

SOCIAL SCIENCE II

Part 2

Standard X



**Government of Kerala
Department of General Education**

State Council of Educational Research and Training (SCERT), Kerala

2025

THE NATIONAL ANTHEM

Jana-gana-mana adhinayaka, jaya he
Bharatha-bhagya-vidhata
Punjab-Sindh-Gujarat-Maratha
Dravida-Utkala-Banga
Vindhya-Himachala-Yamuna-Ganga
Uchchala-Jaladhi-taranga
Tava subha name jage,
Tava subha asisa mage,
Gahe tava jaya gatha
Jana-gana-mangala-dayaka jaya he
Bharatha-bhagya-vidhata.
Jaya he, jaya he, jaya he,
Jaya jaya jaya, jaya he!

PLEDGE

India is my country. All Indians are my
brothers and sisters.

I love my country, and I am proud of its rich and varied heritage.
I shall always strive to be worthy of it.

I shall give respect to my parents, teachers, and all elders, and
treat everyone with courtesy.

To my country and my people, I pledge my devotion. In their
well-being and prosperity alone lies my happiness.

SOCIAL SCIENCE II

10

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Dear Students,

The life habitat of living organisms on the Earth develops in accordance with geographical features such as physiography and climate. It has been revealed through studies that small changes in the ecological balance of the environment can adversely affect the existence of the ecosystem. In the present time, as several natural disasters occur frequently, any further changes in relief and climate could worsen the situation even more. The social science textbook presented to students who are now in 10th standard discusses such topics.

Besides this, the topics in economics essential for the people to live in our society are also included in this textbook.

You will be a part of building the society of tomorrow by discussing these topics with great enthusiasm and caution.

Wishing you the success

DR. JAYAPRAKASH R.K.

Director

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**Some symbols are used in this book
for ease of study**



**For additional reading - not for
assessment**



Learning activity



Assessment Questions



Extended Activities

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a ¹**[SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC]** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

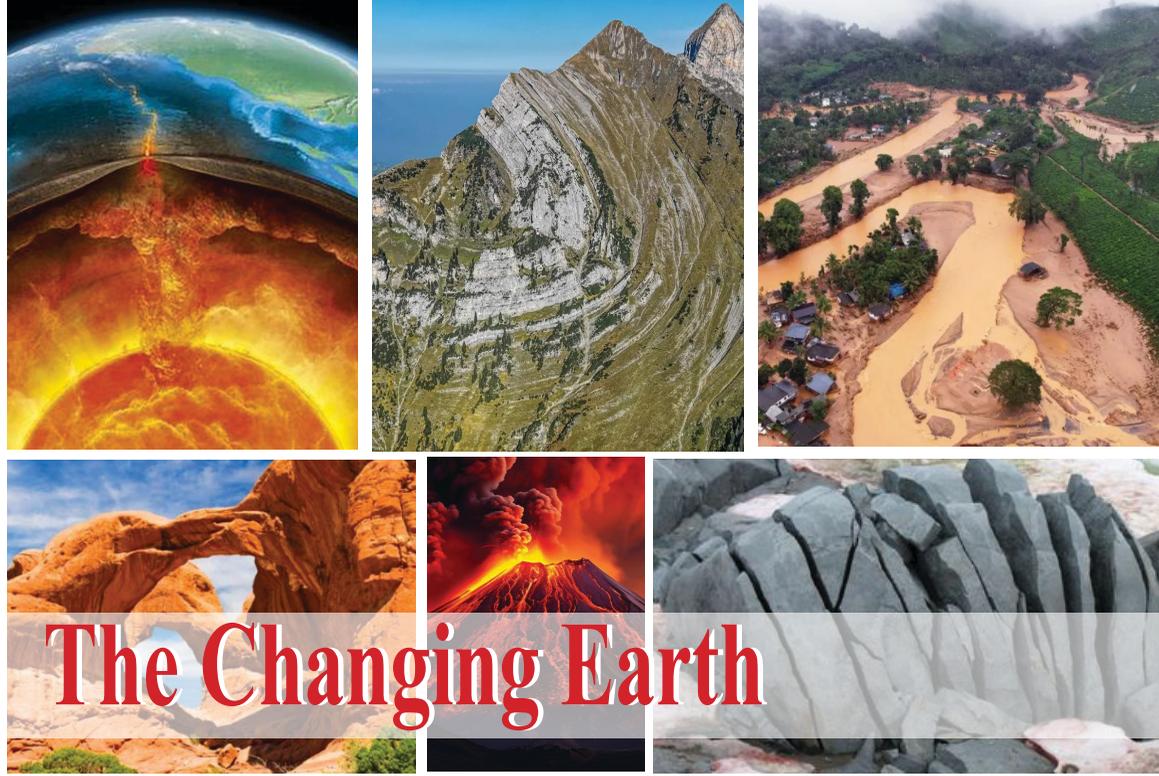
EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the ²[unity and integrity of the Nation];

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949 do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

1. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Unity of the Nation" (w.e.f. 3.1.1977)

6



The Changing Earth

That night was more scary than mere words can describe. We were jolted awake by a horrible sound. It was around 3 o'clock. Heavy rain was pouring outside. What we realized was that a strong landslide had occurred somewhere nearby. Our only thought was to run as away as possible to save our lives at any cost. When we rushed out of the house, we were petrified with fear. The ear-splitting crash of rocks smashing against one other as they tumbled downhill. Screams of people echoing all around. We fled through the woods behind our house, scrambling uphill as far and as high as we could. After a while, the noise subsided. So, we can returned home. Fortunately, the landslide had not occurred at the place where our house was located. Our next thought was whether those who lived in our neighbourhood had also escaped. We shouted their names one by one. Soon, we saw a group of people, including children, running toward us. They were the ones who lived a few metres below the hillside where our house was. Their bodies were covered in mud, and they were all shivering with fear. Just then, with a deafening sound, the second debris flow broke out. We didn't care about anything else, we just left the house and ran uphill to safety.

What you have just read is the experience shared by a survivor of the devastating debris flow that occurred at various places near Meppadi in Wayanad District in the early morning of 30th July 2024. It has been etched into the history of Kerala as an unparalleled catastrophe.

Haven't you realized how disastrous geographic phenomena like debris flows can be?

Are all geographical phenomena disastrous? How do such disastrous geographical phenomena occur? Can we predict them in advance? When do these geographical phenomena become disasters? What precautions can we adopt to prevent them? This chapter seeks to answer these questions.



Hazards and Disasters

Before we begin learning about the activities related to disaster management, we need to become acquainted with some key terms. These include hazard, disaster, risk, vulnerability, and capacity. A **hazard** is generally referred to as a situation that poses a threat to life, health, property, services, socio-economic stability, or the environment.

A disaster can be defined as a serious disruption in the functioning of a community or society that causes widespread material, economic, social, or environmental losses, and exceeds the ability of the affected society to cope using its own resources. A **hazard** is a physical event that has the potential to trigger a disaster; however, such a physical event itself need not necessarily result in a disaster. For example, an earthquake in an uninhabited desert cannot be considered a disaster, no matter how strong its intensity is. Hazards may be either man-made or naturally occurring. If a community is incapable of coping with a hazard effectively, it can escalate into a disaster.

Risk is the measure of expected losses caused by a hazard event occurring in a specific area over a given time period. In the context of disasters, **vulnerability** can be defined as the extent to which a community, structure, service, or geographic area is likely to be damaged or disrupted by the impact of a particular hazard. **Capacity** refers to the resources, means, and strengths within a community that enable it to cope with, withstand, prepare for, prevent, mitigate, or quickly recover from a disaster.

Many geographical phenomena and natural disasters occur in connection with Earth movements. Do you know what the Earth movements are?

Let's delve into the secrets of Earth movements.

Is the surface of the Earth where we live as flat as a plain? Have you ever wondered why the Earth's surface has so many ups and downs?

The Earth's surface is constantly subjected to many changes. For millions of years, numerous movements and resulting processes have been occurring on the surface as well as within the Earth. Each and every landform on the Earth's surface is formed as a result of these movements and processes. Mountains, plateaus, valleys, rivers, and so on were all created due to these continuously occurring Earth movements and processes.

The movements that cause the ups and downs on the surface of the Earth are called the Earth movements.

The Earth movements can be categorized into two types based on the forces that cause them.

Observe the diagram given below and identify the two types of Earth Movements and the forces that cause them.

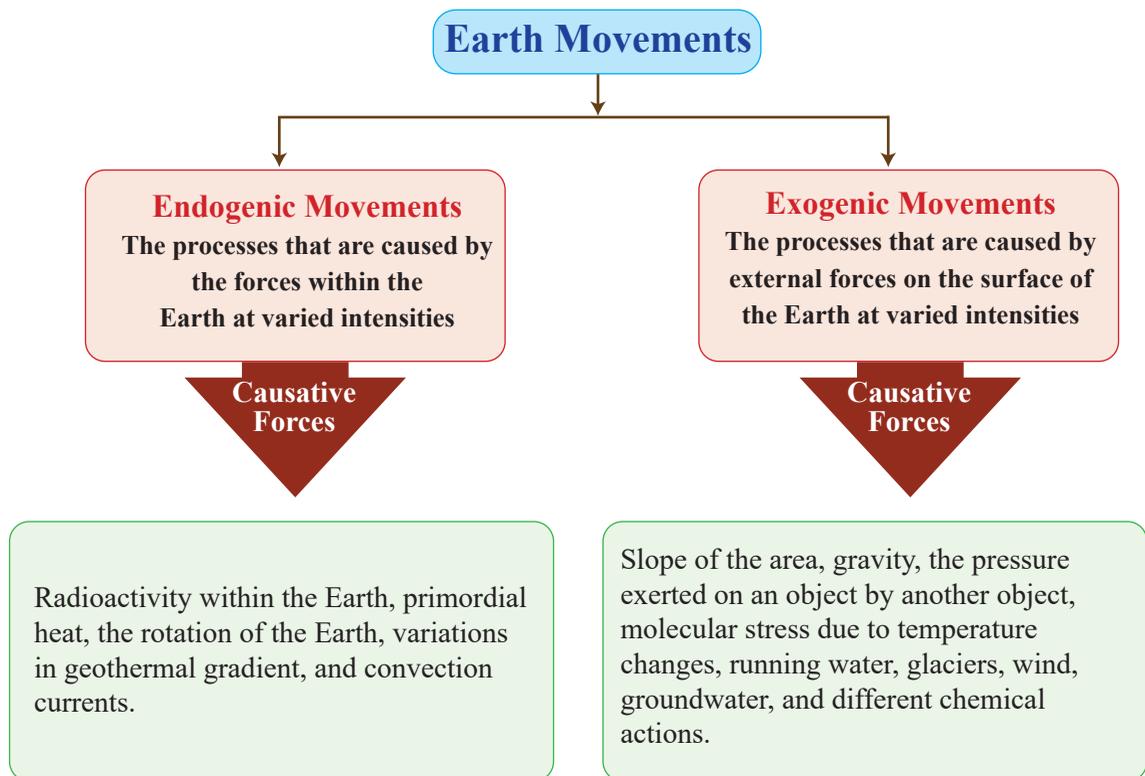
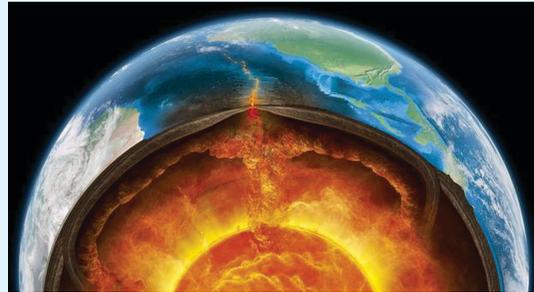


Fig 6.1



Convection Currents

We know that inside the Earth, heat increases with depth. The presence of radioactive elements causes temperature variations in the mantle. Due to this thermal variation, magma in the mantle gets heated and moves upward toward the crust. As it nears the crust, it cools and sinks back down. The magma then heats up again and rises toward the crust. This continuous cyclic movement of magma in the mantle, driven by thermal variations, is called convection current. Boil some water in a beaker and place small pieces of paper in it. By observing the movement of the paper pieces, we can understand that the layer of water at the bottom of the beaker gets heated up and rises. As it reaches the surface, it cools and sinks back down. This simple experiment helps us understand how the magma in the Earth's mantle moves in a similar cyclic manner due to thermal variations.



Convection Currents

Haven't you identified the differences between the endogenic and the exogenic movements? Now observe the pictures given below.



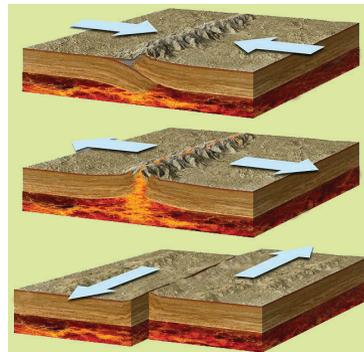
Identify the geographical phenomenon to which each picture relates, and write them in the appropriate boxes.



.....



.....



.....

Fig 6.2

Earthquakes, volcanism, orogenic movements, epeirogenic movements, and plate tectonics are the result of endogenic movements. We can classify them into slow movements (also called diastrophic movements) and sudden movements.

Observe the flow chart given below and identify the classification of endogenic movements.

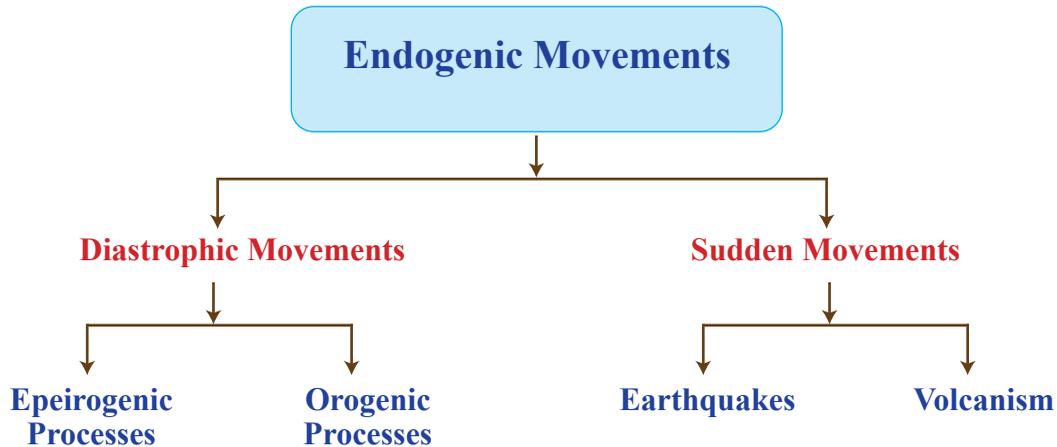
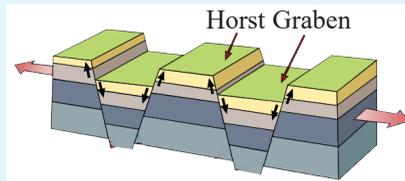


Fig 6.3

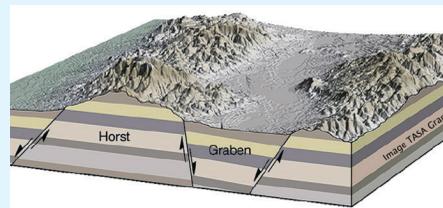
Now let's understand what diastrophic movements are.

The endogenic processes that move, elevate, or build up portions of the Earth's crust come under diastrophism. The endogenic movements that move, elevate, or build up portions of the Earth's crust are collectively known as diastrophic movements. The processes that cause the upliftment of a large portion of the Earth's crust are called epeirogenic movements. These movements cause only minimal deformation on the Earth's surface, whereas in orogenic movements, the Earth's surface is severely deformed. The processes that cause the formation of mountains are called orogenic movements. We know that fold mountains are formed through the folding of crustal portions. Don't you remember the formation of the Himalaya mountains that you have learnt in the lower classes?

Horst and Graben



The uplifted block of the Earth's crust formed due to faulting is called a horst (block mountain). The corresponding down-dropped block of the Earth's crust is called a graben.



- List out the differences between epeirogenic movements and orogenic movements.



- With the help of Information Technology, identify the major fold mountains of the world and mark them on an outline map of the world. Include the map in My Own Atlas.

Now let's discuss the sudden movements.

Identify the sudden movements with the help of the flow chart (Fig. 6.3).

- Volcanism
-

Haven't you realised that endogenic forces caused sudden movements like volcanic eruptions and earthquakes? These events often turn disastrous, leaving a trail of widespread devastation on the surface of the earth.

Observe the pictures given below.



Fig 6.4

Haven't you seen how volcanic eruptions turn into disasters?

What is meant by volcanic activity or volcanism? What precautions can we take to prevent them from turning into disasters? How can we mitigate the disasters caused by them?

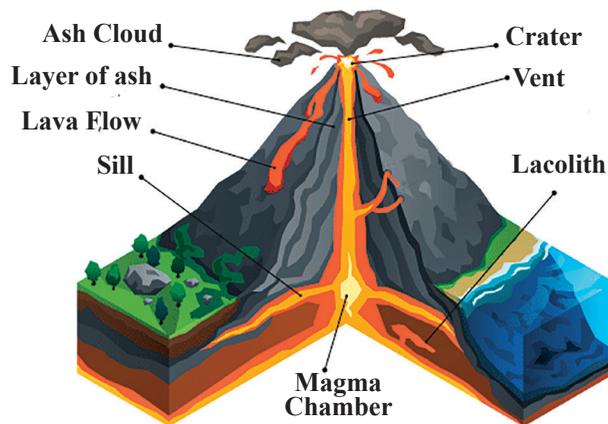
You already know what the lithosphere is. The outermost layer of the Earth, called the crust, along with the uppermost portion of the mantle, together form the lithosphere with an average thickness of 100 kilometres. You have also studied in lower classes about a zone lying just below the solid lithosphere called the asthenosphere, where rocks exist in a partially molten (semi-liquid) state. It is from this zone that molten rock material, called magma, rises to the surface of the Earth through holes, cracks, and weaker portions of the lithosphere. It is from this zone that molten rock material, called magma, rises to the surface of the Earth through holes, cracks, and weaker portions of the lithosphere. The openings in the lithosphere through which molten rock material, gases,

ash, pyroclastic materials (rock fragments), dust, and water vapour erupt to the surface of the Earth are called volcanoes. The materials that erupt in this way are known as **volcanic materials**.

The molten rock material present in the upper mantle is called **magma**. Once it starts moving towards the crust or reaches the surface, it is referred to as **lava**.



Observe the diagram (Fig 6.5) given below and identify the structure of a volcano. Prepare a note describing its structure and present it in the classroom. Make a model of a volcano.



Structure of a volcano
Fig 6.5



Volcanism

Volcanism is the process that includes the formation of magma, the movement of magma and other pyroclastic materials toward the surface, their eruption through holes and cracks in the lithosphere, explosions caused by the eruption, lava flow, solidification of magma, the formation of various igneous landforms, and all other associated processes. Volcanoes are landforms created on the Earth's surface by molten rock material that reaches the surface. They differ in size and shape. Based on the nature of eruption and the formations created on the Earth's surface, volcanoes are classified as shield volcanoes, composite volcanoes, and calderas. Vast basalt flood plains are also formed when lava floods over an extensive area. The Deccan Province in India is an example of this type. There are thousands of volcanoes found both on land and on the floor of the oceans.



Collect pictures of different types of volcanoes and create a digital album. Write the name of each volcano, and the country it is situated in.

The world map given below shows the distribution of volcanoes. Observe the map.

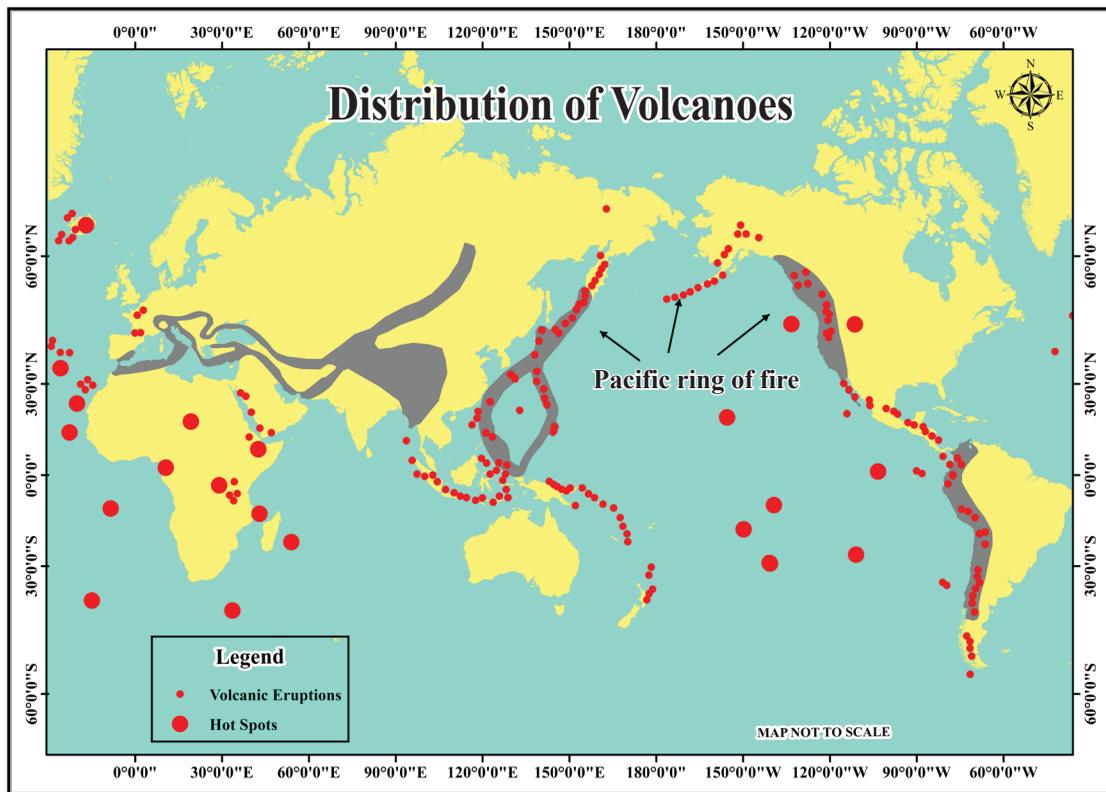


Fig 6.6

You have studied in lower classes that the Earth's lithosphere consists of seven major plates and several minor plates, as explained by theory of Plate Tectonics.



With the help of Information Technology, download a world map showing the plate margins. Mark these plate margins on the world map that shows the distribution of volcanoes.

You may have now realized that the major volcanic zones are mainly located along plate margins.



- Repeat the same activity on an outline map of the world and include it in My Own Atlas.
- The major volcanic zones are mainly located along major plate margins. Why is this so? Hold a discussion in the classroom.

Volcanoes and Human life

Let's discuss how volcanic activities affect human life.

Volcanic explosions near human settlements cause loss of lives and destruct properties. They disrupt economic activities and severely affect human life. The lava flow following a volcanic eruption adversely impacts both nature and human settlements. By destroying houses and land, it leaves many people homeless and jobless.



- Find out and write down what other impacts volcanic eruptions have on human life.
- With the help of Information Technology, collect news related to volcanic eruptions in the recent years, prepare a collage, and display it in the classroom.



Which is the only active volcano in India?

We know that volcanic eruptions cause immeasurable damage. Around 36,000 people lost their lives due to the Krakatoa volcanic eruption in 1883. Most of Krakatoa Island, located between Java and Sumatra in Indonesia, collapsed into the sea after the eruption.

If we examine the history of disasters caused by volcanic eruptions, we can find many examples of varying magnitudes. How can we foresee such geographic phenomena in advance and reduce the intensity of these disasters?

We can't prevent the eruption of volcanoes. However the intensity of it can be reduced by using scientific methods in identifying such areas and by taking precautionary measures. By avoiding the construction of houses in areas close to volcanoes, restricting tourism in such areas, continuously monitoring volcanic regions using scientific instruments and issuing early warnings, and constructing buildings capable of withstanding lava flow and ash fall after an eruption, the disasters caused by volcanic explosions can be mitigated to some extent.



Mount Vesuvius

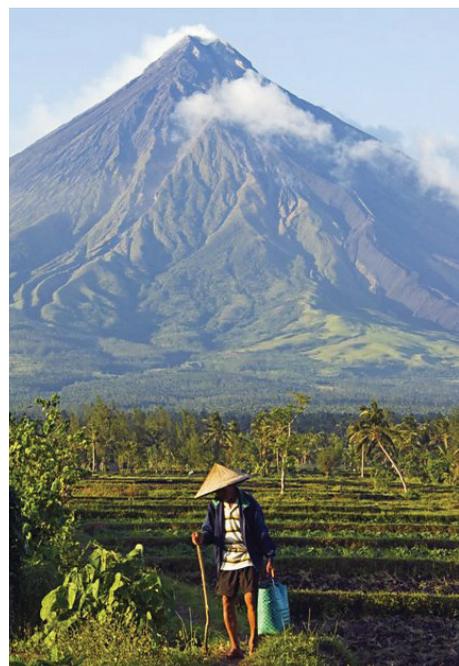


Krakatoa



Mount Saint Helens

Fig 6.7



Agricultural land located
in a lava province
Fig 6.8

Lava, ejected out from a volcano flow like a river and burns everything in its path and leaves behind a black layer, covering all the areas it passes through. Still people prefer to live in volcanic regions even though volcanoes are dangerous. Do you know why? The ash from volcanoes and the soil formed by the disintegration of rocks created from solidified lava are very fertile. Such places are suitable for agriculture and hence attract people to settle there.



There is an extensive area in India where soil has been formed from the disintegration of lava rocks. Which is that region?

Let's have a glance at other ways in which volcanic activities are useful to humankind.

- The geothermal energy released from volcanic regions is converted into electricity in certain areas and utilized for local purposes.
- Lava is rich in minerals, and many valuable minerals reach the surface of the Earth through the flow of lava.
- Volcanic regions often attract a large number of tourists also.

You know that earthquakes are also sudden movements like volcanism. Observe the collage given below.



Have you realized how devastating earthquakes can be on the Earth's surface? What exactly are earthquakes, and how do they occur? Let's discuss.

Don't you remember that you learned in your lower classes that the outermost layer of the Earth, called the lithosphere, consists of many tectonic plates? You also know that these lithospheric plates slide over the asthenosphere, that lies just below the lithosphere.



Why do lithospheric plates slide over the asthenosphere?

The reason for earthquakes is the friction between lithospheric plates. When two lithospheric plates move past each other, friction is generated along their margins. This friction in a way restricts the movement of the plates, causing high tension to build up along the margins. As a result, energy gets concentrated in these areas. When the pressure of the plates to move overcomes the friction at the plate boundaries, a sudden movement or rupture occurs at the plate boundaries. This causes energy to be released abruptly. This energy travels to the surface as seismic waves, which are experienced as earthquakes.

Earthquake waves



Three types of waves are generated from the focus of an earthquake: primary waves, secondary waves, and surface waves. Among these, surface waves are the most destructive.

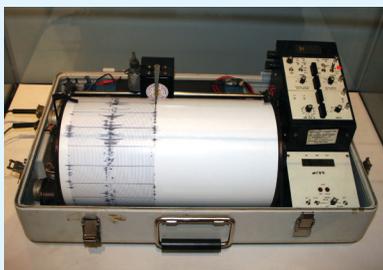
Such types of earthquakes are called tectonic earthquakes. The point inside the Earth from which the energy is released is called the focus or hypocentre. The point on the Earth's surface directly above the focus is called the epicentre. The epicentre is closest to the hypocentre, and it is this point that seismic waves reach first.

Analyse the diagram given below and identify the locations of the epicentre and the hypocentre (Focus).



Do you know?

The scale devised by Charles F. Richter in 1935 to measure an earthquake's magnitude is called the Richter scale. The instrument that records earthquake waves is known as a seismograph. By measuring the amplitude of the recorded seismic waves, the magnitude of an earthquake can be determined. Small, local tremors are usually measured using the Richter scale, while large earthquakes are recorded using a more precise measurement known as the Moment Magnitude Scale. Following an earthquake, seismic waves radiate in all directions from the focus. However, at certain distances from the focus, there are places where these waves are not recorded. Such areas are called the shadow zones of an earthquake.



Seismographs

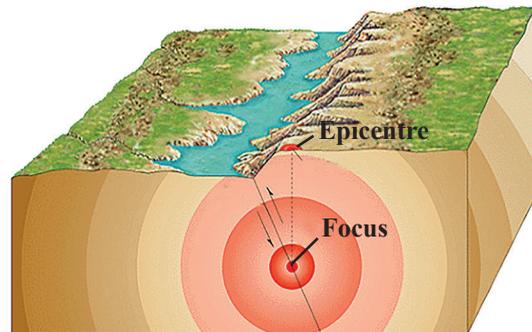


Fig 6.9

Earthquakes occur not only because of tectonic movements but also due to volcanic eruptions, the collapse of mine roofs in intensive mining areas, and explosions. In places where large reservoirs are situated, minor tremors are often caused by faults in the bedrock due to the pressure exerted by the water on the bedrock.

Minor tremors often occur in the Idukki District. Find out whether they are of this type.



The Himalayan regions are highly vulnerable or susceptible to earthquakes. Why?

The map given below shows the distribution of the major tectonic earthquake regions. Analyse the map and identify the major seismic regions of the world.

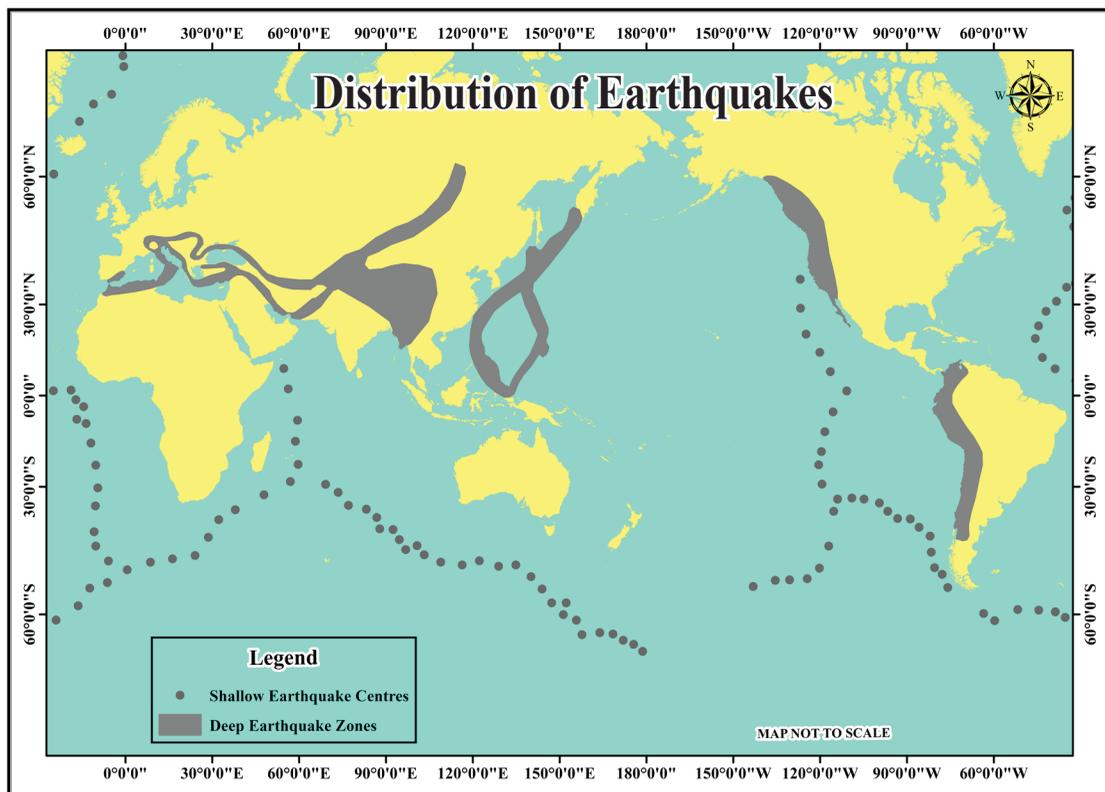


Fig 6.10



On the earlier map prepared by you to show the distribution of volcanoes, mark the major seismic regions using a different colour.

Haven't you noticed that the major seismic regions of the world and most of the volcanoes are found along the plate margins?

An earthquake occurred in Turkey and in adjoining areas on 6th February 2023. Given below are the headlines related to it.

- 👉 The earthquake that struck Turkey created havoc in the southeastern part of the country and killed thousands of people.
- 👉 The earthquake, which measured 7.8 on the Richter scale, destroyed hundreds of buildings.

-  The transportation and communication systems were shattered, and water distribution failed.
-  The food supply was disrupted, and the shortage of medicines was severe.
-  Rescue operations made difficult by landslides and fires.



Examine the news headlines and list the possible disasters caused by earthquake.

It is next to impossible to predict earthquakes very accurately or to completely prevent the subsequent disasters. However, we can mitigate the intensity of disasters caused by earthquakes by adopting precise preventive measures and by raising awareness.



Visit the official website of the National Disaster Management Authority and complete the following activities.

- Analyse the map of India showing the major seismic zones and mark them on an outline map of India.
- Examine the information given on the website and prepare a chart titled 'How to Face an Earthquake' as shown below. Display it in the classroom.

How to Face a Earthquake

Before the disaster	During the disaster	After the disaster



- Prepare a list of items to be included in an emergency kit and display it in the classroom.
- Visit the Kids Corner on the Kerala Disaster Management Authority's website and play the game titled 'Know the Earthquake' with your friends. Share the information you gain from the game in the classroom.

The gigantic waves that rushed violently to the shores on 26th December 2004 devastated coastal areas within seconds, leaving around two lakh thirty thousand people dead and hundreds of thousands homeless. Many children were orphaned. This disaster, caused by these waves, affected around fourteen countries. Indonesia was the worst affected. In Indonesia alone, more than one and a half lakh people lost their lives in this catastrophe. Countries like Sri Lanka, India, and Thailand were also severely affected. Haven't you heard of the gigantic and destructive waves called tsunamis? The tsunami struck the coast of our state, Kerala too. How are tsunamis formed? How can we deal with disaster?



Tsunami
Fig 6.11

Severe earthquakes that occur on the ocean floor cause giant waves, which can rise up to several metres. These giant waves are called tsunamis. The impact of volcanic eruptions on the ocean floor and the fall of meteors can also cause tsunamis. It is the coastal areas that mainly bear the brunt of tsunamis.

What can we do to safeguard ourselves from tsunamis?

- If the sea level suddenly goes down by several metres, consider it a tsunami warning. Run away from the shore immediately and move to higher ground.
- If you are caught in a tsunami, try to save yourself by holding onto something that can float.
-



Do You Know?

A strong earthquake with a magnitude of 9.1 occurred in the Indian Ocean, southwest of Aceh Province in Sumatra, on 26 December 2004. It triggered a tsunami that caused widespread devastation along many coasts, including the coast of Kerala.



Visit the official websites of the National Disaster Management Authority (NDMA) and the Kerala State Disaster Management Authority (KSDMA). Collect additional information about tsunami disaster management measures, prepare a poster, and display it in your classroom.



Tsunami warning systems are widely used today with the help of modern technologies. The National Oceanic and Atmospheric Administration (NOAA), using satellite communication systems, has installed Deep-ocean Assessment and Reporting of Tsunamis (DART) stations at many locations to detect and monitor tsunami activity.

We have discussed various endogenic movements and the disasters they cause. Now, let's examine the exogenic movements and the changes they bring to the surface of the Earth.



Observe the diagram (Fig 6.1) and list the driving or causative forces of exogenic movements (Exogenic forces).

- Slope formed on the Earth's surface
- Gravity
-

Haven't you not recognized the exogenic forces? These forces are responsible for various processes that operate on the surface of the Earth, such as weathering, erosion, transportation, deposition, and mass wasting. These processes are collectively known as exogenic movements. Each exogenic process derives its energy from different external forces, which are called the driving forces of exogenic movements. The nature and rate of these movements vary according to the climatic regions of the Earth.

Observe the flowchart (Fig 6.12) given below and identify the exogenic movements and their driving forces.

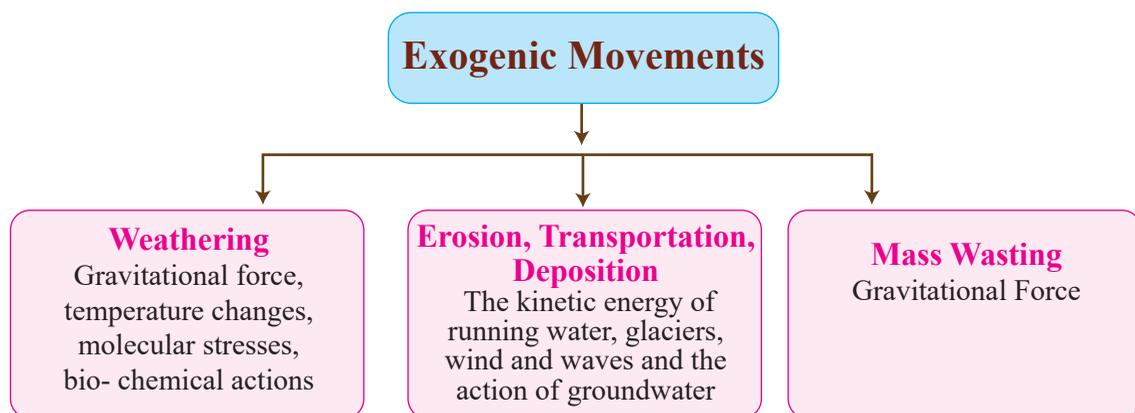


Fig 6.12

Weathering

We know that the Earth has different types of rocks, and that they have been subjected to various changes over a long period of time. Because of certain exogenous forces, rocks are mechanically disintegrated or chemically decomposed. The processes that bring about these chemical and mechanical changes in rocks are called weathering.

Examine the flowchart (Fig 6.13) given below and identify the different types of weathering.

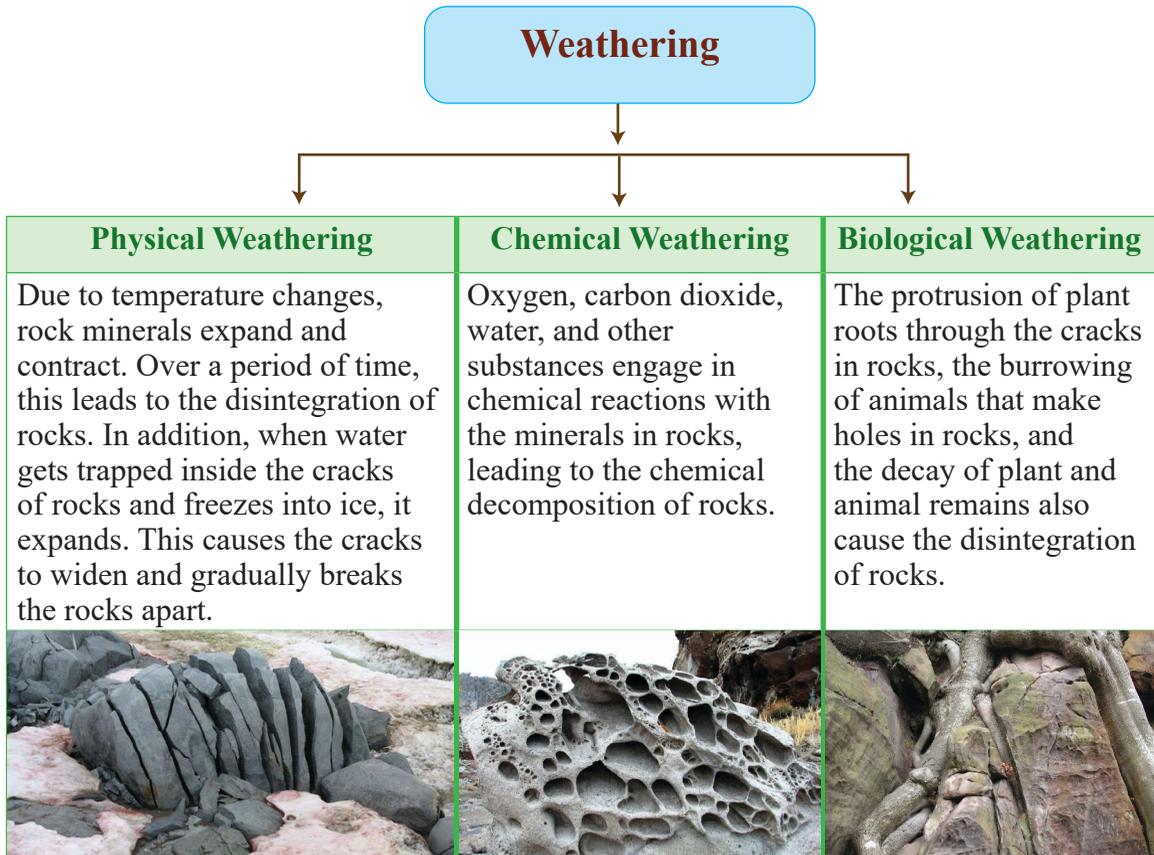


Fig 6.13



Do human activities cause weathering? List the human activities that contribute to the weathering of rocks.

- Mining
- Quarrying
-

Haven't we identified different types of weathering? Do humans get any benefits from the weathering of rocks?

How can weathering be useful to us? Let's take a look.

- Weathering leads to the formation of soil
- It helps to separate minerals from rocks
- It causes mineral enrichment
- It makes mining easier

Erosion, Transportation, Deposition

Do you remember that we learned in lower classes how rock fragments formed by weathering or other processes are moved from one place to another by running water, glaciers, wind, and waves? These movements create different depositional landforms on the Earth's surface.



Conduct a discussion in the classroom based on the questions given below.

- What are geomorphic agents?
- What is the process by which running water, glaciers, wind, and waves move rock fragments from one place to another?
- What is deposition?

Mass Wasting

In addition to weathering and erosion, another type of earth movement that occurs on the surface of the Earth due to exogenic forces is mass wasting. It refers to the movement or fall of rock fragments or earth materials down a slope under the direct influence of gravitational pull. It ranges from very slow movements to rapid movements. Mass wasting can vary from the sliding of a very thin layer of soil to the fall of large quantities of earth materials.



The rock side induced debris flow, locally called 'Urulpottel' that occurred on 30th July 2024, causing an unparalleled catastrophe in the district of Wayanad, is also a type of mass wasting.

Debris flow in Kerala

The state of Kerala, because of its geographical peculiarities, is prone to multiple hazards. The common natural hazards that occur in Kerala are sea incursion (flooding of seawater onto the land) along the coastal region in the west of the state, and landslides and debris flows in the Western Ghats in the east. The increase in population density, unscientific construction methods, and the overexploitation of natural resources turn natural hazards into major disasters. The uneven and heavy rainfall caused by climate change becomes a triggering factor for these disasters. In recent years, the rainy season has become synonymous with fear and disaster in Kerala. In this scenario, it is highly necessary to scientifically analyse the disasters that occur in Kerala, adopt precautionary measures, and make people aware of them. Let's take a closer look at the landslides and debris flow in Kerala.



What is Urulpottal? How do they occur?

You know that '*Urulpottal*' is a type of mass wasting. The phenomenon of the fall or movement of rocks or topsoil from higher to lower areas under the direct influence of gravity is called mass wasting. Landfalls, rockfalls, landslides, debris flows, and land subsidence are different types of mass wasting seen in our highlands. The sudden movement of rock debris and soil mixed with water down a steep slope under the direct influence of gravity is called a debris flow. The landslide refers to the downward sliding of a portion of a mountain slope under the force of gravity. In the hilly regions of Kerala, intense rainfall often triggers landslides or debris flows, which may occur either separately or in combination. This phenomenon is locally known as '*Urulpottal*' and can often be highly destructive.

The possible factors that can lead to '*Urulpottal*' in an area are the slope of the land, the depth and structure of the soil, land use, and the distribution of streams. Heavy rainfall, cloudbursts, and earthquakes are the main triggering factors for debris flow. In addition to these, unscientific rock quarrying during the monsoon season and the unscientific construction activities can also act as triggering factors. Areas with a slope of more than 22 degrees have a higher possibility of experiencing debris flow/landslide.



Visit the official website of the Kerala State Disaster Management Authority. Find out the major causes of debris flow/landslide in Kerala, and complete the list.

- Unscientific construction of houses, roads, etc., on steep slopes
- Interruption of the natural flow of streams

Debris flow and landslides are generally common in the Western Ghats and Himalayan mountains. It is estimated that the highlands of Kerala experience widespread major and minor landslides or debris flows, soil piping, and landfalls.



Soil Piping or Tunnel Erosion

A phenomenon recently observed in hilly areas with laterite is soil piping. In regions where clayey soil is found beneath a laterite cap, water movement can wash away clay that has comparatively less cohesion. This removal of sub-



surface soil by water creates underground channels or pipes, and the process is called soil piping. During heavy rain, or due to other causes, water seeps through the pores in the laterite cap and removes the clay-silt mixture from the clayey subsoil in a shape resembling a pipe. The main reason for soil piping is the hydraulic removal of soil from weaker subsurface layers. Studies have shown that well-shaped depressions formed recently in the districts of Idukki and Kannur are the result of this phenomenon.

Before it turns into a Disaster

It is difficult for us to predict natural hazards like debris flow and landslides. However, we can mitigate their impact and intensity by identifying the areas prone to it in advance through scientific methods and by taking precautionary measures. Let's take a look at them.

Studies using tools like remote sensing and Geographic Information Systems (GIS) can help us identify areas that have a higher possibility of '*Urulpottal*' (debris flow or landslide). Institutions such as the Geological Survey of India and the National Centre for Earth Science Studies (NCESS) prepare maps of each district showing landslide/debris flow-prone areas. These maps are available on the website of the Kerala State Disaster Management Authority.



- Visit the official website of the Kerala State Disaster Management Authority and examine the landslide/debris flow-prone area map. Find out whether your school and house are located in such an area.
- Examine the information provided at the website. Prepare a chart titled '**How to Face Urulpottal**' using the given format, and display it in the classroom.

How To Face Urulpottal

At the time of the disaster	After the disaster
<ul style="list-style-type: none"> ● Stay calm and do not panic ● During <i>Urulpottal</i>, if you are inside your house, take shelter under a strong table or cot. ● 	<ul style="list-style-type: none"> ● Allow ambulances and other rescue vehicles to pass without obstruction ● Report immediately to the authorities if you notice any fallen electric lines in <i>Urulpottal</i>-affected regions. ●



KaWaCHam - Kerala Warnings, Crisis and Hazard Management System - is a disaster warning system implemented in the state of Kerala, ensuring the use of modern technologies in disaster mitigation activities. All disaster-prone areas of Kerala are covered under this integrated warning system. Kerala is the first state in the country to implement a disaster warning system of this kind. The project aims to monitor the possibility of disasters in all areas. If any disaster is detected, the public is alerted through location-based SMS, social media updates, and by activating siren-strobe light units. Necessary precautionary measures are then taken at different levels.



Prepare a note by collecting information about the measures adopted by the Government of Kerala to mitigate the impact of the recent *Urulpottal* (debris flow) incidents in the state.

Through this chapter we have been discussing various Earth movements and the associated natural disasters, along with their mitigation measures. Natural calamities often turn into disasters due to the conflict between human activities and nature. Nature is the abode we inhabit. The human activities carried out in it, and the consequent changes in nature, are together referred to as development. Both human activities and development are not only complementary but also essential. Each disaster reminds us that unlimited development is

impossible in a world with its limit. This is where the role of sustainable development becomes important. It is necessary to make democratic decisions and implement them to safeguard both people and the environment without causing environmental destruction. Resource utilisation should focus on ensuring access to sufficient resources through cooperation, rather than acquiring as much resources as possible through competition. It is necessary to meet the needs of the present generation without compromising on the ability of nature to meet the needs of future generations. We can protect nature by safeguarding ourselves. Together, let's can join hands to build a safe and better tomorrow.

The official websites of the National Disaster Management Authority (NDMA) and the Kerala State Disaster Management Authority (KSDMA)
<https://ndma.gov.in>, <https://sdma.kerala.gov.in>



Extended Activities

1. Identify the human activities that contribute to the weathering of rocks by observing your surroundings, and list them.
2. Conduct a seminar on '**Tectonic movements and Earthquakes**'.
3. Conduct Mock drills in classrooms to raise awareness among students about disaster mitigation measures.
4. Visit the official website of the Kerala Disaster Management Authority to gather information about potential disasters and mitigation strategies, then prepare a poster and display it in the classroom.
5. Visit the official website of the Kerala Disaster Management Authority to download the map of Kerala showing *Urulpottal*-prone regions, and draw it on chart paper. Display it in the Social Science lab.
6. If your house or school is located in a disaster-prone region, hold discussions on disaster mitigation strategies, prepare notes and posters, and raise awareness among the people living in such areas.
7. With the help of your teacher, practise the precautionary methods that can help you escape from an *Urulpottal*.
8. Read the Post-Disaster Needs Assessment report prepared by the Government of Kerala in co-operation with UNDP, the World Bank, and the European Union following the 2018 flood, then draw conclusions.

7

Indian Economy: Growth and Transformation

In the previous classes, we learnt that economic activities are mainly centered around production, distribution and consumption. The common goal of the economies always is to achieve public welfare by creating a better material/physical environment through economic activities. Along with economic growth, development is equally important to achieve this goal. In this lesson, we will be examining economic growth, economic development, the development strategies adopted by India, and the changes that have taken place in recent times.



Fig 7.1

Observe the economic activities shown in the picture. What can be the objectives of individuals, institutions and government engaging in economic activities?

- Increase in infrastructure
- Better employment opportunities
- Increased income and purchasing power
- Higher quality of life

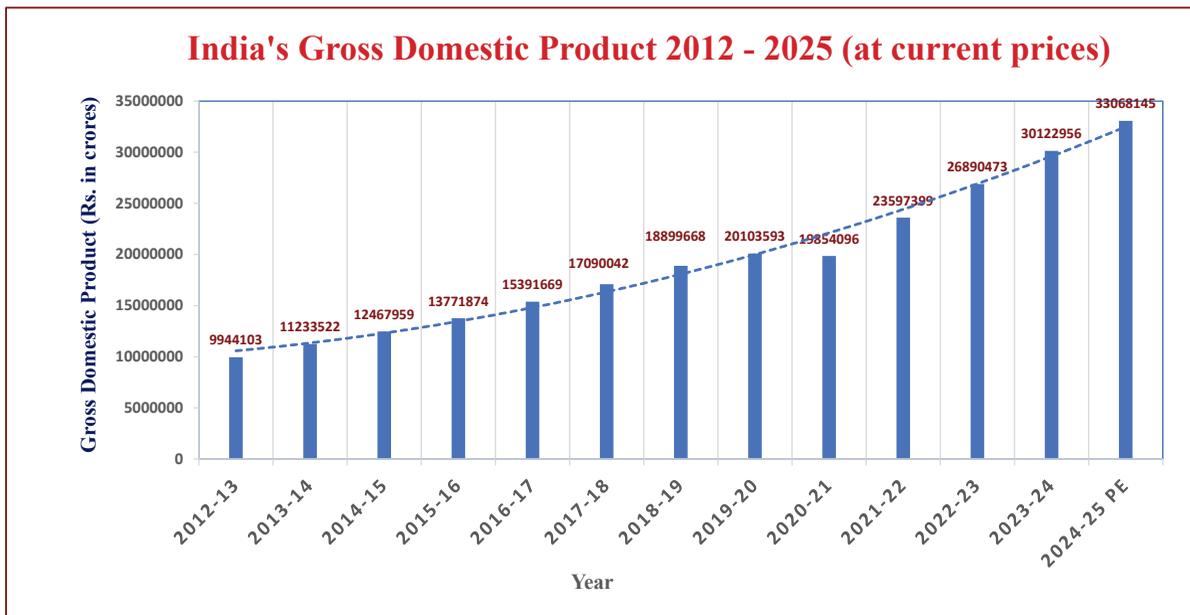
All economies aim to provide better living conditions through different economic activities which bring about quantitative and qualitative changes in the economic system. Quantitative change refers to economic growth and qualitative change refers to economic development. Let's discuss economic growth and economic development in detail.

Economic Growth

Goods and services are produced as a result of activities in the agricultural, industrial, and service sectors of an economy. You know that when the production of goods and services increases, national income increases and the economy grows, right?

As we learned in the previous class, gross domestic product is the monetary value of all goods and services produced within the domestic territory of a country in a year.

Observe the following graph which reflects the changes that have taken place in the GDP in India over a period of time.



Source : RBI and MOSPI Reports

Fig 7.2

Didn't you notice that there is an increase in GDP compared to previous years?

Economic growth is the increase in a country's Gross Domestic Product compared to the previous year.

When economic growth occurs, a country's capacity to meet the needs of its people increases through changes in production, employment, and income.



How does economic growth benefit the economy?

How can we measure economic growth? For this, we need to calculate the economic growth rate.

Economic growth rate

The economic growth rate is the rate of increase in GDP in the current year compared to the previous year. The growth rate is measured in percentage.

$$\text{Economic growth rate} = \frac{\text{Current year's GDP} - \text{Previous year's GDP}}{\text{Previous year's GDP}} \times 100$$

Observe and analyze the graph below to see India's economic growth rate published by the Ministry of Statistics and Programme Implementation (MOSPI) from 2012-13 to 2023-24.

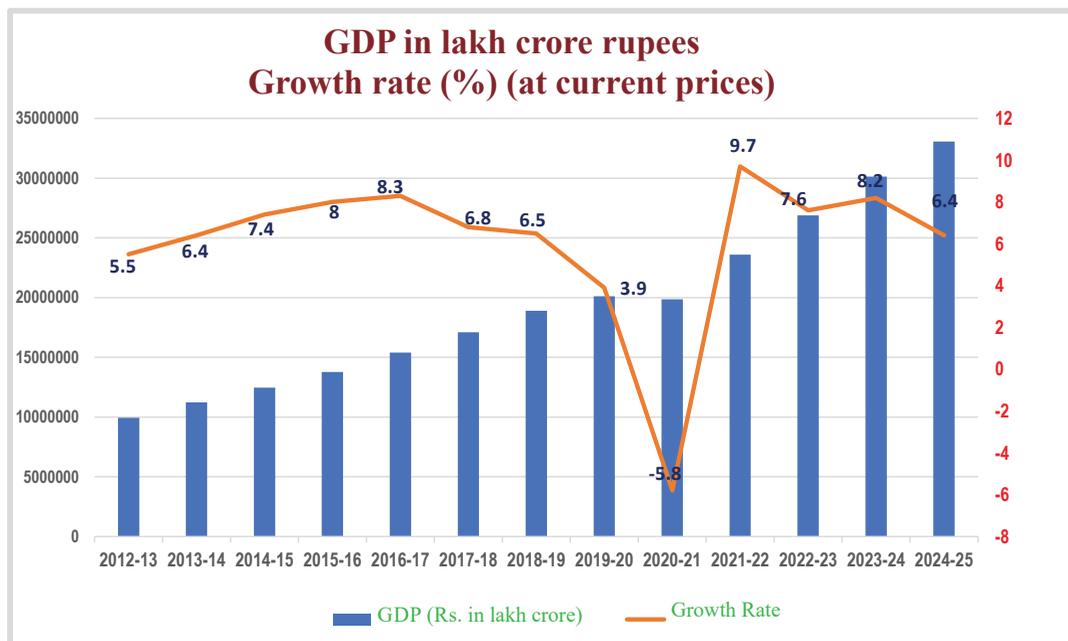


Fig 7.3



- Which year achieved the highest growth rate in GDP?
- In which year did the lowest economic growth rate occur?
- Has there been any period of negative growth (ie., below zero)? If so, why?

We can arrive at the following conclusions from the analysis of Fig.7.3. The production of goods and services need not necessarily increase steadily every year. There may be fluctuations in the increase. From 2016-17 to 2019-20, the rate of growth of GDP falls and continues to be positive. The GDP still is increasing. However from 2019-20 to 2020-21 the rate of growth of GDP falls and becomes negative. The GDP decreases. If the growth rate above zero it indicates a positive growth and a rise in GDP. If the growth rate is below zero it indicates a negative growth and a fall in GDP. From 2020-21 to 2021-22, GDP and growth rate increased and economic growth shifted from negative to positive.



Analyze the factors influencing economic growth during this period.

Per capita income is an important indicator used to measure and evaluate economic growth.

Per Capita Income - PCI

In the previous class, you learned about indicators for measuring a country's income, such as National Income (NI), Gross Domestic product (GDP), Gross National Product (GNP), , Net National Product (NNP), etc., and about Per Capita Income (PCI), which is the average income of individuals. PCI is calculated by considering the national income and population.

$$\text{PCI} = \frac{\text{NI}}{\text{Population}}$$

The World Development Report published by the World Bank classifies economies into four categories based on per capita income.

No	Category	PCI in US Dollars (\$)	Example (Countries)
1	Low income	Less than 1145	Afghanistan, Ethiopia, Chad
2	Lower middle income	1146 To 4515	India , Bangladesh , Kenya
3	Upper middle income	4516 To 14005	China , Brazil , South Africa
4	High income	Above 14006	USA , Germany , Japan

Table 7.1 Source: World Bank

The per capita income of countries with different levels of development, Afghanistan, India, China and the USA, over different periods are given below.

Country	1991	2001	2011	2021
India	364	442	1,569	2,116
China	318	949	5,425	12,554
USA	26,741	35,892	48,303	69,287
Afghanistan	317	169	606	369

Table 7.2 Source: World Bank



Prepare an analysis report comparing India's Per Capita Income with Afghanistan, China and the USA for each period.

Per capita income is used to compare the economic growth of different countries over the same period and to understand the economic growth of a country over different periods.

Personal Income (PI)

Personal income is the total income earned by an individual from various sources over a given period of time.

PCI shows the average income of the people. But personal income is the actual income of a person. The per capita income of a country can be higher or lower than personal income. Hence difference between PCI and PI always exists.

As an indicator of economic growth, per capita income has certain shortcomings:

- It is only an average income.
- Information about the distribution and inequality of wealth is not reflected in the income index.
- Since per capita income is calculated on the basis of national income, the limitations of calculating national income also affect per capita income.
- Factors that enhance the quality of life are not included in the scope of the PCI index.

When the production of goods and services in an economy increases, GDP and PCI increase. But personal income does not increase for everyone equally. This leads to socio-economic inequalities. Benefits of economic growth reach the maximum number of people through economic development.

Economic development

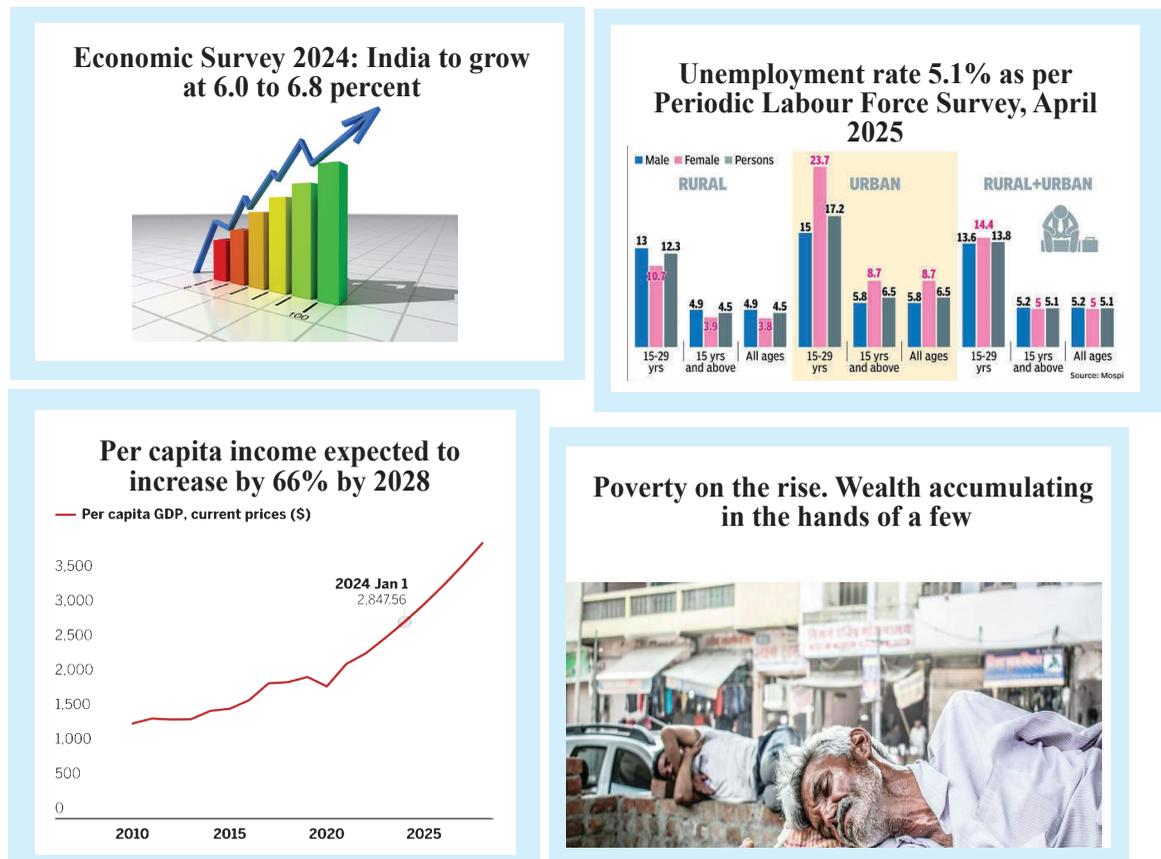


Fig 7.4

Have you seen the above newspaper headlines on economic growth, unemployment, per capita income growth, and economic inequality?

Don't you see that basic problems like poverty, unemployment, and economic inequality still persist despite the growth in country's GDP and the increase in the per capita income? These problems are not considered or included while calculating economic growth. Shouldn't those factors that make a difference in the quality of life and well-being of the people also be considered?

To improve the quality of life, economic growth must be accompanied by better living conditions. Find out what such conditions are.

- Educational facilities
- Nutrient availability
- Transportation facilities
-
-

The standard of living of the people increases when the above-mentioned living conditions are accessible for everyone. A country achieves economic development when the benefits of the increase in production and income are shared by everyone in the country. It happens when there is the improvement in the standard of living of the people along with economic growth.

Economic development is the process of improving the standard of living and economic well-being of people through growth in income, education, and infrastructure.

Todaro & Smith

This is how economic development is defined by the economists Michael P Todaro and Stephen C Smith in their book, Economic Development.

Economic development is not only about economic and social change happening at the same time but is also related to the welfare of the people. The government implements many welfare activities to make it happen.



The central and state governments provide benefits like food items and medical facilities at low prices to the poor and vulnerable sections of the society. Prepare a note discussing such schemes and their objectives.

Various development indices are used to measure and evaluate economic development.

Economic development indices

Development indicators also change in accordance with the recent changes in development. Let's get acquainted with the major development indicators that are generally accepted.

Human Development Index (HDI)

This is an index developed by the United Nations based on human development to measure economic development.

The Human Development Index is calculated based on three factors:

- Life expectancy
- Literacy and gross school enrollment rate
- Per capita income

The Human Development Index is prepared by calculating the value of each of these separately and finding their average. Their value will be between zero and one. Based on the value of this index, the countries of the world are divided into four groups. Look at Fig.7.6.

Since 1990, the United Nations Development Programme has been preparing the HDI Report, classifying the world's countries on the basis of development based on the HDI value. According to the 2023 report, India is ranked 130th out of 193 countries.

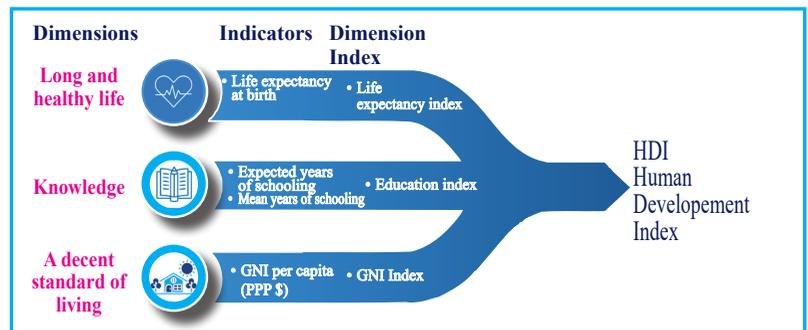


Fig 7.5

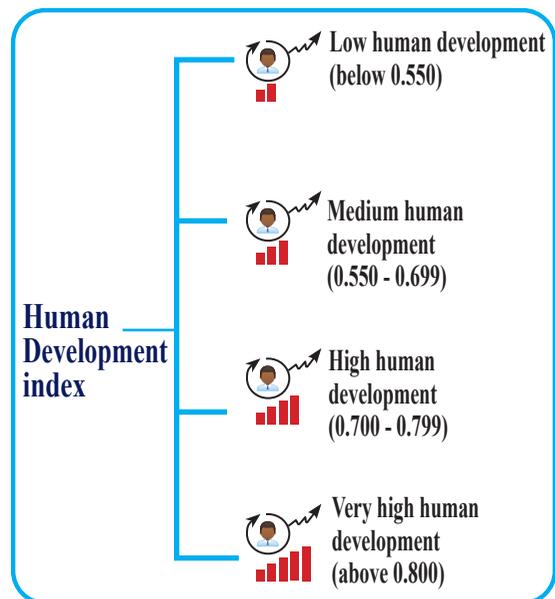


Fig 7.6

The values of India's Human Development Index in various years are given below.

Human Development Index: India (1990-2023)

Year	HDI Value
1990	0.446
1995	0.469
2000	0.497
2005	0.547
2010	0.590
2015	0.633
2020	0.652
2023	0.685

Analyze the table and identify the period when India was in low human development and medium human development. Find out the areas in which India needs to improve if it were to achieve high human development and very high human development based on the HDI value.



Identify the countries ranked 1 to 5 in the highest human development index from the 2023-24 UNDP HDI report and analyze the progress of these countries in areas such as education and health.

- Compare the period when India was in low human development and medium human development based on HDI value.
- Write down the areas in which progress needs to be made if India is to achieve high human development and very high human development based on the HDI value.



Find out from the UNDP's HDI report for the current year of the countries ranked one to five in the highest human development and analyze the progress of these countries in areas such as education and health.

Physical Quality of Life Index (PQLI)

The economic development of a country should be such that the standard of living of the people increases and the basic needs are met. Based on this, this is the development index developed by a renowned economist, Morris David Morris, in 1979. The Physical Quality of Life Index is prepared based on three indices. Let's see what these are.

Basic Literacy Index (BLI)

Infant Mortality Index (IMI)

Life Expectancy Index (LEI)

Basic literacy is the percentage of the population that can read and write.

Infant mortality rate refers to the number of deaths of infants under the age of one per 1,000 live births.

Life expectancy is calculated based on the average number of years a person lives.

The Physical Quality of Life Index (PQLI) is the average of these three indicators.

$$PQLI = \frac{(LEI+IMI+BLI)}{3}$$

The drawback of this index is that it does not consider the respondent's annual income while preparing the physical quality life index.

Sustainable Development Goals Index (SDGI)

In the previous class, we learned about the Sustainable Development Goals that were adapted by the United Nations in 2015. The Sustainable Development Goals Index assesses the efforts taken by countries to achieve the sustainable development goals.

The Sustainable Development Goals index is a comprehensive development index. In India, the Sustainable Development Goals Index is prepared by the NITI Aayog in collaboration with the United Nations to measure the development progress of states and union territories.



Fig 7.7

The SDG India index, launched in 2018, assesses India's performance across all 17 sustainable development goals across economic, social, and environmental sectors.

Economic goals	Social goals	Environmental goals
<ul style="list-style-type: none"> ● Affordable and Clean Energy (SDG 7) ● Decent Work and Economic Growth (SDG 8) ● Industry, Innovation, and Infrastructure (SDG 9) ● Responsible Consumption and Production (SDG 12) 	<ul style="list-style-type: none"> ● No Poverty (SDG 1) ● Zero Hunger (SDG 2) ● Good Health and Well-being (SDG 3) ● Quality Education (SDG 4) ● Gender Equality (SDG 5) ● Clean Water and Sanitation (SDG 6) ● Reduced Inequalities (SDG 10) ● Sustainable Cities and Communities (SDG 11) ● Peace, Justice and Strong Institutions (SDG 16) ● Partnerships for the Goals (SDG 17) 	<ul style="list-style-type: none"> ● Climate Action (SDG 13) ● Life Below Water Life (SDG 14) ● Life on Land (SDG 15)

The SDGI score is calculated by averaging the values of each of the Sustainable Development Goals, which are calculated between zero and 100.

Score	Category
0 - 49	Aspirant
50 - 64	Performer
65 - 99	Front Runner
100	Achiever

Observe the graph indicating the SDG Index scores of Indian states and Union Territories for the years 2018-19 and 2023-24.

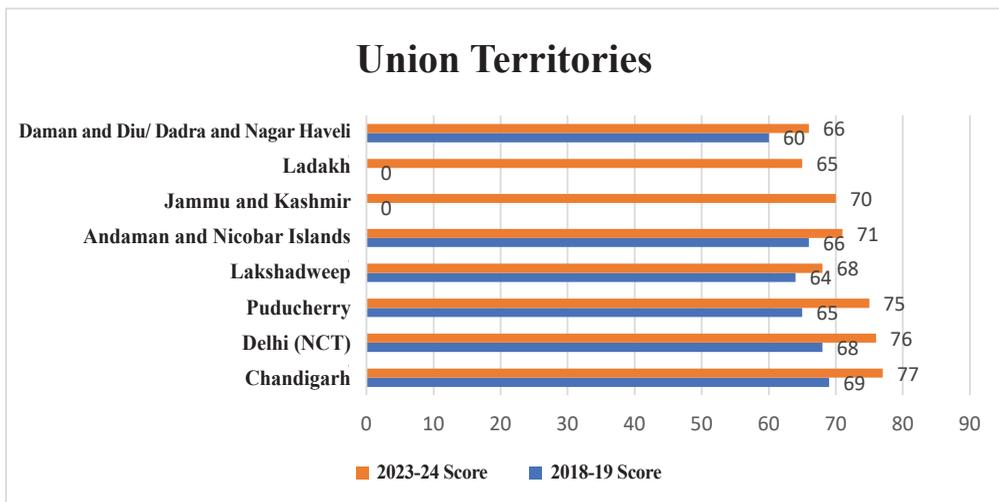
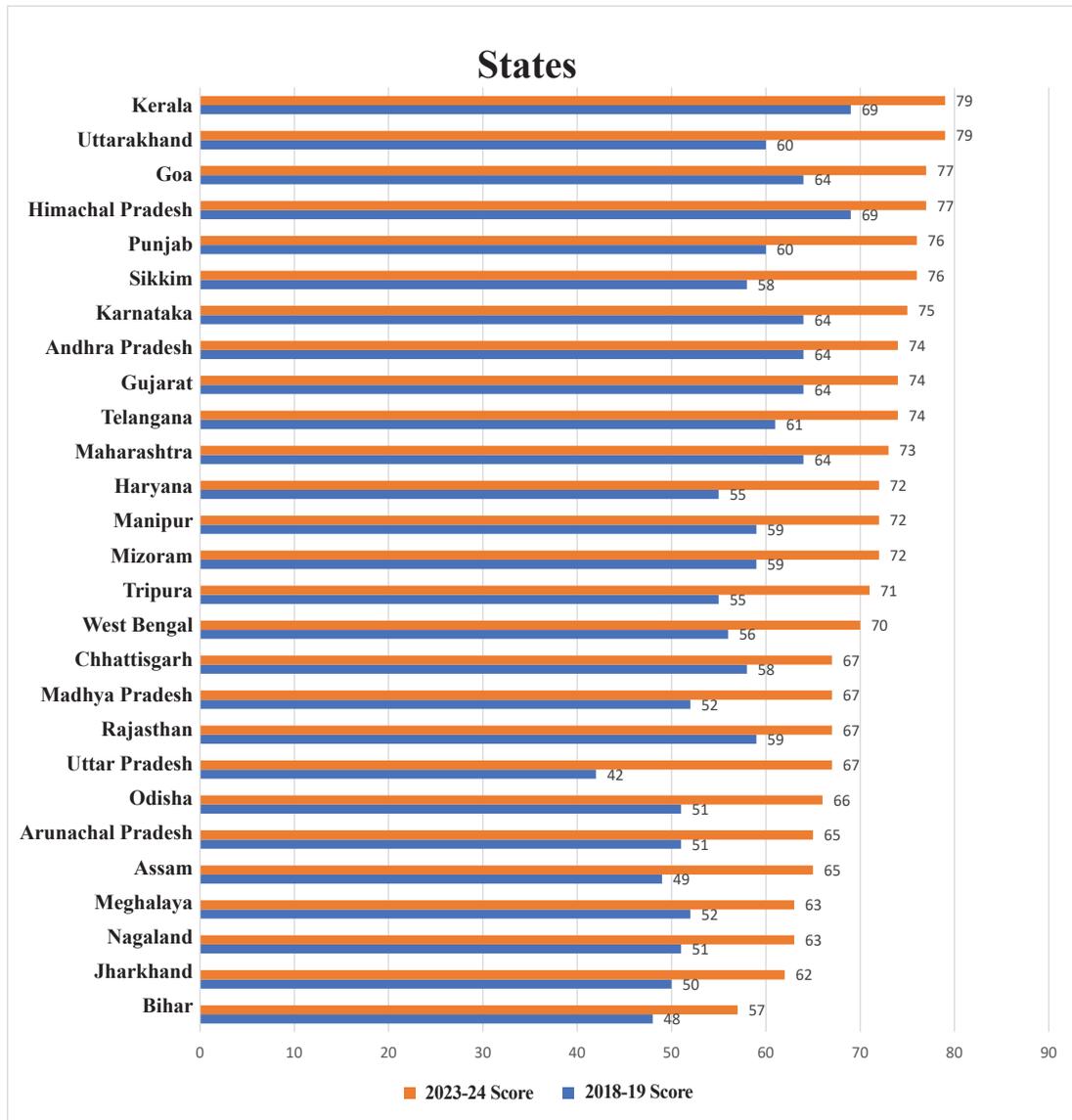


Fig 7.8

- List the 5 top states and 5 at the bottom in the SDGI rankings for 2023-24.
- Find out which states have scores ranked 0-49, 50-64, 65-99 and 100 in the 2018-19 rankings.
- Which state is at the top of the rankings in 2018- 19?
- Which states are at the top of the rankings in 2023 - 24?



Find out the reasons why Kerala is ranked high on the SDG India Index as compared to other states in India.

Kerala model of development

Kerala has made great strides in the areas of education, health and social justice. High literacy rates, low infant mortality rates and improved life expectancy are its key features. Kerala was able to achieve this feat through land reforms, universal public health and education systems, public distribution systems, social security schemes and public participation.

Nava Kerala Mission

The Nava Kerala Mission is an action plan launched in 2016 with a holistic development vision for Kerala. It includes four main missions: Aardram Mission in the health sector, Life Mission to ensure adequate housing, Vidhyakiranam to improve the education sector, and Haritha Keralam Mission to improve water conservation, waste management, and organic farming. The main objective of the mission is to improve the lives of the people by solving fundamental problems in these four areas.

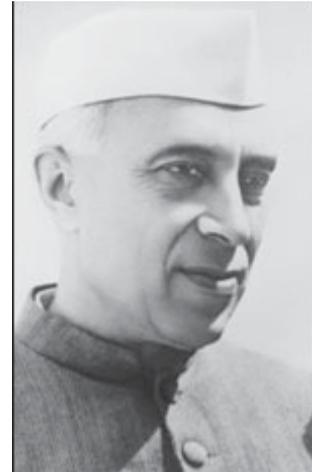
In addition to strengthening the activities of the existing four missions, Nava Kerala Mission has also included the Rebuild Kerala Initiative, and is being implemented from 2021. The objective of Nava Kerala Mission - 2 is to lead Kerala towards economic and social progress by embracing the benefits of development and embracing all sections of the people, while facing new challenges and second-generation problems.

We have already discussed in detail the facts related to economic growth and development, haven't we? Planning was the strategy we adopted to achieve economic growth and development in independent India. Let us briefly review the economic planning that was implemented in India.

Economic Planning

We adopted Mixed Economy to build the economy in India, which was fragmented during the British rule. We have studied about the same in the previous classes.

India had formulated plans that outlined how the country's resources should be utilized on the basis of some common goals. Economic planning is the preparation made to achieve the main economic goals of a society by utilizing available resources.



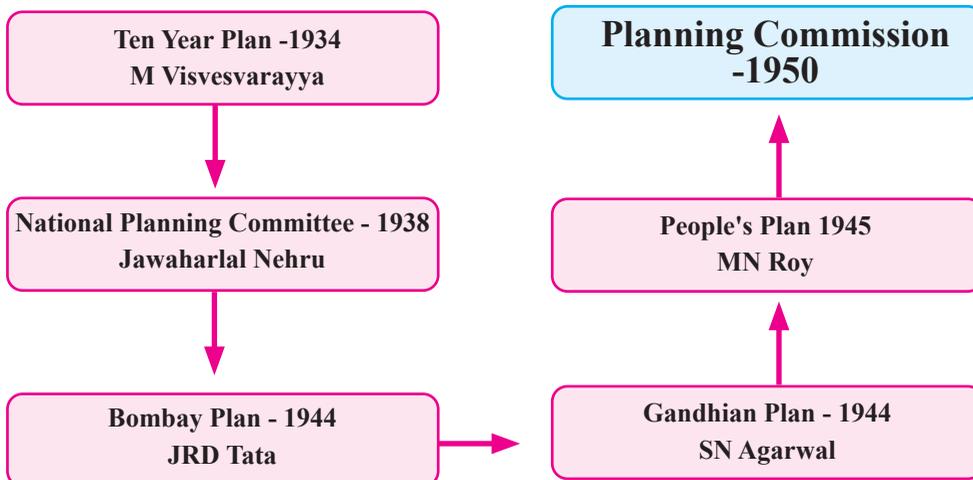
Jawaharlal Nehru
Fig 7.9

Planning is a scientific method for utilizing the diverse resources, human potential and skills of the country in the best and most comprehensive manner.

Jawaharlal Nehru

History of Planning

Planning activities had started in India even before attaining Independence. Observe the chart showing the growth of planning in India.



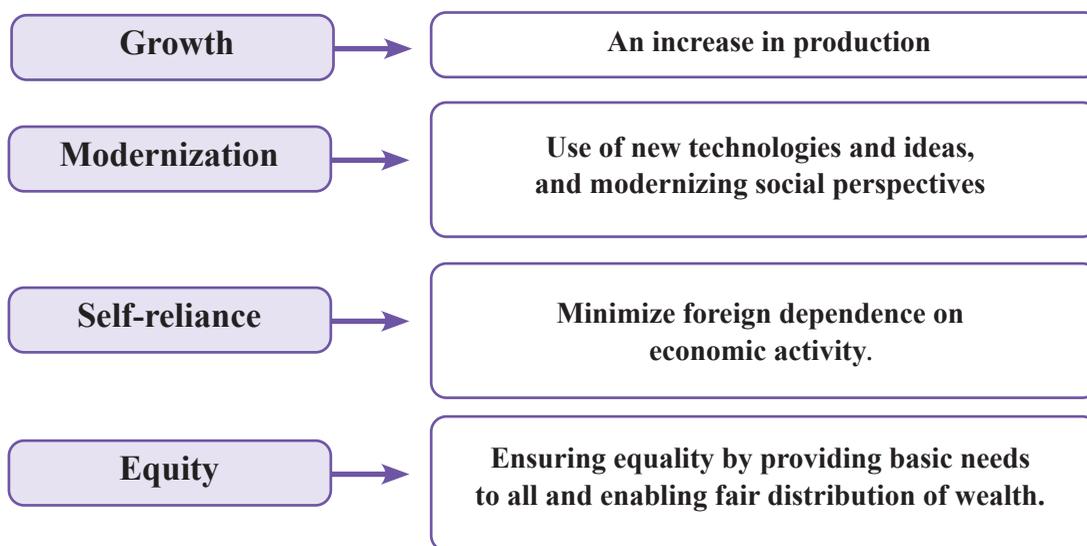
M Visvesvaraya is considered as the Father of Indian economic planning.



Collect more information and prepare an edition on the history that led to planning in India.

Objectives of Planning

Let's briefly look at the objectives of planning.



PC Mahalanobis is the architect of the Five-Year Plan in India
Fig 7.10

The Planning Commission was established in 1950 to achieve the above-mentioned objectives. The structure of the Planning Commission is given below.

- Chairman - Prime Minister
- Vice Chairman
- Nominated Members from the Central Cabinet

The planning process was implemented in India in 1951 through the Five-Year Plans.



Identify the projects implemented in India, their duration, key objectives and economic growth rate and list them.

At the national level, the Planning Commission, established in 1950, continued up to 2014. Now, these activities are being led by the NITI Aayog.

NITI Aayog (National Institution for Transforming India)

NITI Aayog came into existence on 1 January 2015, replacing the Planning Commission of India. It aims at transforming India through economic growth, social welfare, and infrastructure development.

Present Structure of NITI Aayog

- Prime Minister as Chairman.
- Vice Chairman as nominated by the Prime Minister
- All Chief Ministers and Lieutenant Governors of Union Territories as members
- Two part-time members, four non-official members and a Chief Executive Officer
- Four Central Ministers and non-official members as nominated by the Prime Minister

The main objectives of NITI Aayog can be summarized as follows.

- To create a vision for India's development priorities and plans
- To promote sustainable development and inclusive growth
- To promote economic growth through innovation, entrepreneurship, and job creation
- To collaborate with international organizations and countries to leverage global diversity and resources
- To develop and implement strategic and long-term policies and programs



Organize an open forum on the role of the Planning Commission and NITI Aayog in India's economic growth.



License - The permit from the government to start a business, develop existing ones, or manufacture new products.

Permit - The permission to carry goods, transport and perform specific activities

Quota - The quantity and limit set by the Government for production, import and distribution

Planning has played a major role in achieving economic growth in India. From 1950 to 1990, we can clearly see the government's dominance and control over the private sector in economic activities. The private sector was controlled through licenses, permits, and quotas (LPQ). It was through the economic policy formulated in 1991 that the economic reforms, which relaxed the restrictions imposed during the planning period, were initiated.

Economic Reform of 1991

The following are the important factors that led India to the Economic Reforms of 1991.

- The economic crisis in India caused by a high fiscal deficit and a decline in foreign exchange reserves
- Inefficiency of the public sector
- Changes in the world market. Arguments in favour of the free market
- The economic crisis caused by the 1990 gulf war
- Economic growth in East Asian countries through industrialization and liberalization
- The conditions imposed by the World Bank and IMF.

Main Goal of Reforms

- To liberalize the Indian economy and open it to the world economy
- To deregulate the private sector
- To reduce the government regulation in various sectors
- To remove the trade restrictions with foreign countries.

Hence the general features of these economic reforms are

commonly referred to as LPG. The basis of this reform is the shift from LPQ to LPG (Liberalization, Privatization, Globalization).

Liberalization

Liberalization is a policy change that gives a country's economy more freedom by relaxing restrictions imposed on various sectors to promote economic growth and development.

The main areas where liberalization has been implemented are as follows:

Industrial sector reforms

Financial sector reforms

Tax reforms

Foreign exchange reforms

Foreign trade sector reforms

Privatization

Privatization is the process of reducing the role of the public sector and providing more opportunities for the private sector.

Disinvestment is the most important of the privatization processes and is implemented through the sale of shares. Disinvestment is the sale of the government's investment or capital in a public sector enterprise to the private sector. This is mainly done in four ways:

Wholesale : Entire sale of any public sector

Share sale : Sale of a portion of the share capital of a public sector undertaking

Capital sale : Selling government capital in a sector where government intervention is not required

Strategic sale: Selling a portion of the capital share to a selected partner

Globalization

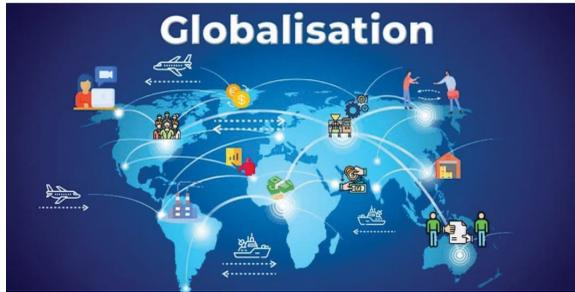


Fig 7.11

Globalization is the integration of a country's economy with the global economy. This will significantly reduce import duties and encourage foreign investment.

This means the further globalizing of trade, capital investment, and the transfer of technology and human resources.

Liberalization and privatization are economic policies. Globalization is a consequence of these policies.

Globalization is not a policy; it is a phenomenon

Amartya Sen

Globalization is the result of policies that have made economies more interconnected and integrated. With this, global trade becomes regulated by the World Trade Organization and global production comes to be determined by multinational corporations.



World Trade Organization (WTO)

The main objective of the WTO is to set and enforce the rules of global trade among countries. The WTO provides a forum for trade negotiations and dispute resolution by reducing tariffs and other trade barriers and promoting fair competition. Established in 1995, this international organization is headquartered in Geneva, Switzerland. It has 166 member countries, including India.



Multinational Corporations (MNCs)

MNCs are companies that engage in international trade and commerce and operate in multiple countries. These companies, which engage in international production, have a decentralized management structure. They take advantage of local resources, expertise, and markets.

The globalization made possible the widespread exchange of goods, services and capital among countries.

Along with the flow of foreign capital, multinational companies also promoted research and innovative ideas in the field of production. This accelerated the growth of technology.

Driving forces of economic growth

Inventions, mechanization, spread of technology, modernization, etc. played an important role in accelerating economic growth. Industrial revolution, which was triggered by the invention of the steam engine, passed through many stages. Today, the world is on the edge of a fifth industrial revolution. Let's take a fleeting look at the various industrial revolutions and their characteristics.

Industrial Revolution	Features
1. Invention of the steam engine:	<ul style="list-style-type: none"> • Emergence of the factory system • Changes in production and transportation
2. Electricity	<ul style="list-style-type: none"> • Use of electricity in the place of steam. • Expansion into new areas of production and distribution
3. Electronics & Automation	<ul style="list-style-type: none"> • Use of robotics and automation in factories
4. The era of advanced technologies	<ul style="list-style-type: none"> • The beginning of Internet of Things (IoT) sensors and Big Data Analytics, Cloud Computing, Nanotechnology
5. Human-centric approach to digital technologies including AI	<ul style="list-style-type: none"> • Sustainable productivity growth and expansion of smart factories through technologies like AI, IoT and Robotics.

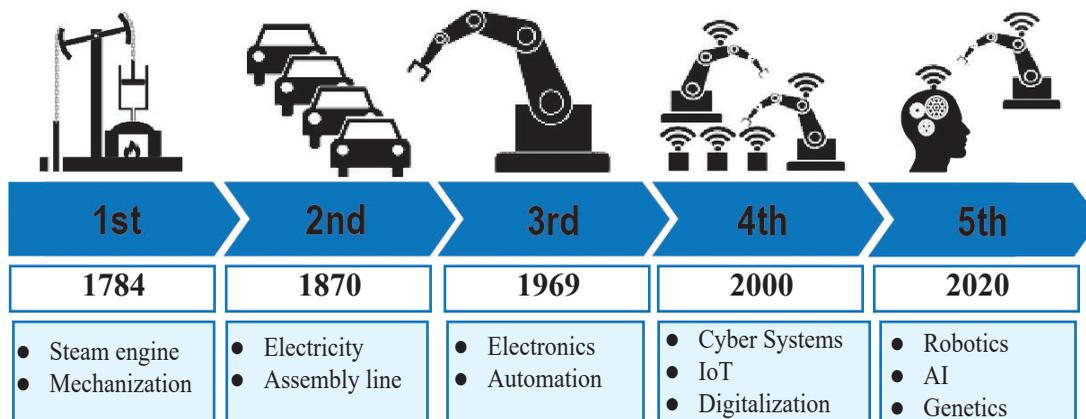


Fig 7.12



Prepare a profile album featuring the inventions of various industrial revolutions and the changes they brought about in the field of production.

As you can see, technology has diversified the activities in the economic sector. A knowledge economy has emerged in which knowledge and skills are important along with technology in determining economic growth and development.

Knowledge Economy

Knowledge Economy is an economic system that thrives by incorporating innovative ideas in the production, distribution, and use of knowledge and information. Knowledge is the key element in a knowledge economy. New ideas, research, and inventions are important here. The basis of this economy is human resources capable of effectively using knowledge and technology. Therefore, research, innovation, and skill development need to be accelerated.

Continuous efforts to develop new products and services (innovation) are a characteristic of Knowledge Economy.



Examine the Global Knowledge Index Report published by UNDP in various years. Find out the characteristics of the countries that have reached the top 5 positions and write down their special features.



Find out how economic activities in the Knowledge Economy lead to economic growth.

- Skill development
- Human resource utilization
- Job creation
-
-

The new era of Knowledge Economy is bringing out changes in Indian economy, too. Let's take a look at some examples from various sectors.

Sector: Agriculture

Agri Tech

New technologies are transforming agriculture in India from traditional farming to a more profitable and efficient (smart) one. Things like when to water, fertilize, etc. are being done with the help of sensors and drones. This has enabled farmers to earn higher incomes through reduced costs, improved yields, and direct sales through online platforms.



Fig 7.13

Sector: Industry

Industry 4.0

Industry 4.0 is a manufacturing method that uses computers, automation (machines working on their own) and the Internet to connect factories and make them more efficient. This leads to increased industrial production and also to quality products and less wastage. This change can create highly diversified jobs and lead to economic growth. India aims to lead economic growth through projects like MAKE IN INDIA.



Fig 7.14

Let's expand the list by identifying technology-based advancements taking place in service sectors.

Industrial Revolution	Features
Edu Tech	<ul style="list-style-type: none"> ● Innovative ways to utilize technology in education. ● Robotics, AI, IoT etc. ● ●
Health Tech	<ul style="list-style-type: none"> ● Telemedicine ● Digital health platforms ●
Green Tech	<ul style="list-style-type: none"> ● Renewable energy ● Electric vehicle ●
Animation, Visual Effects, Gaming, Comics, Extended Reality - Sector	<ul style="list-style-type: none"> ● ● ●

Kerala towards a Knowledge Society

Kerala Startup Mission, K-DISC, Digital University etc. are working to provide technical and innovative knowledge in Kerala for the growth of a knowledge-based economy.

Kerala University of Digital Science, Innovation and Technology

Digital University of Kerala

Digital University of Kerala was established in 2020 with the aim of transforming Kerala into a global digital education hub. The main goal is to develop high-quality human resources in technologies such as artificial intelligence, data science, cyber security, and blockchain.



Fig 7.15

Kerala Development and Innovation Strategy Council (K - DISC)

K-DISC is a committee formed in 2018 with the aim of transforming Kerala into a knowledge economy and a hub of innovation. Its main responsibilities are to promote research in new technologies, products and processes and to organize skill development programmes. The Young Innovative Program (YIP) is a project run by K-DISC to foster innovation among the youth. It provides support to transform the innovative ideas of students into projects. The Kerala Knowledge Economy Mission (KKEM) is a project aimed at transforming Kerala into a knowledge economy and providing employment to the educated.



Fig 7.16



Fig 7.17

Kerala Startup Mission (KSUM)

Kerala Startup Mission (KSUM) is a model agency launched in 2006 to promote the startup scene in Kerala, transform innovative ideas into enterprises and make the state a leading hub. It supports startups through innovation hubs, incubators, funding support, mentorship and international exchange programmes.



Fig 7.18



Organize a seminar on technology and the Knowledge Economy

This chapter discussed the growth and development of the economy. Decades of planning and economic reforms have helped India's economic development to a great extent. You too will be a part of transforming our country into a development-oriented economy by harnessing the potential of the knowledge economy, which is part of the transformation of economic reforms.

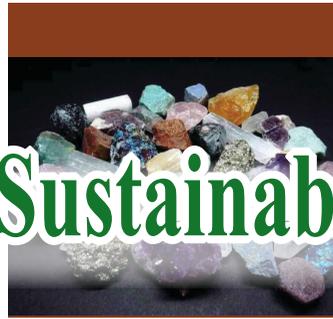


Extended Activities

1. Find out the development level of India and its neighbouring countries Pakistan, Bhutan and Sri Lanka based on per capita income for 2023-24 using the source, <https://data.worldbank.org>
2. Collect and list more information about other economic development indices such as the Global Hunger Index, Gender Inequality Index, Human Happiness Index, and Multi Dimensional Poverty Index with the help of <https://www.unsd.org>, <https://www.globalhungerindex.org>, <https://www.undp.org>

Index	Year of introduction	Indices/criteria used	Determining agency/institution

8



Towards Sustainability

Do you see a desert carrying many vessels in the picture? Aren't you surprised at how these boats reached this desert? I am that desert. Around four decades ago, I was not a desert – I was a lake. I was the Aral Sea, once the fourth-largest lake in the world until 1960, located between Turkmenistan and Uzbekistan. The rivers Amu Darya and Syr Darya, which flowed into me, were once my main sources of water. Cotton cultivation thrived on my waters, as I had water in plenty. But don't you want to know how I turned into a desert over the past four decades? Humans diverted the rivers, my lifelines, for agricultural purposes. Slowly, I began to dry up. The excessive use of pesticides to boost cotton production destroyed my ecosystem completely. Thus, I, the Aral Sea was transformed into the Aralkum Desert. A victim of the overexploitation of natural resources, I stand as a strong warning to the world today.



Aralkum Desert
Fig 8.1



An old picture of Aral Sea
Fig 8.2

The Aral Sea, which has become an environmental disaster, raises many questions before us. Its transformation reminds us of the need to avoid the unscientific exploitation of the Earth's resources and highlights the importance of sustainable resource management.

The sustenance of life on Earth depends on a variety of resources. What do we mean by resources? A resource is anything that satisfies human needs and occurs naturally, is technologically feasible, and culturally acceptable. Let's now discuss the different types of resources and their sustainable management.

Do you think that resources are simply free gifts of nature?

That's not entirely true. Resources are also formed as a result of human efforts. Therefore, humans are an essential element in the formation of resources. We convert the materials available in our environment into resources and use them to meet our needs.

Now, in that sense, are you a resource?

Of course, yes!

Humans can be considered as resources because they create and develop resources using their abilities, skills, and technology. Haven't you heard of the term "Human Resource"?

Do all resources have the same characteristics? How can we classify resources?

Don't you remember learning in your lower classes that resources can be classified into two categories: Natural resources and Man-Made resources?



Categorize and list the resources you are familiar with into natural and man-made resources.

Natural Resources	Man-made Natural Resources

Table 8.1

Resources can also be classified into different categories based on their origin, renewability, ownership, and state of development. Let's explore what these categories are.

Based on the origin, resources are classified into two types: Biotic Resources and Abiotic Resources.

Biotic Resources and Abiotic Resources

Anything that is part of the biosphere and can be used by humans is called a biotic resource. Humans, plants, and animals are examples of biotic resources.

Resources that are made of non-living matter are called abiotic resources.



Find examples of abiotic resources and list them below.

- Minerals
-

Based on their replenishment capacity or renewability, resources can be classified into two types: Renewable resources and Non-renewable resources.

Renewable Resources

These are resources that are continuously produced or replenished in nature through physical or chemical processes. Many of them do not diminish after use and can be reused. These resources are considered sustainable as long as they are not overused. Most renewable resources are readily available to humans.



Find examples of renewable resources and list them.

- Sunlight
- Wind
-

Non renewable resources

The air we breathe and sunlight are available in unlimited quantities. But what about resources like coal, petroleum and natural gas? Have you ever thought about how long these resources will last? Non-renewable resources are those that have been formed over millions of years and whose reserves decrease with use. Minerals and fossil fuels are examples of non-renewable resources. Some of these, like metals, can be reused, but others, like fossil fuels, deplete with use and cannot be reused.

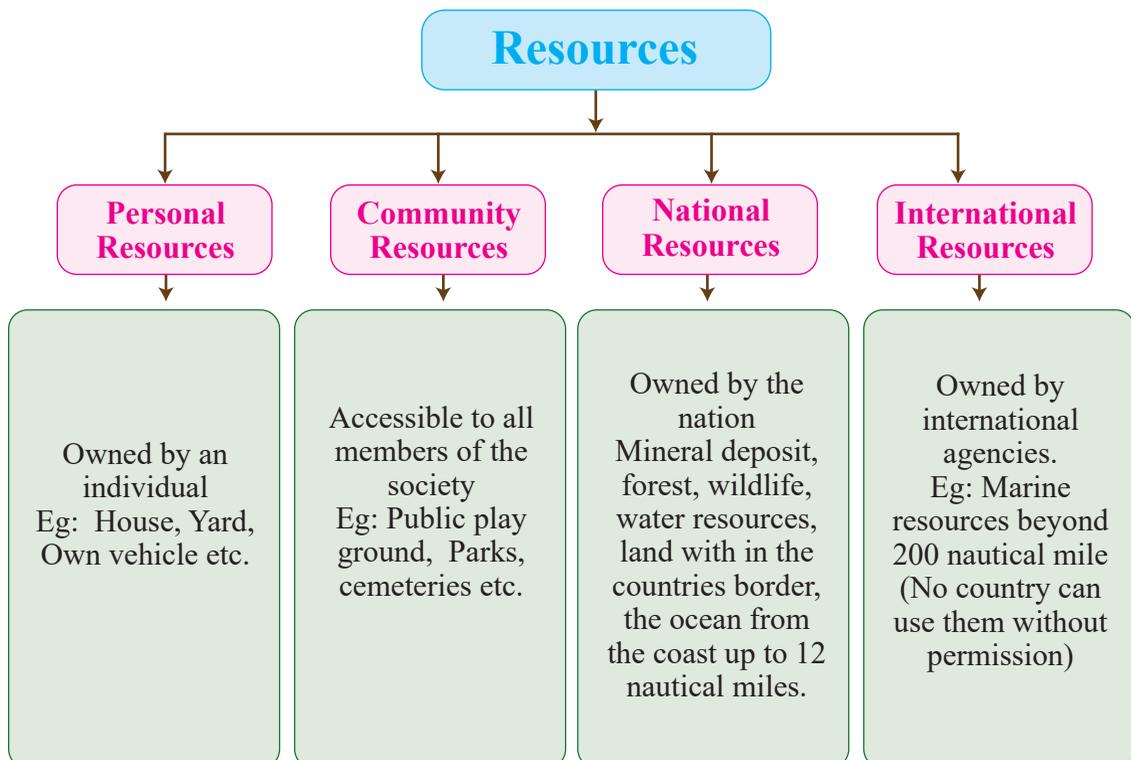


Find examples of non-renewable resources and list them.

- Coal



Resources can also be classified into different types based on their ownership. Examine the flowchart below and identify them.





Classify the resources given below into individual, community, and national resources. Add more examples to expand the list.

School, National highway, Railway, Worship places, Farms and Houses.

Expand the chart by adding additional information with the help of information technology, and display it in the classroom.

Don't you have the responsibility to protect the resources you own? But who is responsible for protecting community and national resources? How can we protect such resources?

Discuss this in class.

Are all the resources on Earth accessible to us? Due to limitations in technology or the lack of appropriate technological advancement, we are not able to develop many things on Earth into resources. Sometimes, we have to wait until the adequate technology is developed to convert them into resources.

Based on the state of development, resources can be classified into two types: Potential resources and Developed resources. Let's examine what they are.

Potential Resources are resources that are found in a region but are not yet fully utilized.

For example, Rajasthan and Gujarat have a huge potential for generating energy from wind and solar power, but these sources are currently only marginally used for power generation.

Developed Resources are resources whose quantity and quality have been surveyed, assessed, and adequate technology has been developed to utilize them efficiently.



Find examples for developed resources and list them.



Is petroleum a developed resource?

Development of resources depends on technology and their potential.

Materials that can meet human needs but for which humans do not have the appropriate technology to utilize are called stocks. Hydrogen can be utilized as a rich source of energy, but we have not yet developed the advanced technology to use it as a resource today. There are many energy sources in nature that we may be able to utilize in the future.



With the help of information technology, find out what they are and prepare a note on them.



Do you know?

Resources that can be exploited with the help of existing technology, but whose use has not yet begun and may be utilized later to meet future needs, are called reserves.

Natural Resources

Natural resources are substances, objects, or forms of energy that are obtained from nature and are useful to humans. They are valuable resources available in their natural state and are not created by humans.

You already know that natural resources include air, water, soil, minerals, plants, animals, fossil fuels, and more. We depend on these resources to meet our domestic, agricultural, industrial, and energy needs.





Have you ever thought about how much influence natural resources have on your daily life? Natural resources such as mineral resources and energy resources are indispensable to human life.

Minerals are naturally occurring organic or inorganic substances with definite chemical and physical properties. They are chemical compounds in which atoms are arranged in a specific manner. Most minerals are formed by the combination of two or more elements, while only a few elements occur in their pure (elemental) state in nature. The welfare of the people, the development of science and technology, and the economic growth of a country depend, to some extent, on the availability of minerals.

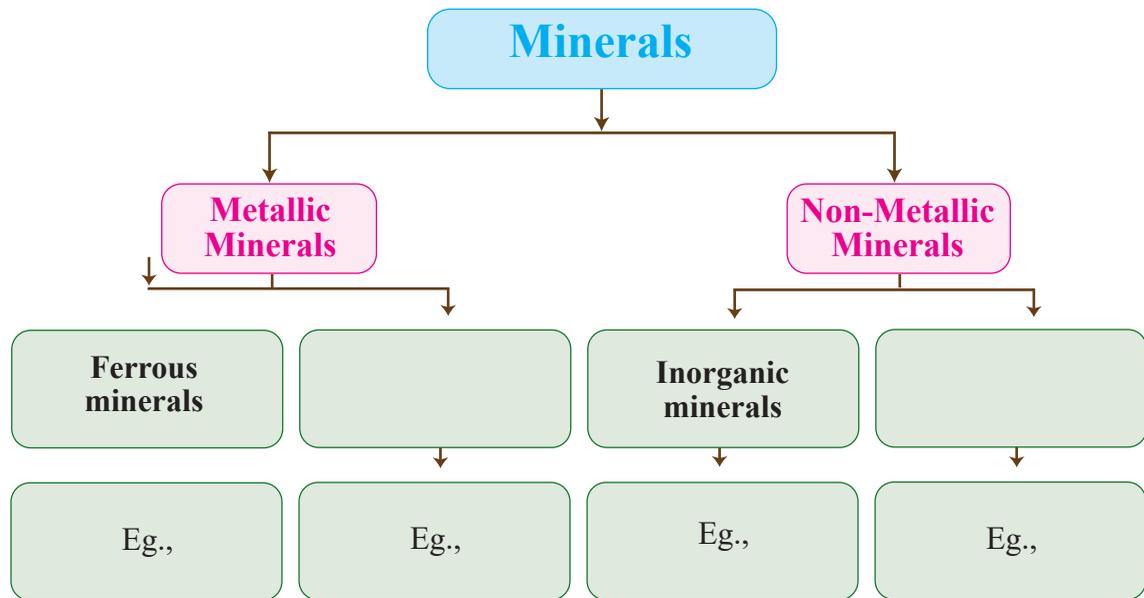
Do you remember learning in your lower classes that minerals can be classified into metals and non-metals?



Natural resources are classified into two types based on their distribution: ubiquitous resources and localised resources. Ubiquitous resources are those found everywhere. Examples: air, solar energy, water etc. Localised resources are those found only in certain parts of the world. Examples: metal ores, fossil fuels, etc.



A diagram showing the classification of minerals is given below. Complete the diagram by filling in the missing parts. Find examples from the box that match each category and write them in the appropriate columns.



Iron, Manganese, Nickel, Aluminum, Bauxite, Copper, Zinc, Gold, Silver, Coal, Petroleum, Natural gas, Mica, Limestone, Graphite, Clay, Marble.

Generally, metals are separated from metal ores and used for various purposes. Iron is used to make everything from frying pans to machines. Titanium, which is stronger than steel but weighs only half as much, is used to make airplanes, jetengines, missiles, and even space vehicles. Gold, a precious metal, is used in jewellery, electronics, and space technology. Not only metals, but also their alloys and compounds are used in agriculture and industry. Manganese compounds are even used in pharmaceuticals (for the manufacture of nuclei). Non-metallic minerals generally do not have metallic properties like luster and are used as raw materials or in combination with other minerals for various industrial purposes.



Hold a classroom discussion on the importance of minerals in our daily life. Summarise the findings and prepare a table similar to the one given below.

Minerals	Uses

Table 8.2

The Earth is rich in rocks that contain many minerals with important metallic elements. Metallic elements can be extracted from these rocks at a relatively low cost. Ores are Earth materials from which one or more metals can be extracted profitably. A metal can be extracted from more than one type of ore. For example, iron can be extracted from minerals such as hematite and magnetite. Similarly, more than one metal can also be obtained from a single ore deposit.



Different Ores
Fig 8.3

Our Earth is rich in a variety of metals. The metals we commonly use and their important ores are given below.



Observe the table and identify them.

Metals	Iron	Copper	Manganese	Aluminium	Cromium
Ores	Hematite	Chalcopyrite	Pyrolusite		
	Magnetite	Native Copper	Psilomelane	Bauxite	Chromite
	Limonite				
Metals	Lead	Sink	Gold	Titanium	Uranium
Ores	Gelina	Sphalerite	Native gold	Ilmenite	Uraninite
				Rutile	

Table 8.3

When beneficial minerals found as natural occurrences in unusually high concentrations, they can be termed as mineral deposits.



Are all mineral-rich areas considered deposits?

Have you understood minerals, their types, properties, and benefits? Are they all found in equal quantities on Earth? Not at all. Moreover, they are not available in abundance everywhere. With continuous exploitation, their quantity will deplete and may eventually disappear from the Earth. As social science students, it is our responsibility to protect this valuable mineral wealth. Now, let's learn about the mineral deposits that have greatly contributed to the progress of human society across the world.

Iron

The picture you see is of the Carajás Mine – the largest iron ore mine in the world. This mine is located in Brazil, a country in South America. Iron is an indispensable metal in our



The Carajás Mine
Fig 8.4

daily life. Just imagine how important iron has been in the development of human society. Don't you remember learning about the Iron Age in your history lessons? Now, write about the various purposes for which we use iron in our daily life.

The largest reserves of iron ore are found in countries like Australia, Brazil, and Russia. India is also one of the major iron-producing countries in the world.



Observe the map below and identify the distribution of iron ore across the world.

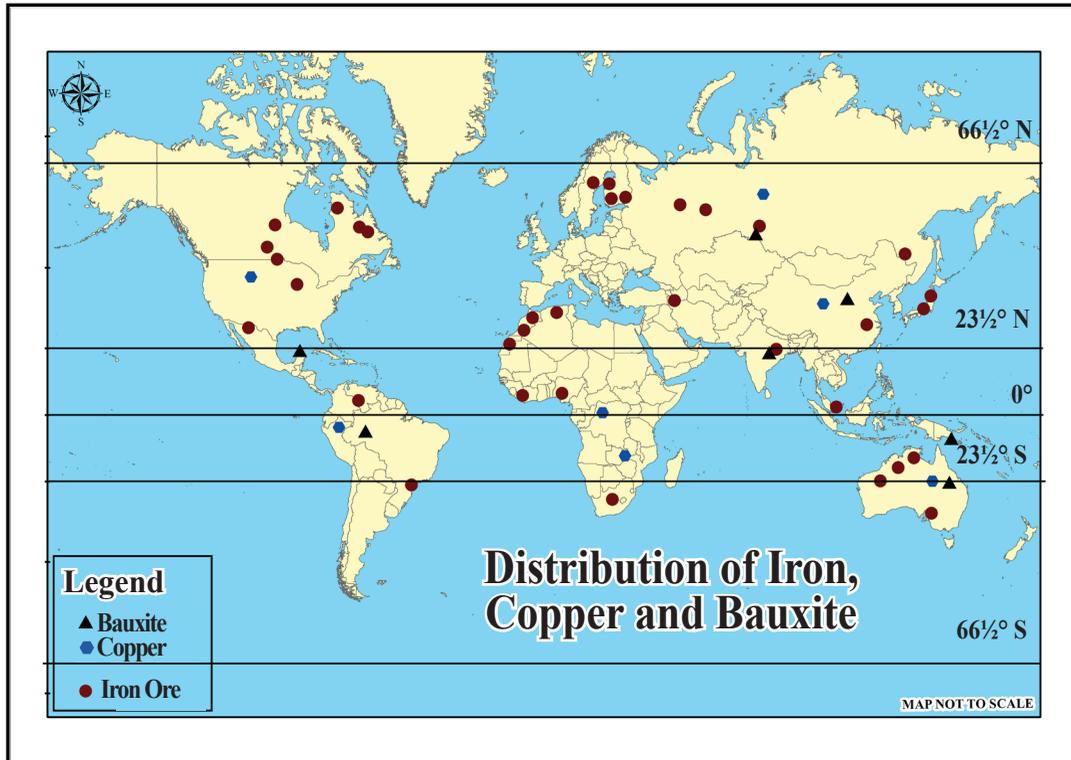


Fig 8.5



Using the map and an atlas, identify other countries that have iron ore deposits and list them.

Iron is a key component in the manufacturing of steel. About 98% of the iron ore mined worldwide is used to produce steel. Nearly 50 countries are involved in iron ore mining. Steel plays a crucial role in maintaining a strong industrial base.



Mark the distribution of iron on an outline map of the world and include it in My Own Atlas.



An ancient copper tool used by early humans
Fig 8.6

Copper

The picture you have seen is of an ancient copper tool used by early humans to cut down tree branches and similar materials. Since copper was often found in a relatively pure state in nature, it was easy to extract and use. Didn't you learn in your history classes that the discovery of copper marked the beginning of the Copper Age?

Early humans used copper for decorative purposes and for making tools and weapons.

Today, copper has become an indispensable metal in the electrical industry, as it is used in making wires, electric motors, transformers, and generators. Find and list other uses of copper.

Chile is the world's leading producer of copper. Below are pictures of Chile's two largest copper mines – Escondida and Collahuasi.



Escondida



Fig 8.7

Collahuasi



- Observe the map (Fig 8.5) and identify the distribution of copper in the world. Mark the major copper-producing regions on an outline map of the world and include it in My Own Atlas.
- Find the location of Chile in the Atlas.
- Prepare a list of countries that are leading in copper production. Find out the specialty of the Collahuasi Copper Mine also.

In addition to iron and copper, there are many other metals that are very useful to humans. Aluminium is used for making electrical wires, motor vehicles, airplanes, cans, and buildings. Manganese is indispensable in metal processing and steel production. Lead is used in making batteries and ceramic products. Chromium is important for the production of stainless steel.



- Examine table (8.3) and find out which is the main ore of the metal, Aluminum.
- Observe the map (Fig 8.5) and identify the distribution of bauxite. Mark the distribution of bauxite on outline map of the world and include it in 'My Own Atlas'.

Non-metallic minerals generally do not have the metallic luster that is typical of metals. They are mined for various industrial purposes. These minerals are used either in their natural state, as raw materials after purification, or in combination with other minerals. Gypsum, limestone, kaolin, and graphite are some of the major non-metallic minerals.



- Identify the distribution of the world's major non-metallic minerals using information technology. Mark their distribution on an outline map of the world and include it in My Own Atlas.

You have now gained a general understanding of the world's major mineral resources, their uses and distribution. Now, let's discuss energy resources.

What are energy resources?

Imagine a day without electricity at your home. How difficult would that be? It is hard to even imagine a situation without electricity. Homes and commercial establishments use electricity for lighting and to operate various appliances. Have you ever thought about where the energy needed to run your fan, TV, radio, mobile phone, and other electrical devices comes from? And where does the energy to run motor vehicles come from?

Any substance that can produce heat, move objects, or generate electricity is called an **energy source**. A substance that releases energy through a chemical process is known as a **fuel**.



List the energy sources you are familiar with:

- Solar Energy
- Coal
- Hydel (Hydroelectric) Power
- Petroleum



When do energy sources become resources?

Energy resources play a crucial role in human life and in the economy of every country. Don't you remember learning in your lower classes that energy resources can be classified into two categories based on their renewability?



Complete the table by classifying the energy resources given below into two categories:

Solar energy, hydroelectricity, coal, petroleum, tidal energy, geothermal energy, wind, natural gas, nuclear energy, bioenergy

Energy Resources	
Non-Renewable resources/ Conventional resources	Renewable resources/ Non-conventional resources
<ul style="list-style-type: none"> ● Natural gas ● 	<ul style="list-style-type: none"> ● Geothermal energy ●

Table 8.4

Don't you remember learning the characteristics of conventional and non-conventional energy resources in your lower classes?



The characteristics of both conventional and non-conventional energy resources are given in the table. Complete it.

Non-Renewable resources/ Conventional resources	Renewable resources/ Non-conventional resources
<ul style="list-style-type: none"> ● These resources get depleted and exhausted with use. ● They cause pollution. ● Very expensive to maintain, extract, and transport ● 	<ul style="list-style-type: none"> ● Available in plenty ● Eco-friendly ● Usually pollution-free ●

The earth has provided humankind with plenty of energy resources. Humans rely on these resources for food production, transportation, healthcare, and almost every sector of human activity.

Fossil fuels belong to the category of non-renewable resources, but they are very important sources of energy. Fossil fuels are formed from the fossilized remains of ancient plants and animals.



List the major fossil fuels

- Coal
-

Now let's discuss the major fossil fuels, such as coal and petroleum.

Coal

Coal is generally the rock formations that originate from plant remains and has a high carbon content. These are carbon-rich sedimentary deposits found in black or brown



The largest coal mine in the world is the North Antelope Rochelle Mine, located in the United States of America.

colour. Coal is used as a fuel in metallurgy (the process of extracting metals from their ores and refining them for use). It is also used as a chemical raw material in the manufacturing of waxes, ointments, medicines, pesticides, and dyes. Coal is a major source of energy for thermal power generation.



Examine the map given below and identify the distribution of coal deposits around the world.

- Mark the distribution of coal deposits on a world outline map and include it in My Own Atlas.
- Using information technology, find out which country has the largest coal reserves in the world.

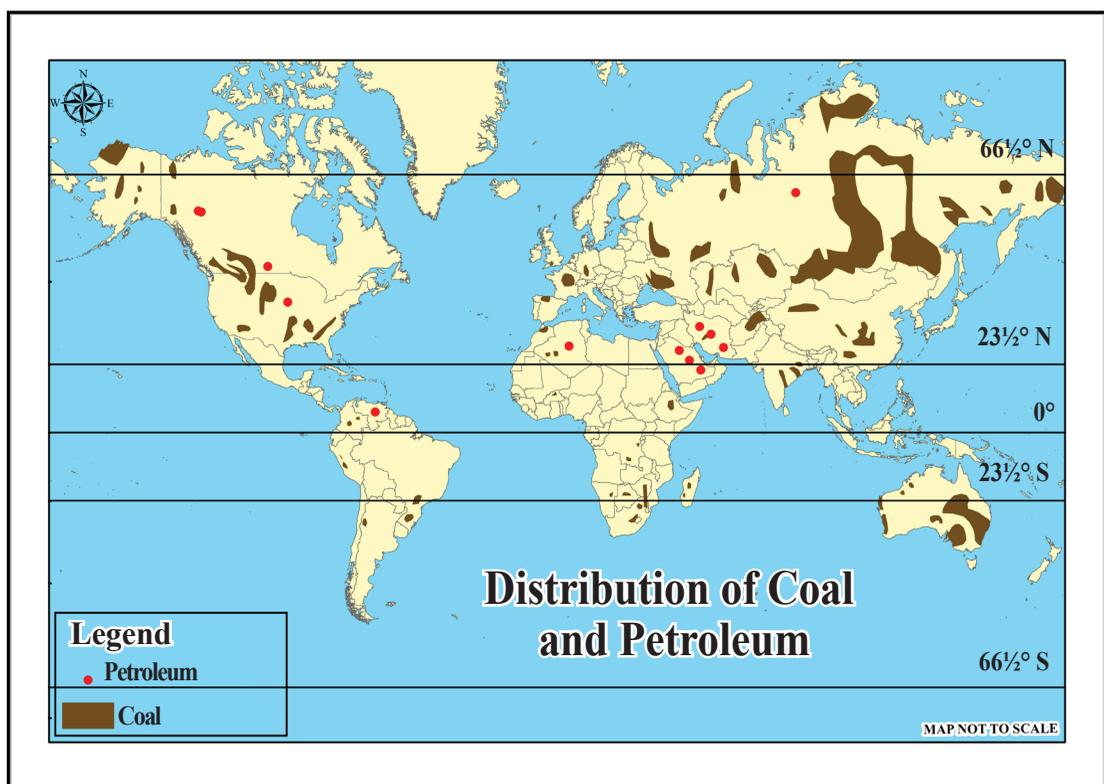


Fig 8.8

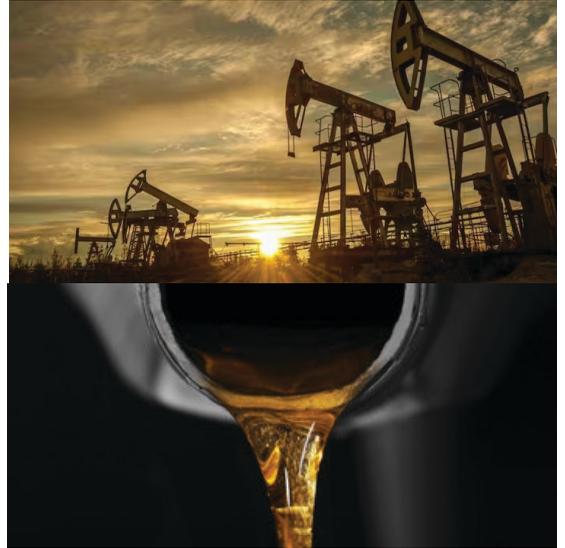
Petroleum

It is not known exactly when humans first began using petroleum. In ancient times, people considered the fire produced from natural gas seeping through surface pores to be sacred and worshiped it. Asphalt was used to waterproof boats and to regulate indoor temperatures during cold seasons. In ancient Egypt, it was also used in pyramid construction and for preserving mummies.

As it originates from rocks, this fuel is called petroleum, meaning 'rock oil'.

The naturally occurring, complex liquid mixture called petroleum is also etymologically referred to as 'black gold'.

With the Industrial Revolution, petroleum gained importance as it became a primary fuel for machines, replacing coal. Since petroleum became available from the Middle East at very low cost, it has significantly changed human life. Today, petroleum, which remains the primary source of energy, has a profound influence on human life.



Prepare a note on the importance of petroleum based on the indicators given below.

- Domestic need
- Petrochemical industry
- Fertilizers
- Artificial fiber, drugs (Medicines)

Saudi Arabia, a leading oil producer, is a prime example of how a region's resources can drive its economic development. Once a poor country before World War II, Saudi Arabia has secured its place among the developed nations in just about four decades.

Observe the Bar diagram and identify the countries that are rich in crude oil deposits in the world.

Crude Oil Deposit The Leading Countries in the World

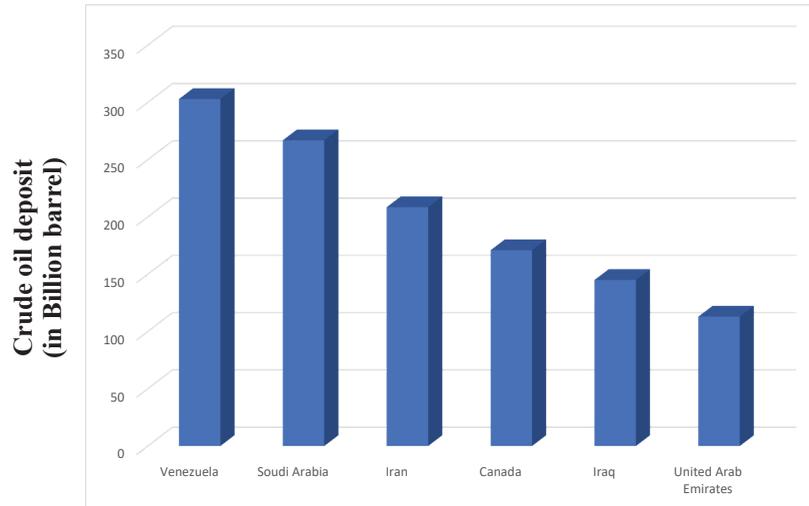


Fig 8.9

According to 2024 USGS data, the USA is the leading country in petroleum production.



Observe the map (Fig 8.8) and identify the regions where petroleum deposits are found in the world. Mark these regions on the outline map of the world and include it in My Own Atlas.



An oil refinery in West Asia

Fig 8.10

Naturally occurring petroleum is usually black or brown in colour, though it can also appear green or yellow. Crude petroleum, a mixture of various components obtained from the Earth, is sent to a refinery to be converted into fuel. Petrol, jet fuel, lubricants (used to reduce friction), asphalt, and many other products are extracted from crude oil.

Thousands of products, including paints, medicines, synthetic fibers, fertilizers, and cosmetics, are produced from petroleum today.



The Maracaibo Basin, located in the northwest of the South American country Venezuela, is rich in oil and natural gas. Lake Maracaibo, spanning an area of about 13,512 square kilometres, is also a major fishing zone. Oil exploration began here in 1917, and today, two-thirds of Venezuela's domestic petroleum production comes from this region. However, overexploitation and environmental issues caused by frequent oil spills remain major challenges.



Pollution in the Maracaibo lake caused by oil spillage

The ever-increasing demand for energy has put immense pressure on fossil fuels. As you know, all fossil fuels are non-renewable energy sources – their reserves will diminish with use and eventually disappear from the Earth forever. Historical records indicate that coal was the first fossil fuel used in the world. It was commonly used as fuel in furnaces to extract metals from their ores. Haven't you heard of the old trains that were powered by steam engines running on coal? Petroleum began to be used for commercial purposes in the 19th century, and its usage has been rising ever since. Natural gas is another fossil fuel that is widely used today, especially in the domestic sector. If fossil fuels become scarce, all developmental activities will come to a standstill. The uncontrolled use of these non-renewable energy sources could lead to a major energy crisis in the future.



Hold a classroom discussion on the topic, '**Uncontrolled Consumption of Fossil Fuels and the Energy Crisis**', and prepare a note on it.

To address imminent issues such as energy crisis caused by the over-exploitation of resources and the damage already inflicted on nature, attention must be focused on sustainable alternative energy sources instead of the currently used ones.

It means we need to develop energy sources that can be regenerated. In this context, we must rely on non-conventional energy sources that are abundantly available and can last for a long time. Let's now examine the major non-conventional energy sources and see how they can be utilised to meet our energy needs.

Solar Energy



We know that the Sun is the primary source of energy. Many techniques are currently in use to convert solar rays into energy. Photovoltaic and solar thermal capture methods are used to harness energy from the Sun. The energy obtained by converting solar rays is stored in photovoltaic cells and used for various purposes.



The kinetic energy of the wind is converted into electricity. The force of the wind is used to spin a windmill, which in turn drives a generator connected to it, producing electricity.

Geothermal Energy



The heat released when magma erupts from the Earth's interior to the surface is efficiently stored and converted into electrical energy. In addition, it is possible to generate thermal energy from the hot water and vapour that emerge from the Earth through geysers. It has significant importance as an alternative energy source.

Tidal Energy



The movement of ocean tides is used to spin turbines and generate electricity.

Bioenergy



Bioenergy is energy produced from organic matter and organic waste. It helps improve the quality of life for rural populations in developing countries and reduces environmental pollution. Today, projects to produce energy from urban waste are also being implemented.

In what ways can non-conventional energy resources be utilised in human life? Hold a discussion based on the details given in the chapter.

Energy from Hydrogen

Hydrogen, a chemical element, is used to produce energy, which can serve as a clean fuel. When hydrogen is burned in a fuel cell, only water vapor is released. The main peculiarity of this energy source is that it does not release pollutants like fossil fuels when they are burned. This energy is useful in areas ranging from transportation to various economic activities. Hydrogen may play an important role in meeting the energy needs of the future.



A geyser in Yellowstone National Park, which is listed as a World Heritage Site. There are more than 300 geysers in Yellowstone National Park.



Energy conservation

Energy Conservation Day - December 14

Each day like this reminds us of the need to protect the Earth as a safe haven for the very existence of life.

ഊർജ്ജ സംരക്ഷണം

Conserve Energy Future





Solar Models



Cochin International Airport
The airport runs entirely on solar energy.



Bhadla Solar Park, the largest solar power plant, is located in Bhadla in the Thar Desert of Rajasthan. It spreads over an area of 14,000 acres and has a capacity to generate 2,245 megawatts of electricity. It is one of the largest solar parks in the world.

We owe the Earth for all the resources essential to our daily life. But, due to the increasing population and growing demand for resources, we are alarmingly exploiting the Earth's systems.

We need to understand that natural resources are gradually dwindling, and a time may come when they will no longer be available to future generations. Therefore, it is essential to maintain a balance between resource consumption and development. This brings us to the idea of conserving natural resources. In a broad sense, conservation of natural resources means protecting the Earth itself so that it can retain its self-regenerative capacity.

Utilising natural resources without harming the ecosystem or affecting the global climate is essential for human survival. We must develop energy sources such as solar energy, wind energy, hydroelectricity, and geothermal energy, simultaneously

reducing the use of fossil fuels, which are scarce, costly to replenish, and have adverse environmental impacts.

Resource conservation means the careful use of resources. It refers to the sum total of all activities that ensure the availability

of natural resources while minimizing excessive consumption that leads to their depletion. Herein lies the relevance of sustainable development.

What is meant by sustainable development?

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

We can move forward by engaging in activities that aim to achieve the objectives of sustainable development, protect the Earth, and conserve resources for a better tomorrow.



It was the Brundtland Commission Report of 1987 that made a significant contribution to resource conservation at the global level. The Brundtland Report, also known as Our Common Future, was the first to propose the concept of sustainable development.

Rio de Janeiro Earth Summit 1992

In June 1992, the first international Earth Summit was held in Rio de Janeiro, Brazil, with the participation of heads of more than 100 nations to address urgent global environmental and socio-economic issues. The heads of nations signed a declaration on global climate change and biodiversity, adopted a global forest policy, and adopted Agenda 21, a set of principles for achieving sustainable development in the 21st century.



“
The world has enough
for everyone's need,
but, not enough for everyone's greed”
”



Extended Activities

1. Prepare a project on the utilization of resources in your area and present your findings in the class.
2. Deliver a speech on the topic: "The Role of Children in Sustainable Development."
3. Visit houses or units in your locality that generate electricity from solar energy. Observe the purposes for which solar energy is used.

CONSTITUTION OF INDIA

Part IV A

FUNDAMENTAL DUTIES OF CITIZENS

ARTICLE 51 A

Fundamental Duties- It shall be the duty of every citizen of India:

- (a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- (b) to cherish and follow the noble ideals which inspired our national struggle for freedom;
- (c) to uphold and protect the sovereignty, unity and integrity of India;
- (d) to defend the country and render national service when called upon to do so;
- (e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- (f) to value and preserve the rich heritage of our composite culture;
- (g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;
- (h) to develop the scientific temper, humanism and the spirit of inquiry and reform;
- (i) to safeguard public property and to abjure violence;
- (j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievements;
- (k) who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between age of six and fourteen years.

CHILDREN'S RIGHTS

Dear Children,

Wouldn't you like to know about your rights? Awareness about your rights will inspire and motivate you to ensure your protection and participation, thereby making social justice a reality. You may know that a commission for child rights is functioning in our state called the **Kerala State Commission for Protection of Child Rights**.

Let's see what your rights are:

- Right to freedom of speech and expression.
- Right to life and liberty.
- Right to maximum survival and development.
- Right to be respected and accepted regardless of caste, creed and colour.
- Right to protection and care against physical, mental and sexual abuse.
- Right to participation.
- Protection from child labour and hazardous work.
- Protection against child marriage.
- Right to know one's culture and live accordingly.
- Protection against neglect.
- Right to free and compulsory education.
- Right to learn, rest and leisure.
- Right to parental and societal care, and protection.

Major Responsibilities

- Protect school and public facilities.
- Observe punctuality in learning and activities of the school.
- Accept and respect school authorities, teachers, parents and fellow students.
- Readiness to accept and respect others regardless of caste, creed or colour.



Contact Address:

Kerala State Commission for Protection of Child Rights

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Email: childrights.cpcr@kerala.gov.in, rte.cpcr@kerala.gov.in

Website : www.kescpcr.kerala.gov.in

Child Helpline - 1098, Crime Stopper - 1090, Nirbhaya - 1800 425 1400

Kerala Police Helpline - 0471 - 3243000/44000/45000

Online R. T. E Monitoring : www.nireekshana.org.in