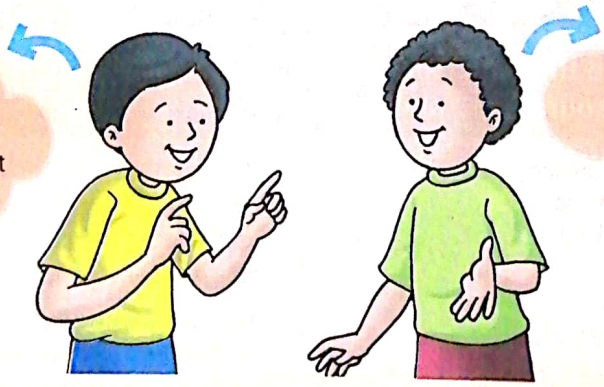
Activity-5

Right and wrong!

Raju and Ravi are two friends. Both have different opinions on certain matters. Considering the necessity of sustainable development give your opinion in the given space.



Who is right and why? _____



Who is right and why: _____

Summary

- A 'resource' is anything that c
- An item becomes a resource v
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- The resources can be of three
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- The actual resources are tho are currently being used.
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- Non-renewable resources it may take thousands of example, fossil fuels.
- Human resources refer to
- Human resource develop can apply their knowledg
- The proper management them time to be renewec
- Balancing the need to use

Exercises

1. Choose the co

(a) Which of these is a na
(i) Air

(b) Which of these has a
(i) Animals

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Summary

- A 'resource' is anything that can be used to fulfill a need.
- An item becomes a resource when it has some utility.
- The use or utility of a thing, gives it a value.
- The resources can be of three types — Natural resources, Human-made resources and Human resources.
- Natural resources are those resources which occur naturally in the environment and can be used without much modification. For example, the water in the rivers, the air that we breathe, etc.
- The actual resources are those, which have been surveyed and the quantity determined and these resources are currently being used.
- Potential resources are those resources which exist in a region and may be used in the future. Their quantity is not estimated and they are not in current use. This is because we may not have the required level of technology to use that resource.
- Biotic resources are those resources which are obtained from the biosphere. For example, animals, birds
- Abiotic resources are non living things. For example, water, air, minerals like silver, gold, copper, etc.
- Some natural resources can be found everywhere. These are known as ubiquitous resources. For example, air that we breathe.
- Some natural resources are not found everywhere but are restricted to an area. These are known as localised resources. For example, minerals like copper are found in certain areas.
- Renewable resources are those which are renewed or replenished quickly. For example, air, solar energy.
- Non-renewable resources are those which have a limited stock or availability. Once the stock is exhausted, it may take thousands of years to be replenished. This is because their rate of formation is very slow. For example, fossil fuels.
- Human resources refer to the number (quantity) and ability (mental and physical) of people.
- Human resource development is the process by which the quality of people's skill is enhanced so that they can apply their knowledge and ability to develop other resources.
- The proper management of a natural resource to prevent its exploitation and destruction as well as giving them time to be renewed is called 'Resource Conservation'.
- Balancing the need to use resources and also conserving them for the future is called 'Sustainable Development'.

Exercises

1. Choose the correct option.

(a) Which of these is a natural resource?
(i) Air (ii) Solar energy (iii) Wildlife (iv) All of the above

(b) Which of these has a biotic origin?
(i) Animals (ii) Air (iii) Water (iv) All of the above

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(c) Which of these is a renewable resource?
(i) Solar energy (ii) Coal (iii) Oil (iv) Natural gas

(d) Which of these is a human resource?
(i) Air (ii) Water (iii) Engineer (iv) Natural gas

(e) Some natural resources can be found everywhere. These are known as
(i) Actual resources (ii) Potential resources
(iii) Renewable resources (iv) Ubiquitous resources

(f) Fossil fuels are obtained from
(i) Water on Earth (ii) Dead plants and animals
(iii) Solar energy (iv) Wave energy

(g) Which of these is a non renewable resource?
(i) Air (ii) Water (iii) Coal (iv) All of the above

(h) Which of these is a part of sustainable development?
(i) Recycling (ii) Reducing wastage of resources
(iii) Using renewable resources more (iv) All of the above

(i) India has the world's largest deposits of coal which is found in
(i) Bihar (ii) West Bengal (iii) Tamil Nadu (iv) All of the above

2. Fill in the blanks.

(a) Some natural resources which are not found everywhere but are restricted to an area are known as _____. (localised resources/ubiquitous resources)

(b) Air is a _____ resource. (renewable/non renewable)

(c) Natural gas is derived from_____. (fossil fuel/air)

(d) India has the world's largest deposits of coal which is found in Bihar, West Bengal and _____ (Uttar Pradesh/Tamil Nadu)

(e) _____deposits have been found in Ladakh which is a potential resource. (Coal/Uranium)

(f) The Chipko movement was started to protest against_____. (deforestation/use of fossil fuels)

3. Match the columns.

Column A	Column B
(a) Solar energy	(i) Recycling
(b) Fossil fuels	(ii) In use
(c) Plants	(iii) Abiotic
(d) Sustainable development	(iv) Renewable
(e) Gold	(v) Biotic origin
(f) Actual resources	(vi) Non renewable

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4. Differentiate between the following.

(a) Actual resources and Potential resources
(b) Renewable resources and Non-renewable resources
(c) Biotic resources and Abiotic resources
(d) Localised resources and Ubiquitous resources
(e) Natural resources and Human made resources

5. Put a (✓) mark if the statement is correct and (✗) if incorrect.

(a) Natural resources which can be found everywhere are known as Ubiquitous resources. ( )
(b) Solar energy can be exhausted. ( )
(c) Air is an example of non renewable resource. ( )
(d) The white tiger belongs to the biotic category of resources. ( )
(e) Fossil fuels take thousands of years to form. ( )

6. Identify the pictures given below and answer the questions.

(i) Which natural resource is shown in this picture?

_____

(ii) Why and how are these resources being exploited?

_____

(i) Which resource is being misused in the picture?

_____

(ii) Is it a renewable resource or non-renewable resource?

_____

7. Group Discussion

Have a class meeting to list ideas to conserve natural resources. Have a group discussion and outline 'simple steps' which can be followed by each student in the class.

8. Project

- Identify ways through which natural resources can be conserved at school. Show these ways through a colourful chart.
- Write an advertisement or design a poster to encourage people to conserve natural resources. Display it at your school gate.
- Look at all the resources you consume and find ways to limit their usage. Make a list and share it with your friends and family.

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- Make a poster on any one of the following topics:
  - Save water
  - Save resources Save Earth
  - Save trees
  - Go green
  - Conserving Nature

Ask your teacher to select the best poster and display it on the school notice board.

9. HOTS

(a) Carpooling helps to significantly save fuel. What are some of the other ways which can help conserve natural resources and reduce pollution as well?

(b) Can renewable resouces get exhausted? Justify your answer.

10. Short answer questions.

(a) Define a resource.

(b) What do you understand by the terms-utility and value?

(c) Name the three different kinds of resources.

(d) Write a short note on natural resources.

(e) What is an actual resource? Give examples.

(f) Define a potential resource? Give examples.

(g) Describe a localised resource?

(h) What is a ubiquitous resource?

(i) Write a short note on renewable resources. Give two examples.

(j) Why fossil fuels are called non renewable resources?

(k) What is sustainable development?

(l) Define human resource development.

(m) Explain resource conservation.

(n) What are man-made resources? Give two examples.

(o) Explain exhaustible renewable resources.

11. Long answer questions.

(a) How are resources classified? Give suitable examples to support your answer.

(b) What is human resource? How are you a part of human resource?

(c) Write in detail about the various methods of conserving natural resources.

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