



# STANDARD NINE

# GEOGRAPHY



# UNIT 1

# Lithosphere – I Endogenetic Processes



## Learning Objectives

- To know about the spheres of the Earth
- To illustrate the internal structure of the Earth
- To study the rock types and its cycle
- To explain the internal processes of the Earth
- To understand the processes of Earthquakes and volcanoes



## Introduction

The Earth is a unique planet of the Solar family. The Earth is composed of four spheres namely, the lithosphere, the atmosphere, the hydrosphere and the biosphere. This lesson focuses on the internal processes of the Earth. The sequence of lessons generally follows the spheres of the Earth system in a comprehensive manner.

Have you ever wondered what our Earth is made up of? Or what lies underneath the Earth's surface?

“The Earth can physically be described as a ball of rock (the lithosphere), partly covered by water (the hydrosphere) and wrapped in an envelope of air (the atmosphere). To these three physical zones it is convenient to add a biological zone which includes all the living organisms (the biosphere).”

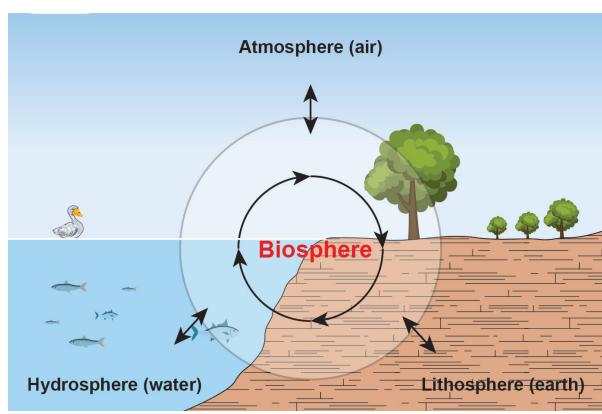
Arthur Holmes

## 1.1 Spheres of the Earth

Earth's surface is a vast area of 510 million sq.km, where four spheres of the Earth interact. The abiotic spheres are the lithosphere, atmosphere and hydrosphere. The biotic sphere is the biosphere. Together, these spheres constitute the planet, Earth.

## 1.2 Structure of the Earth

The outer surface and inner core of the Earth are totally different in their nature and structure. The structure of the Earth's interior is divided into three layers namely **the crust, the mantle and the core**.





The **lithosphere** is the solid outer part of the Earth.

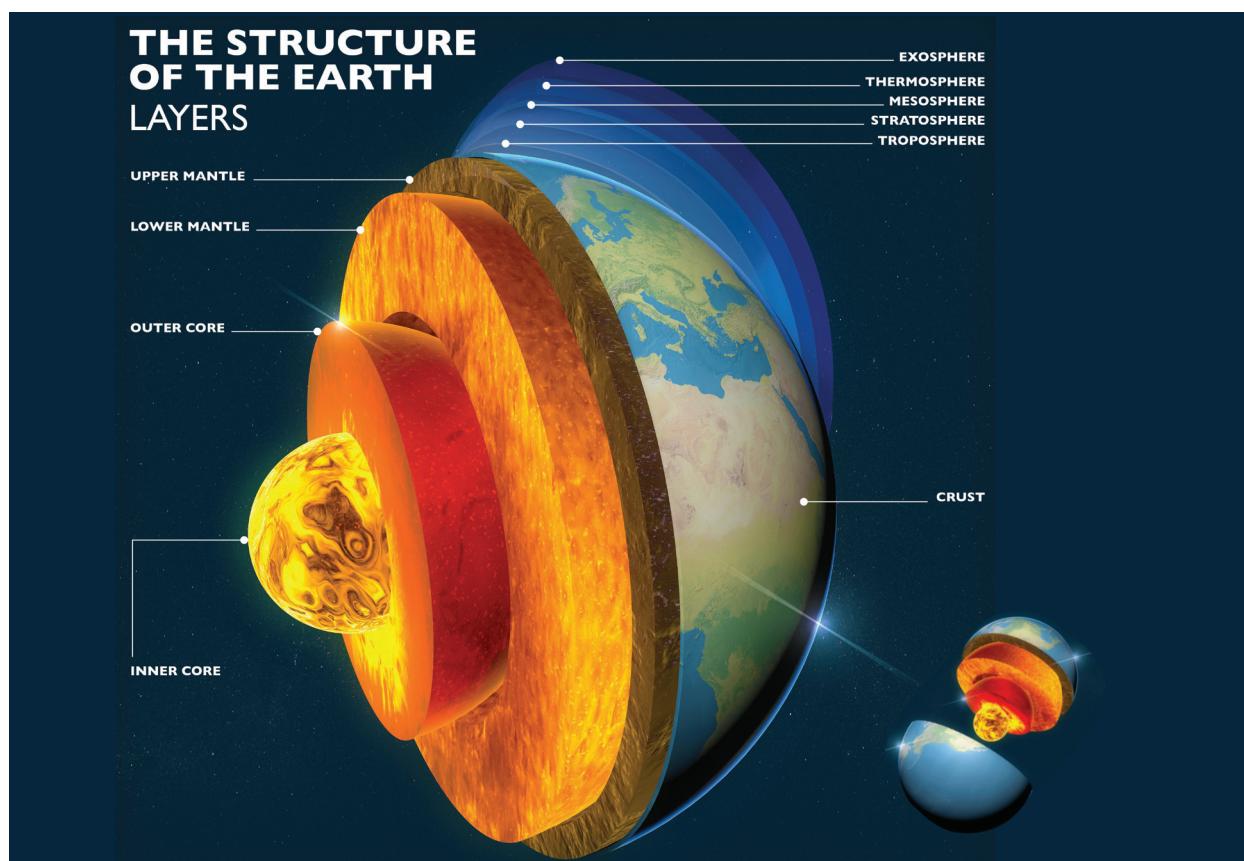
The **atmosphere** is a thin layer of gases that surrounds the Earth.

The **hydrosphere** is the watery part of the Earth's surface including oceans, rivers, lakes and water vapour

The **biosphere** is the layer of Earth where life exists.

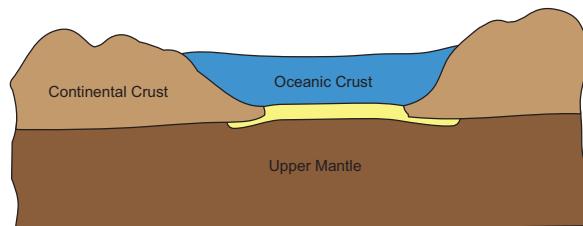
The terms '**lithosphere**' and '**crust**' are not the same. The lithosphere includes the crust and the uppermost part of the mantle.

All terrestrial planets have lithosphere. The lithospheres of Mercury, Venus, and Mars are much thicker and more rigid than that of the Earth.



## Crust

Crust is the outer layer of the Earth, where we live. It is the skin of our Earth, which ranges between **5 to 30 km**. It is the solid and rigid layer of the Earth. The thickness of the crust is greater below the continents than the ocean floor. The crust is classified as **continental crust** and **oceanic crust**. The major elements of crust SIAL are Silica (**Si**) and Aluminium (**Al**) and SIMA (**Si** - Silica and **MA** - Magnesium)



Continental Crust is made up of SIAL and  
Oceanic Crust is made up of SIMA



## Mantle

The interior part beneath the crust is called mantle, which is about 2,900 km thick. The major elements of the mantle are Silica (**Si**) and Magnesium (**Mg**) and hence it is also termed as **SIMA**. In the upper part of the mantle, the rock remains solid, whereas in the lower part of the mantle, rocks are in molten form. This molten rock inside the Earth is called '**magma**'.

## Core

The **core** is the innermost and hottest layer of the Earth which lies below the mantle. It is composed mainly of Nickel (**Ni**) and Iron (**Fe**). Hence it is called **NIFE**. The core is divided into **Solid inner core** and **Liquid outer core**. The presence of large quantities of iron in the core is responsible for the Earth's gravitational force. As the Earth rotates on its axis, the liquid outer core spins over the solid inner core and generates the Earth's magnetic field. This is responsible for the functioning of the magnetic compass. Due to high pressure, the materials in the inner core are unable to move and hence remain solid.

## 1.3 Rocks

The crust is a storehouse of rocks. An aggregate of minerals on the Earth's crust is called 'rock'. It may be hard and compact like 'granite' or soft as 'clay' or loose as 'sand'.



**The Deepest Place** ever reached by human technology vary from time to time. Till 2011 **Kola Super Hole** (12,262m)

in Murmansk, Russia was the deepest place. But in 2012, **Z-44 Chavyo Well** (12,376m) broke the record, and is supposed to be 15 times the height of **Burj Khalifa in Dubai**. The exploration of Earth's interior continues.

## Types of Rock

Based on formation, rocks are classified as:

- Igneous,
- Sedimentary and
- Metamorphic.

## Fact

The ancient city of Petra in Jordan is an example of an entire city carved out of rocks. There are many specimens of magnificent rock-cut architecture in India, like the Ajanta and Ellora caves in Maharashtra, the Aihole and Badami temples in Karnataka, the Konark temple in Odisha and Mamallapuram in Tamil Nadu.

## Igneous Rocks

The word 'igneous' is derived from the Latin word **Ignis** meaning '**Fire**'. The interior of the Earth contains very hot molten material called '**Magma**'. When the magma reaches the Earth's surface, it is referred to as '**Lava**'. The lava on the surface cools down and gets solidified as rocks called igneous rocks. Granite and basalt are examples of such rocks. Igneous rocks are also called **Primary or Mother rocks** because all other rocks are directly or indirectly formed from them.

## Sedimentary Rocks

These sedimentary rocks are named after the latin word 'sediment' meaning 'settle'. Rivers, glaciers and winds carry bits of rock and soil and deposit them in layers. After a few million years, these deposits harden into compact rocks and are called **Sedimentary rocks**.

The bodies of plants and animals that fall on the deposits get embedded in the layers and form **Fossils**. Sandstone, limestone, chalk, gypsum, coal and conglomerate are examples of sedimentary rocks.

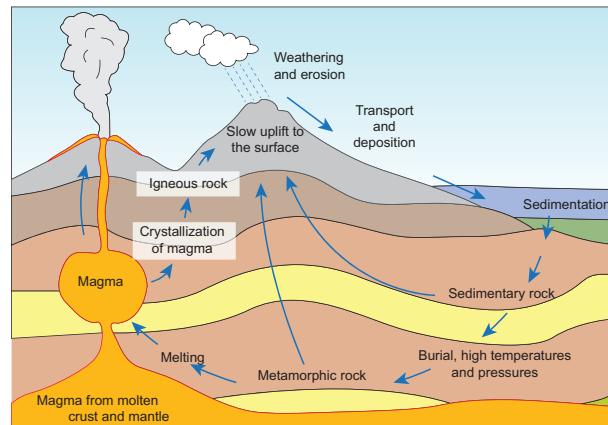


## Metamorphic Rocks

The term ‘metamorphic’ is derived from the word ‘metamorphosis’, which means, ‘change of form’. When igneous or sedimentary rocks are subjected to extreme heat and pressure, they undergo a complete change in their form and character i.e., in course of time, granite may get transformed to gneiss, basalt to schist, limestone to marble and sandstone to quartzite.

## Rock Cycle

The Rock cycle is a continuous process through which igneous, sedimentary and metamorphic rocks are transformed from one form to another.



### Activity

Narrate the processes involved in the given rock cycle diagram in your own words.

## 1.4 Geomorphic Processes

The forces that act from the Earth's interior towards the Earth's surface are called **Internal processes** or **Endogenetic processes**. These forces build the landscape and create topographic relief.

The forces that act on the surface of the Earth due to natural agents like running water, glacier, wind, waves etc. are called **External processes** or **Exogenetic processes**. These external processes tear the landscape

down into relatively low elevated plains and shapes the landform created by Endogenetic process.

### Internal Processes

The internal processes generate heat and eject materials from deep below the Earth's crust. **Internal radioactivity** is the principal source of power for this process.

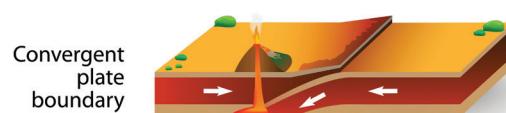


### Plate Tectonics

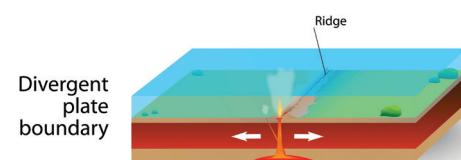
The lithosphere is divided into a number of huge slabs of rocks called '**Tectonic plates**'. These tectonic plates are divided into major and minor plates. These plates float independently over the mantle. Collisions of these plates produce mountain ranges and other irregular surface features, both on land and the ocean floor. This phenomenon is called '**plate tectonics**'. The movement of tectonic plates is due to thermal energy from the mantle. Now we have a better understanding about the plate movements and its relation to Earthquake and volcanic activities.

### Types of Plate Boundaries

**Convergent Boundary** - Here the plate moves toward each other and sometimes, a plate sinks under another. The location where the sinking of a plate occurs is called a subduction zone (eg) Fold Mountain-Himalayas.

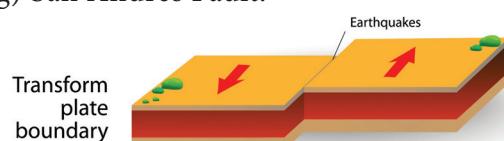


**Divergent Boundary** – Here the plates pull away from each other as magma pushes up from the mantle (eg) Mid Atlantic Ridge





**Conservative/Transform Boundary** – Here the plates slide horizontally past each other.  
(eg) San Andres Fault.



## Movements of Continental Plates

Due to lateral compressional forces, the plates are forced to move upwards and downwards. This is called '**Folding**'. Mountains formed by folding are called fold mountains. The process of folding creates

lofty mountain ranges such as the Himalayas and the Alps

According to plate tectonics, the plates are in constant motion with an average rate of few centimetres per year. The movement might seem slow, but over millions of years, the plates and the continents riding on them move a long way. For example, about 250 million years ago, the Indian Plate was a part of the **Gondwana land**, which comprised of modern Africa, Australia, Antarctica, and South America.

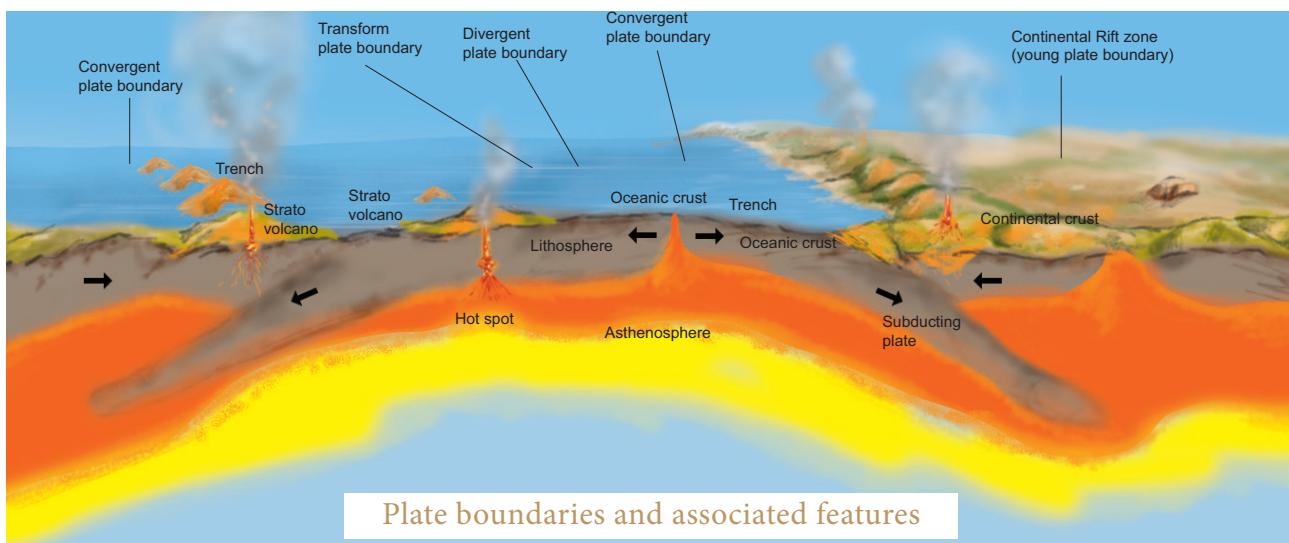
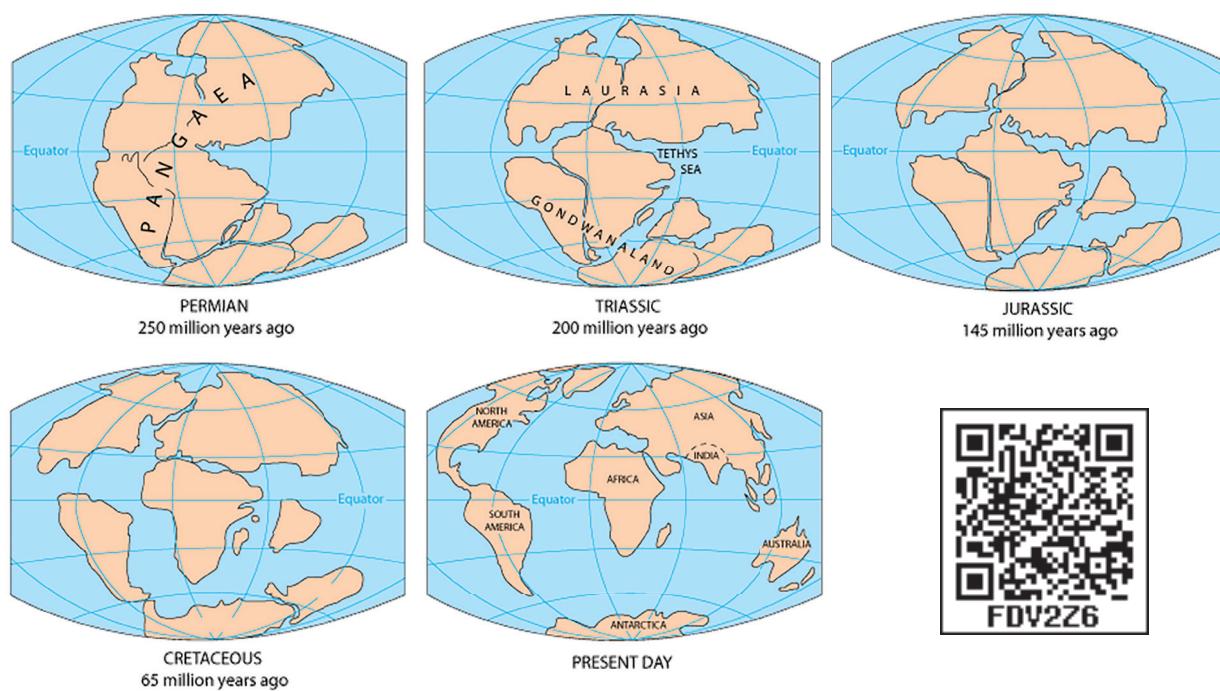


Plate boundaries and associated features





Approximately 140 million years ago, the Indian plate broke away from the ancient super continent ‘Gondwana’ and began moving north and collided with Asia. The collision with the Eurasian Plate along the boundary between India and Nepal formed the **Orogenic** belt that created the Tibetan Plateau and the mighty Himalayan Mountains.

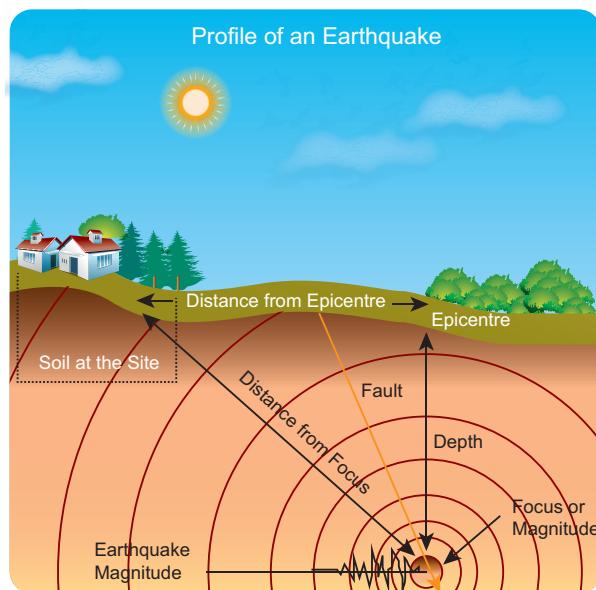
### Activity

Here is a list of a few mountains.

- Ural Mountains, Andes Mountains, Vindhya Range, Alps mountains,
- Satpura range, Rocky Mountains, Sierra Nevada.
- Identify and Locate with help of atlas

### Earthquake

**Earthquakes are generally caused by the sudden vibrations in the Earth's crust, which spreads outward in all directions as waves from the source of disturbance.** The point of origin of an Earthquake is called '**'Focus' (Hypocenter)**' which generates a series of elastic waves. '**'Epicentre'** is a point on the Earth's surface that lies directly above the focus. The impact of the Earthquake is felt the most at the epicentre.



### Seismic Waves

Earthquakes generate **seismic waves**. The nature, force and speed of these seismic waves depend on the nature of the medium through which it passes. Accordingly, there are three major types of waves.

**Primary or P-waves** are the fastest of all the Earthquake waves and the first to reach the epicentre. These waves pass through solids, liquids and gases, either through push or pull with an average velocity of 5.3km per second to 10.6 km per second.

### Fact

C.F. Richter devised a scale to measure the magnitude of Earthquakes. This scale relates to the energy released at the epicentre and provides an estimation of the severity of an Earthquake. It is an open ended scale. The highest magnitude ever recorded is 9.5 on Richter scale (Bio-Bio, Chile in 1960).

**Secondary or S-waves** travel only through solids. These transverse waves shake the ground perpendicular to the direction in which they propagate. The average velocity of these waves is 1Km per second to 8 km per second.

**Surface Waves (or) L-waves** are similar to P-waves but they travel primarily along the ground surface. These waves travel comparatively slower and are the most destructive waves. The average velocity of these waves are 1 km per second to 5 km per second.



The instrument which records the Earthquake waves is called ‘seismograph’ or ‘seismometer’. The science that deals with Earthquakes is called ‘seismology’.

### Tsunami

The word ‘Tsunami’ is a Japanese term, meaning harbour waves. It is adopted to describe



large seismically generated sea waves caused by Earthquakes, submarine explosions and landslides. These waves travel at a great speed (more than 500 km per hour) and the length of the waves exceeds 600 km. These waves reach to a height of more than 15 m near the sea shore and are capable of causing destruction along the coastal area.

The 2004 Indian Ocean Earthquake that caused tsunami is the sixth-deadliest natural disaster which travelled at a speed of 600 km per hour with an estimated death toll of 2,80,000. The Earthquake which occurred near Indonesia at 00.58 hours took nearly 7 hours to reach Chennai.



On 26 December 2004 a tsunami occurred in the Indian Ocean. It was the **result** of the Indio-Australian Plate **subducting** below the Eurasian Plate. It was caused by an Earthquake **measuring** a magnitude of above 9 in the Richter scale. The Earthquake caused the **seafloor** to **uplift**, displacing the seawater above.

## Volcanoes

A volcano is a vent or an opening on the surface of the Earth crust, through which hot solid, liquid and gaseous materials (**Magma**) erupt out to the surface from the Earth's interior. Magma rises up and ejects on the surface as **Lava**. Volcanoes are also formed when plates move apart.

Volcanoes generally have the following major components. They are:

- i. Magma chamber - a large pool of liquid rock found beneath the surface of the Earth
- ii. Vents - an opening serving as an outlet for air, smoke, fumes, magma etc
- iii. Volcanic cone - a landform built by the magma ejected from the vent in the shape of a cone.

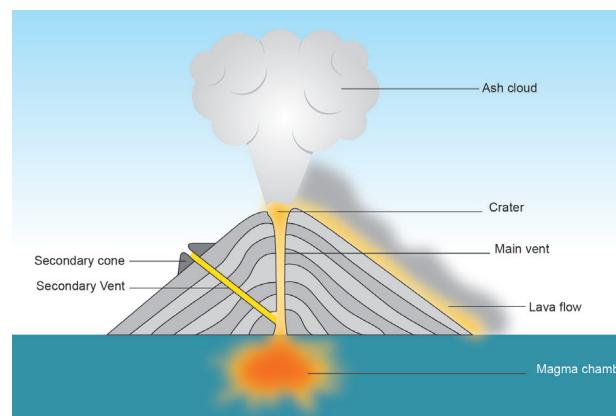
iv. Crater - a bowl shaped depression found at the top of the volcano through which the magma flows out.

Based on the periodicity **of eruptions**, volcanoes are classified into

- (i) Active volcano, (ii) Dormant volcano, (iii) Extinct volcano.



The term 'volcano' is derived from the Latin term VULCAN, which is the name of Roman "God of Fire".



### a. Active Volcano

Active volcanoes are those which constantly eject volcanic lava, gases and fragmented materials. (e.g.) Mount St. Helens in the United States.



### b. Dormant Volcano (or) Sleeping Volcano

Volcanoes that do not show any sign of volcanic activity for a long period of time are known as dormant volcanoes. Sometimes there may be a sudden explosion which may cause unimaginable loss to life and property (e.g.) Mt. Fuji , Japan



### c. Extinct or Dead Volcano

When a volcano permanently stops its volcanic activity, then it is



called as extinct or dead volcano (e.g.) Mt. Kilimanjaro, Tanzania Tiruvannamalai - Tamilnadu

### Activity

Take a bottle filled with soda. Give it a few shakes. Now twist the cap open. What do you observe?

Volcanoes can also be classified based on their **structure and composition** as composite volcano, shield volcano and dome volcano

#### d. Composite Volcano

**Composite volcano**, also known as strata volcano, is a conical volcano built by many layers of hardened lava, pumice and volcanic ash. These are commonly found in the Pacific Ocean Eg. Mt. Fuji, Japan

#### e. Volcanic Dome

A lava dome or volcanic dome is roughly a circular mound formed due to the slow ejection of viscous lava from a volcano. As the lava is rich in silica with intense viscosity, it is prevented from flowing far from its vent. e.g. Parícutin, Mexico

#### Hots

Pacific Ring of Fire — Most seismically and volcanically active. Why?

#### f. Shield Volcano

Shield volcanoes are formed by intense viscous lava.

These are shallow depositions with gently sloping sides.



Hence the lava flows out in all directions to create a shield.

E.g., Mauna Loa, Hawaii

### Distribution of Earthquakes and Volcanoes

Most Earthquakes and volcanic eruptions do not strike randomly, but occur along the plate

boundaries. One such area is the **Circum-Pacific Ring of Fire**, where the Pacific Plate meets many surrounding plates. The Ring of Fire is the most seismically and volcanically active zone in the world. The other distinctive major belts are Mid-Oceanic Ridges ,Mid-Continental Belts and Alpine - Himalayan belt.

### Effect Of Volcanoes

#### Constructive Effects

Volcanic materials enrich the soil fertility that promotes agricultural activities. The hot volcanic region helps in generating geothermal energy. Many dormant and active volcanoes are the most attractive tourist spots of the world. Most of the volcanic materials are used as building materials.

#### Destructive Effects

Volcanic eruption causes Earthquakes, flash floods, mud slide and rock fall. Lava can travel very far and burn, bury, or damage anything in its path. The large amount of dust and ash makes breathing hard and irritable. Volcanic eruptions can alter the weather conditions and disrupt transport (Iceland volcanic eruption) in and around the volcanic region.

### Recap

- The spheres of the Earth are the lithosphere, atmosphere, hydrosphere and biosphere.
- Earth's interior is divided into three layers - Crust, Mantle and Core.
- Based on composition, the crust, mantle and core are referred to as SIAL, SIMA and NIFE respectively.
- The formation and deformation of landforms on the surface of the Earth are due to continuous internal and external processes.
- The lithosphere is composed of major and minor tectonic plates.
- Earthquake is the shaking or trembling of the Earth's crust.
- Earthquake and volcanoes are useful to understand the Earth's interior.



## EXERCISE



### I Choose the correct answer

1. \_\_\_\_\_ is the rigid outer layer of the Earth.
  - a. core
  - b. mantle
  - c. Crust
  - d. inner core
2. \_\_\_\_\_ layer is made up of liquid iron
  - a. Inner core
  - b. Outer core
  - c. Mantle
  - d. Crust
3. Magma is found in the \_\_\_\_\_
  - a. crust
  - b. mantle
  - c. core
  - d. None of the above
4. Diastrophism is connected to
  - a. volcanism
  - b. earthquakes
  - c. tectonics
  - d. fold/fault
5. The movement of tectonic plates is induced by \_\_\_\_\_ energy.
  - a. hydel
  - b. thermal
  - c. wave
  - d. tidal
6. In the ancient period, Gondwanaland moved towards \_\_\_\_\_ direction.
  - a. north
  - b. south
  - c. east
  - d. west
7. Many million years ago, India was a part of the super continent \_\_\_\_\_.
  - a. Gondwana
  - b. Laurasia
  - c. Panthalasa
  - d. Pangea.
8. The movement of plates that creates stress and tension in the rocks causing them to stretch and cracks result in \_\_\_\_\_.
  - a. fold
  - b. fault
  - c. mountain
  - d. earthquake
9. \_\_\_\_\_ refers to a bowl-shaped depression found at the top of the volcano.

- a. crater
- b. vent
- c. chamber
- d. volcanic cone

10. The point of origin of an Earthquake is called the \_\_\_\_\_
  - a. epicentre
  - b. focus
  - c. seismic wave
  - d. magnitude

### II. Match the following

- |                          |                       |
|--------------------------|-----------------------|
| 1. Endogenetic           | — Seismograph process |
| 2. Mantle                | — Subduction Zone     |
| 3. Convergent boundaries | — Volcanic            |
| 4. Earthquake            | — Pacific Ocean       |
| 5. Composite volcano     | — SIMA                |

### III. Consider the given statements:

1. i. Mt. Fuji is a dormant volcano  
ii. Mt. Kilimanjaro is a dormant volcano  
iii Mt. Tanzania is a dormant volcano

Which of the statement(s) is/are true

- a. i is true
- b. ii is true
- c. iii is true
- d. I, ii, iii are true

2. **Statement:** Magma gushes out when it finds vents.

**Reason:** Interior of the Earth contains compressed hot magma

Which of the statement(s) is/are true

- a. Statements & reason are true
- b. Statements is true, reason is false
- c. Statement is false reason is true
- d. Statement & reason are false

3. **Statement I:** Mountain ranges are formed by the collision of tectonic plates

**Statement II:** The movement of tectonic plates is due to the thermal energy from the mantle

- a. Statement I is false II is true
- b. Statement I and II are false



- c. Statement I is true II is false
- d. Statement I and II are true

#### IV. Answer in brief:

1. Write a brief note on the various spheres of the Earth.
2. Mention the layers of the interior of the Earth.
3. Define Plate tectonics.
4. What is Tsunami?
5. What is a Volcano? Mention its major components.
6. What is an Earthquake and how it occurs?
7. What are seismic waves and mention its types?
8. Write about the Pacific Ring of fire.

#### V. Give Reasons for the following:

1. SIAL floats over SIMA.
2. Igneous rocks are also called Primary Rocks or Mother rocks.

#### VI. Distinguish between

1. Core and crust.
2. Epicentre and Hypocentre
3. Divergent and convergent boundaries.
4. Primary waves and Secondary waves.
5. Shield volcano and volcanic Dome.

#### VII. Write answers in a Paragraph

1. Describe the structure of the Earth.
2. Write a note on the internal and external processes of Earth.
3. How are volcanoes classified based on the periodicity of their eruptions?
4. Explain the effects of Volcanoes.

#### VIII. Map Skill

On the given outline map of the world, mark the following:

- a. Pacific Ring of fire
- b. Earthquake prone zones (any two)
- c. Locate any two active volcanoes of the world.
- d. Himalayas and Alps ranges
- e. Rift valley of East Africa.

#### IX. HOTS

Consider the various sources of information related to the Earth's Interior. Classify the above as DIRECT & INDIRECT sources of information. Give reasons

- |                       |                      |
|-----------------------|----------------------|
| ◆ Seismic activity    | ◆ Earth 's magnetism |
| ◆ Volcanoes           | ◆ Mined rocks        |
| ◆ Gravitational force | ◆ Meteors            |

#### X. Life Skills

Imagine that you feel tremors or shocks in your locality. What will be your role in saving lives from destruction? List out the Do's and Don'ts.



## UNIT 2

# Lithosphere – II Exogenetic Processes



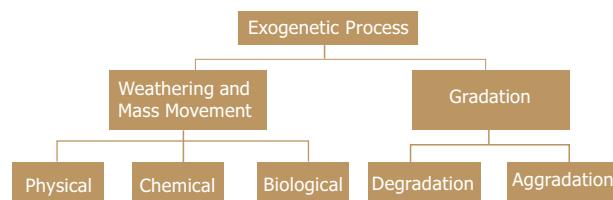
## Learning Objectives

- To comprehend the various external processes of the Earth
- To study the different types of weathering and the resultant features
- To learn how the weathered materials are transported by movement
- To study about the erosional and depositional landform features associated with rivers, underground water, glaciers, winds and waves



## Introduction

The Earth is a dynamic system that undergoes various changes due to internal and external processes. The continuous interaction of these two processes controls the structure of the earth's surface. The external processes are the consequence of solar energy and gravitational forces, whereas the internal processes are an outcome of the earth's internal heat.



## 2.1 Weathering

**Weathering** is the breaking, disintegration and decomposition of materials of the earth's crust by their exposure to atmosphere.

There are three types of weathering

- Physical weathering,
- Chemical weathering and
- Biological weathering

## Physical weathering

It is the breakdown of rocks without changing their chemical composition, through the action of physical forces. The constant freezing and thawing of rocks during the night and day leads to the expansion and contraction of rocks. Cracks are formed and disintegration occurs eventually. **Exfoliation, block disintegration, granular disintegration** etc., are the different types of weathering.

## Exfoliation

The alternate heating and cooling on rounded rock surfaces leads to the peeling of rocks, layer by layer like an onion. This is called **exfoliation**. **sheeting** and **shattering** are the other forms of exfoliation.





### **Granular Disintegration:**

Granular disintegration takes place in crystalline rocks where the grains of the rocks become loose and fall out. This is due to the action of **temperature** and **frost**.



### **Block Disintegration:**

Repeated expansion and contraction of rocks during day and night respectively causes stress on the joints of the rocks which results in block disintegration



#### **Hots**

Is weathering a pre-requisite in the formation of soil?

#### **Facts**

The disintegrated rock materials, in due course of time, are weathered further, to form soil. Soil is a mixture of disintegrated rock material and decayed organic matter called humus.

### **Chemical Weathering**

Disintegration and decomposition of rocks due to chemical reactions is called

**Chemical Weathering.** This is predominantly high in the hot and humid regions such as the equatorial, tropical and sub tropical zones. Chemical weathering takes place through the processes of **oxidation**, **carbonation**, **solution**, and **hydration**. The agents of Chemical weathering are Oxygen, Carbon-dioxide, Hydrogen and water.



#### **Oxidation**

Oxygen in the atmosphere reacts with the iron found in rocks, thus leads to the formation of iron oxide. This process similar to the rusting of iron, pressure of air and water is known as oxidation, which results in the weakening of rocks.

#### **Carbonation**

Carbonation is the mixing of water with the atmospheric carbon-dioxide, forming carbonic acid. Carbonation is important in the formation of caves, in limestone region. When the carbonic acid reacts with the carbonate rocks, the rocks get disintegrated.

#### **Solution**

The process of dissolution of rock substances in water result in the loosening of the rock particles. This inturn breaks down the rocks.

#### **Hydration**

Absorption of water into the mineral structure, certain chemicals in the rock enlarge in size in humid conditions. These minerals found in the rock swell and this results in the development of cracks and the



rock wears down. This type of weathering is called hydration.

### Biological Weathering

Biological weathering occurs due to the penetration and expansion of plant roots, earthworms, burrowing animals (rabbits, rats) and some human activities.



## 2.2 Gradation

Gradation is the process of levelling of the land by means of natural agents like rivers, ground water, winds, glaciers, and sea waves. These agents produce various gradational relief features in due course of time. Gradation takes place in two ways: **degradation** and **aggradation**.

**Gradation or Denudation** is the levelling wearing down of the land surface by various natural agents.

**Aggradation** is building up of landforms due to natural agents.

**Degradation** is eroding of land surface

$$\text{Gradation} = \text{Erosion} + \\ \text{Transportation} + \text{Deposition}$$

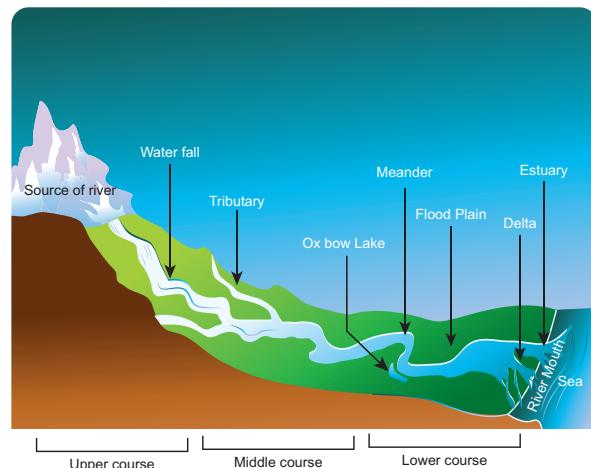
### Agents of Gradation

#### Running water (River) (Fluvial Land forms)

The work of running water (rivers) is the most extensive among all the other agents of gradation. Rivers originate on higher landforms like, mountains, hills and plateaus that receive water from various sources like the rain, glaciers, springs, lakes, etc. The



place where the river originates is called its source and where it joins the sea is known as its mouth.



### Courses of River:

Rivers generally originate from mountains and end in a sea or lake. The whole path that a river flows through is called its course. The course of a river is divided into:

- i. The upper course
- ii. The middle course and
- iii. The lower course

#### i. The Upper Course

**Erosion** is the most dominant action of river in the upper course. In this course, a river usually tumbles down the steep mountain slopes. The steep gradient increases the velocity and the river channel performs erosion with great force to widen and deepen its valley. The land features carved by a river in its upper course are **V-shaped valleys, gorges, canyons, rapids, pot holes, spurs, and waterfalls**.

#### ii. The Middle Course-

The river enters the plain in its middle course. The volume of water increases with the confluence of many tributaries and thus increases the load of the river. Thus, the predominant action of a river is **transportation**. Deposition also occurs due to the sudden decrease in velocity. The river in the middle course develops some typical landforms like **alluvial fans, flood plains, meanders, ox-bow lakes etc.**,



### iii. The Lower course

The river, moving downstream across a broad, level plain is loaded with debris, brought down from its upper and middle courses. Large deposits of sediments are found at the level bed and the river, splits into a number of channels called distributaries. The main work of the river here is **deposition** and it develops typical landforms like **delta and estuary**.

- **Tributary** – Small streams that join the main river. Eg. River Bhavani
- **Distributary** – River channels that get separated from the main river. E.g., River Kollidam.

### Erosional Landforms of River Gorges and Canyons:

When the river flows through a mountainous region made up of hard rocks, it forms a valley with almost vertical sides called gorge. In India, deep gorges have been formed by Brahmaputra and Indus in the Himalayas.

A deep gorge with steep sides that runs for hundreds of kilometres is referred to as canyon e.g. Grand Canyon of the river Colorado in the U.S.A.



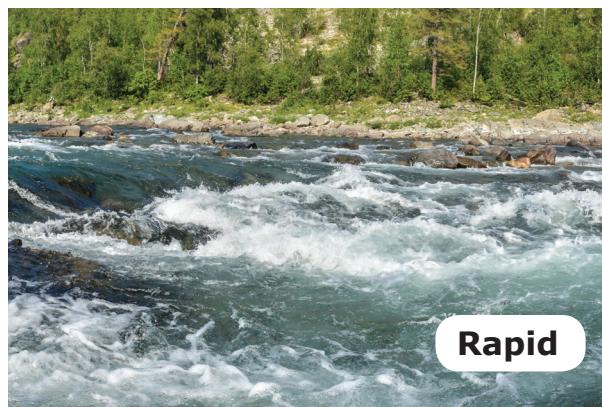
Canyon

### Waterfall

When a river flows in a region where hard rocks lie over soft rocks horizontally, the soft rocks get eroded quickly and the hard rocks projects outwards. Thus, the river falls vertically from a steep slope to form a **waterfall**. When the water falls with great

force, it erodes the rock material beneath and creates a depression called a **plunge pool**. Shallow fast flowing water in a stream is called a **rapid** or **river jumps**

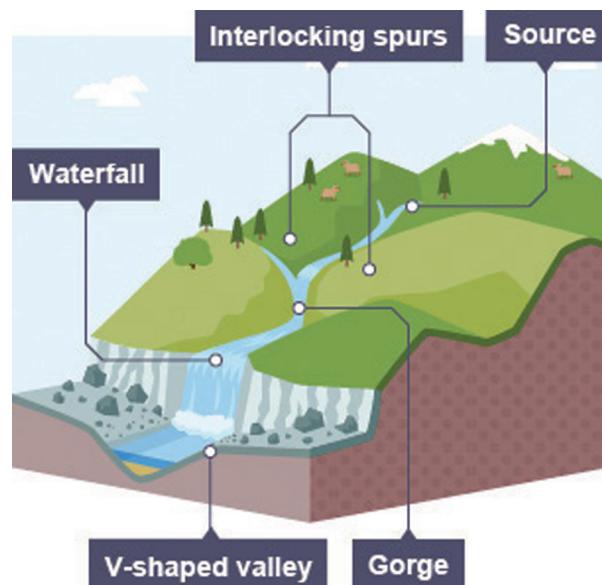
The highest waterfalls in the world is Angel falls (979 m) in Venezuela.



Rapid

### V-shaped valley

A 'V'- shaped valley is formed by the vertical erosion of the river where the valley is deepened and widened.



### Pot hole

Due to the river action, cylindrical holes are drilled vertically in the river bed, with varying depth and diametre. These are called **pot holes**.



## Meander

As the river loaded with debris flows slowly, it forms sweeping loops and bends. It is referred to as meanders.



## Ox bow lake

Meanders in due course of time become almost a complete circle with narrow necks. This in turn gets abandoned and forms a lake. This is called an Ox-bow lake.

The world's largest oxbow lake is Lake Chicot in Arkansas of USA. Lake Kanwar in Bihar (India) is Asia's largest fresh water ox bow lake.

## Depositional Landforms of River

### Alluvial Fan

A fan shaped deposition made by the river at the foothills is called an alluvial plain

### Flood Plain

Fine sediments are deposited on river banks when a river floods. These sediments make the region rich and fertile. This is called

a flood plain. As the height of the river banks gets increases due to continuous deposition of a flooded river, levees are formed.

**Estuary:** Estuary is formed where the river meets the sea. Deposition of silt by the river is not possible here in the estuaries like delta as if the waves keep on eroding the deposits. Ex. River Narmada and Tapti.

### Delta

A triangular shaped low lying area formed by the river at its mouth is called delta. Deltas have fine deposits of sediments enriched with minerals. Eg. Cauvery Delta, Tamil Nadu.



### Facts

The Greek letter ( $\Delta$ ) pronounced delta closely resembles the triangular delta of the river Nile. The Ganga-Brahmaputra Delta is the largest delta in the world.

The world's best known geyser is the Old Faithful geyser in the Yellowstone National Park in Wyoming, U.S.A

As an agent of gradation, underground water creates distinct landforms in limestone regions called Karst Topography.

### Karst Topography

Ground water is an active agent in limestone regions. Karst topography is formed due to the dissolution of soluble rocks such as limestone, dolomite and gypsum.





Limestone topography of Western Slovenia extends for a distance of 480 km in length and 80 km in width which is termed as Karst in the Slavic language. The world's largest karst area is the Nullarbar located on the Great Australian Coast.

Karst regions are also found in Southern France, Spain, Mexico, Jamaica, Western Cuba, Central New Guinea, Sri Lanka and Myanmar.

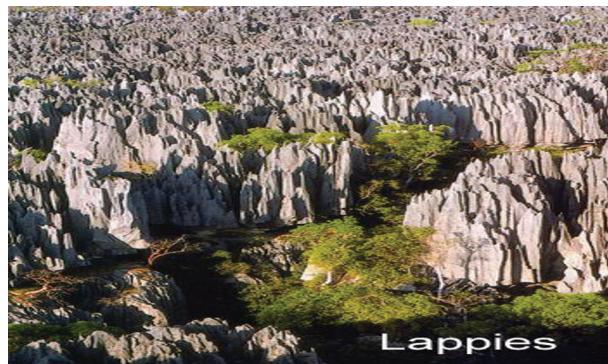
### Facts

#### Karst Areas in India

Guptadham caves - Western Bihar, Robert cave and Tapkeshwar temple - Uttarakhand. Pandav caves Pachmari - Madhya Pradesh, Kutumsar - Bastar district in Chattisgarh, Borra caves of Visakhapatnam - Andhra Pradesh

### Lappies

When the joints of limestone rocks are corrugated by groundwater, long furrows are formed and these are called LAPPIES.



Lappies

### Sinkhole

A funnel shaped depressions formed due to dissolution of limestone rock is called sinkholes. Their average depth ranges between three and nine meters



### Erosional Landforms of Underground Water

Most of erosion takes place due to the process of solution. When rain water mixes with carbon-di- oxide and enters into a limestone region, it dissolves and destroys much of the limestone. As a result, landforms such as Terra rossa, Lappies, sinkholes, swallow holes, dolines, uvalas, poljes, caves and caverns are formed.

#### Terra Rossa (Italian term for Red soil)

Deposition of red clay soil on the surface of the Earth is due to the dissolution of limestone content in rocks. The redness of the soil is due to the presence of iron oxide.



**DO YOU KNOW?** The World's deepest sinkhole is China's xianozhai Tienkang at 2172 feet. There are as many as 15000 Sinkholes in Illinois

### Activity

Take a trough filled with sand. empty a portion of sand in the middle and fill it with sugar. Now level the sand over the sugar. Pour water into the trough and observe what happens. The sugar dissolves and forms a depression. This is similar to the formation of sinkhole.



## Caves and Caverns

Caves and caverns are subterranean features of karst topography. Caves are hollows that are formed by the dissolution of limestone rocks when carbon dioxide in air turns into carbonic acid after its reaction with water. They vary in size and shape. Caverns are the caves with irregular floors. Eg. Guptadham caves in Western Bihar.

All types of deposits in the caves and caverns are collectively called **speleothems** which includes travertines, tufa, dripstones.

Swallow Holes, Uvalas, Dolines, Poljes are other erosional Features of karst regions predominant in other parts of the world.



### Facts

Cave insects lose their senses of sight and develop extraordinary long antenna to compensate the loss of sight

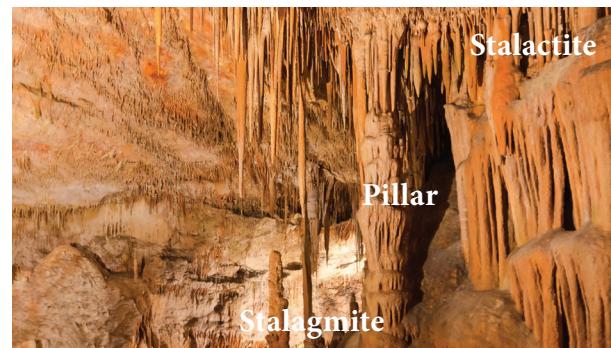
## Depositional Landforms of Underground Water

It is interesting to know that a variety of depositional features are formed on the floor, ceiling and walls of the caves and caverns of the Karst Topography.

### Stalactite, Stalagmite and Column

When the water containing dissolved calcite gradually drips from the ceiling of the caves, water evaporates and the remaining calcite hangs from the ceiling. Thus **Stalactites** are formed. When the calcite deposits rises upward like a pillar **Stalagmites** are formed.

Sometimes, Stalactites and Stalagmites meet together to form **Columns or Pillars**.



### Glaciers:

A Glacier is a large mass of ice that moves slowly over the land, from its place of accumulation. It is also known as 'River of ice'. The place of accumulation is called snowfield. The height above which there is a permanent snow cover in the higher altitude or latitude is called snowline. Higher the latitude, lower the snowline from sea level.



### Hots

Snowline of Alps is 2700 metre where as the snowline of Greenland is just 600 metre. Find out the reason.

### Activity

#### Fake Snow

*Materials needed:-*Cup of Baking Soda, Shaving Cream

*Method:-*Pour one cup of baking soda, Spray the shaving cream

The snow will start forming almost immediately..

The gradual transformation of snow into granular ice is called 'firn' or 'neve' and finally it becomes solid glacial ice.

## Erosional Landforms of Glacier

Glaciers are powerful erosive agents. Some of the important erosional landforms are



**Cirque, Arete, Matterhorn, U-shaped valley, Hanging valley, Fiords etc.**, Most of these glacial features are predominantly seen in countries like Switzerland, Norway etc.,

### Cirque

The glacier erodes the steep side walls of the mountain and forms a **bowl-shaped armchair like depression**, it is termed as Cirque

### Arete

Aretes are narrow ridges formed when two cirque walls joined together back to back, and forms narrow knife like ridges.

### Pyramidal Peak

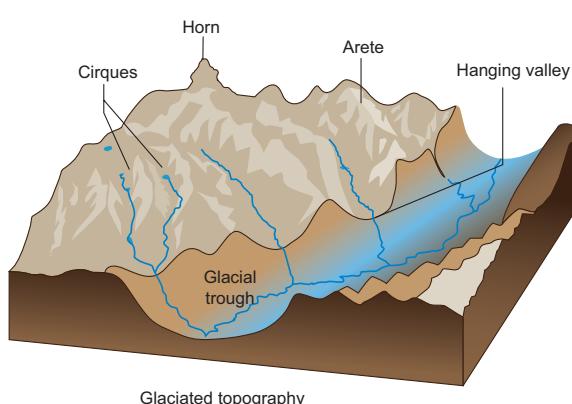
The pyramidal peaks formed when three or more cirques meet together (eg) Matterhorns.

### U-Shaped Valley

When the glacier moves down along a river valley, the valley further gets eroded deep and wide to form a 'U' shaped valley.

### Hanging Valley

These are valleys eroded by tributary glacier and that hangs over the main valley.



### Fjord



Fjords are glacial valleys that are partly submerged in the sea.

### Depositional Landforms of glacier

After getting eroded, fragments of rocks and boulders along with dirt form **glacial debris**. Glacial debris gets deposited in the low lying areas and form depositional features like **moraines, drumlins, eskers, kames and outwash plains**.

### Moraine

Landforms formed by the glacial deposits of valley or continental glaciers are termed as moraines. They are of various shapes and sizes, like ground, terminal and lateral moraines etc



### Drumlin(Basket of Egg Topography)

Drumlins are deposits of glacial moraines that resemble giant inverted teaspoons or half cut eggs.

### Esker

Long narrow ridges composed of boulders gravel and sand deposited by streams of melting water which run parallel to a glacier are called eskers.

### Outwash Plain

An outwash plain consists of glacial sediments deposited by the melting ice at the terminus of a glacier. It appears as an extensive accumulation of sand, gravel and silt.





## Activity

Discuss in a small groups about the effects of global warming.

### Wind

When air blows horizontally at or near the earth's surface is called wind. The erosional, transportational and depositional action of wind is predominant in arid regions. This is called as Aeolian Process.

### Erosional Landforms of wind

Some of the erosional landforms of wind are mushroom rocks, Inselbergs and yardangs.

#### Mushroom Rock

Rocks are made up of hard and soft layers. When a rock's bottom is soft, the sand-laden winds blow against it and wear it down. By the constant wearing down action of the wind, the bottom gets eroded away to form a mushroom like structure. This is called a **mushroom or pedestal rock**. Such rocks are found near Jodhpur in Rajasthan.



#### Inselberg

Inselberg is a German term which means an **island mountain**. Certain hard rocks like igneous rocks are more resistant to wind action. Such **isolated residual hills** rising abruptly from their surroundings are termed as inselbergs. Eg. Uluru or Ayers Rock, Australia.



#### Yardang

In arid regions, certain rocks have hard and soft layers arranged vertically. When winds blow over these rocks, the soft layers

get eroded leaving irregular crests. These are called yardangs.



### Depositional Landforms of wind

Some of the depositional landforms are sand dunes, barchans and loess.

#### Sand Dune

In deserts, during sandstorms, wind carries loads of sand. When the speed of wind decreases, huge amount of sand gets deposited. These **mounds or hills of sand** are called sand dunes. There are different types of sand dunes.

#### Barchan

Barch are isolated, **crescent shaped sand dunes**. They have gentle slopes on the windward side and steep slopes on the leeward side.



#### Transverse Dunes

Transverse dunes are asymmetrical in shape. They are formed by alternate slow and fast winds that blow from the same direction.

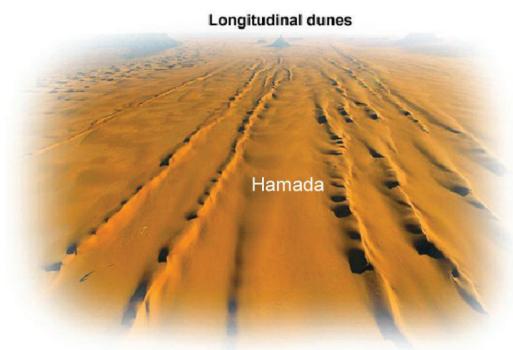


#### Longitudinal Dunes (Seif dunes)

Longitudinal dunes are long narrow ridges of sand, which extend in a direction



parallel to the prevailing winds. These dunes are called Seifs in Sahara



### Loess

The term loess refers to the deposits of fine silt and porous sand over a vast region. Extensive loess deposits are found in Northern and Western China, the Pampas of Argentina, in Ukraine and in the Mississippi Valley of the United States.



**DO YOU KNOW?** The thickest known deposit of loess is, 335 metre found in the loess plateau in China.

### Wave

A steady up (crest) and down (trough) movement of surface water are called waves. Sea waves are the most powerful agents of gradation and their erosional, transportational and depositional processes are confined to a very narrow belt along coastal areas.

#### Erosional Land Forms of Waves

Some of the erosional landforms of sea waves are **sea cliff, sea cave, arch, stack, beach, bar and spit and wave cut platform**.

#### 1. Sea Cliffs

Sea cliffs are steep rock faces formed when sea waves dash against them. The rocks get eroded to form steep vertical walls.

#### 2. Sea Cave

Prolonged wave attack on the base of a cliff erodes rock materials, which result in the formation of **caves**.

#### 3. Sea Arch

When two caves approach one another from either side of a headland and unite, they form an **arch**. (Eg.) Neil Island, Andaman and Nicobar.



#### 4. Sea Stack

Further erosion by waves ultimately leads to the total collapse of the arch. The seaward portion of the headland will remain as a pillar of rock known as **stack**. Eg the Old man of Hoy in Scotland.

#### 5. Wave Cut Platforms

Flat surface found at the foot of sea cliffs are called as wave cut platforms. Wave cut platform is also referred as wave cut benches terrace.

#### Depositional Landforms of Waves

##### Beach

Sand and gravel are moved and deposited by waves along the shore to form **beaches**. This is the most dominant and constructive work of the sea. (Eg.) Juhu beach along Mumbai coast, Puri beach in Odisha and Marina beach in Chennai.

##### Bar

A bar is an elongated deposit of sand, shingle or mud found in the sea, almost parallel to the shoreline.





## Spit

A spit is a ridge or embankment of sediment, attached to the land on one end and terminating in open water on the other end. Spits are common at the mouth of estuaries. Eg. Kakinada spit



## Recap

- Levelling of uneven landform is called gradation.
- Weathering is the breaking down of the rocks.
- Physical, chemical and biological are the three types of weathering.
- Running water, glacier, underground water, wind and waves are agents of weathering.
- Soil is the weathered materials covering the earth's surface insitu.



## EXERCISE



### I. Choose the best answer:

1. The disintegration or decomposition of rocks is generally called as  
a. weathering b. erosion  
c. transportation d. deposition
2. The process of the levelling up of land by means of natural agents.  
a. aggradation b. degradation  
c. gradation d. none
3. \_\_\_\_\_ is seen in the lower course of the river.  
a. Rapids b. Alluvial fan  
c. Delta d. Gorges

4. Karst topography is formed due to the action of  
a. Glacier b. Wind  
c. Sea waves d. Ground water.

5. Which one of the following is not a depositional feature of a glacier?  
a. cirque b. Moraines  
c. Drumlins d. Eskers

6. Deposits of fine silt blown by wind is called as  
a. Loess b. Barchans  
c. Hamada d. Ripples

7. Stacks are formed by \_\_\_\_\_  
a. Wave erosion  
b. River erosion  
c. Glacial erosion  
d. Wind deposition

8. \_\_\_\_\_ erosion is responsible for the formation of cirque  
a. wind b. glacial  
c. river d. underground water.

9. Which one of the following is a second order land form?  
a. Asia b. Deccan Plateau  
c. Kulu valley d. Marina Beach.

### II. Match the following:

- |                   |                         |
|-------------------|-------------------------|
| 1. Distributaries | - glacial action        |
| 2. Mushroom rock  | - action of sea wave    |
| 3. Eskers         | - Lower course of river |
| 4. Stalactites    | - Aeolian process       |
| 5. Cliff          | - karst topography      |

### III. Consider the given statements and choose the right option given below

1. (i) 'I' Shaped valley is an erosional feature of the river  
(ii) 'U' Shaped valley is an erosional feature of the glacier



- (iii) 'V' Shaped valley is an erosional feature of the glacier
- i, ii & iii are right
  - i & ii are right
  - i & iii are right
  - only I is right

2. **Statement I:** Running water is an important agent of gradation

**Statement II:** The work of the river depends on the slope of land on which it flows

- Statement I is false II is true
- Statement I and II are false
- Statement I is true II is false
- Statement I and II are true

3. **Statement:** Limestone regions have less underground water.

**Reason:** Water does not percolate through limestone

- The statement is right reason is wrong.
- The statement is wrong Reason is right.
- The statement and reason are wrong.
- The statement and reason are right.

#### IV. Answer in brief:

- Define weathering.
- What do you mean by biological weathering?
- Mention the three courses of a river with any two land forms associated to each course.
- What are ox-bow lakes?
- How does a sea cave differ from a sea arch?
- List out any four karst topographical areas found in India.
- What do you mean by a hanging valley?

- Define: a) Moraine b) Drumlin c) Esker.

- Mention the various features formed by wind erosion.

10. What is a wave cut platform?

#### V. Give Reasons:

- Chemical weathering is predominant in hot and humid zones.
- Silt deposits are less at estuaries than deltas.
- The snow line is at the sea level in Polar regions.
- Wind can possibly erode the rocks from all sides.
- In limestone regions, surface drainage is rarely found.

#### VI. Distinguish between:

- Physical and chemical weathering.
- Delta and Estuary
- Stalactite and stalagmite.
- Longitudinal and Transverse sand dunes.
- Inselbergs and yardangs
- Spit and bar.

#### VII. Answer in Paragraph:

- Write a note on weathering classify and explain.
- Explain the erosional landforms formed by underground water.
- What is a glacier? Explain its types.
- Describe the depositional work of winds.

#### VIII. Map Skill:

On the given outline map of the world, mark the following.

- Any two deltas
- A Karst region
- Any two hot and cold deserts

#### IX HOTS

- Is wind the only gradational agent in the desert?



2. Underground water is more common in limestone areas than surface run off. Why?

3. The river channels in the lower course are wider than the upper course.

**X. Give geographical terms for the following:**

a. Chemical alternation of carbonate rocks on lime stone region.

b. Flat surfaces near cliffs.

c. Erosion + Transportation =  
Deposition

d. The bottom line of a snow field.



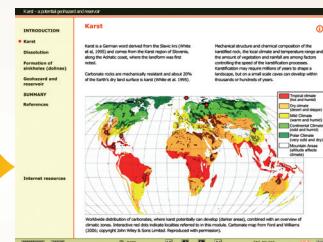
## INTERNET RESOURCES

1. [www.usgs.gov.in](http://www.usgs.gov.in)
2. [www.nasa.gov.in](http://www.nasa.gov.in)
3. <https://www.isro.gov.in>
4. <https://www.india.gov.in>



## ICT CORNER Karst Topography

Through this activity you will explore Karst formation.



### Steps

- Use the URL to reach ‘Karst Topography’ page. Allow flash player to play, if it asks.
- Click ‘Next’ button in the bottom of the page to proceed to the next page and explore the animation.
- Select ‘Dissolution’ option from the left and explore.
- Use the arrow keys to move forward and backward to the animation.

### Website URL:

<http://folk.uio.no/hanakrem/svalex/E-learning/Karst/>



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# UNIT 3

# Atmosphere

## Learning Objectives

- To understand the composition and structure of atmosphere
- To differentiate weather and climate
- To correlate the factors influencing weather and climate
- To recognize the classification of Clouds, wind and rainfall



## Introduction

Earth is a unique planet where life is found. Can you imagine life on the earth without air? No. The air is essential for the survival of all forms of life. The blanket of air that surrounds the Earth is called the atmosphere. It is held close to the earth by gravitational attraction.

### 3.1 Composition of the Atmosphere

Atmosphere is a mixture of gases, water vapour and dust particles in different proportions. **Nitrogen (78%) and Oxygen (21%)** are permanent gases of the atmosphere. They constitute 99% of the total composition and their percentages always remain the same without any change. The remaining one percentage is occupied by Argon (0.93%), Carbon-di-oxide, (0.03%), Neon (0.0018%), Helium (0.0005%), Ozone (0.00006%) and Hydrogen (0.00005%). Krypton, Xenon and Methane are also present in trace. Water vapour (0 - 0.4%) is also found in the atmosphere, which plays an important role in predicting weather phenomenon. The other solid particles present in the atmosphere includes dust particles, salt particles, pollen grains, smoke, soot, volcanic ashes etc.,.

## Fact

In 1772 CE Daniel Rutherford discovered Nitrogen in atmosphere. In 1774 Joseph Priestly discovered oxygen in atmosphere

Oxygen is most important for living organisms. CO<sub>2</sub> absorbs heat and keeps the atmosphere warm by insulation and radiation. Nitrogen acts as a diluent and is chemically inactive. Ozone helps in protecting the earth from harmful ultra violet radiation. The solid particles in the atmosphere acts as nuclei on which water vapour condense to form precipitation.

### 3.2 Structure of the Atmosphere

The atmosphere is thick near the earth surface and thins out until it eventually merges with space. The five atmospheric layers are: Troposphere, stratosphere, Mesosphere, Thermosphere and Exosphere.

## Troposphere

The lowest layer of the atmosphere is the troposphere. The Greek word 'tropos' means 'turn' or 'change'. The layer extends up to 8 kms



at the poles and up to 18 kms at the Equator. The temperature decreases with increasing height. Almost all weather phenomenon take place in this layer. Hence it is called **weather making layer**. The upper limit of the troposphere is called as tropopause.

## Stratosphere

Stratosphere lies above the troposphere. It extends to a height of about 50km above earth surface. Since this layer is a concentration of ozone molecules, it is also referred as **ozonosphere**. The temperature increases with increase in height in this layer. Large jet planes normally fly here. The upper limit of the stratosphere is called as stratopause.

## Mesosphere

Mesosphere extends between 50km and 80km. The temperature decreases with increasing height. Radio waves transmitted from earth are reflected back to earth from this layer. Most of the meteors nearing the earth, get burned here. The upper most limit of the mesosphere is the mesopause.

## Thermosphere

Thermosphere exists above the mesosphere. It extends to about 600 km. The composition of gases in the lower thermosphere is more or less uniform, hence it is called "Homosphere". The upper portion of the thermosphere has uneven composition of gases and hence it is referred as "Heterosphere". Here the temperature increases with increasing height. Ionosphere is a layer of the thermosphere that contains Ions and free electrons.

### Fact

Magnetosphere lies beyond the exosphere. It is the earth's magnetic belt, where proton and electrons, coming out from the sun are trapped by the earth. The magnetic field extends to around 64,000 km above the Earth.

## Exosphere

The uppermost layer of the atmosphere is called exosphere. This layer is extremely rarefied with gases and gradually merges with the outer space. This zone is characterized by **aurora Australis** and **aurora borealis**.



Auroras are cosmic glowing lights produced by a stream of electrons discharged from the Sun's surface due to magnetic storms that are seen as unique multicoloured fireworks hanging in the polar sky during midnight

## 3.3 Weather and Climate

Weather and climate are the terms that are related to the atmospheric conditions. Weather denotes the way the atmosphere behaves every day and climate reveals the average of weather conditions over relatively long periods of time. The difference between the two may be clearly understood with the following table.

### Hots

Why is Troposphere called as weather making layer?

### There are many factors that influence weather and climate.

- Distance from the equator
- Altitude
- Nearness to the sea
- Nature of the prevailing winds
- Mountain barrier
- Cloud cover
- Ocean currents
- Natural vegetation

### Distance from the Equator

The sun's rays fall vertically on the equator. The rays are inclined on the regions



away from the equator and near the poles due to the spherical shape of the earth. The vertical rays heat up the earth more than the inclined rays. Thus, the places near the equator are warmer than the places which are far away from the equator.

## Activity

Connect the following places with their latitudes and the temperature observed

Weather		Climate	
Partly sunny 	1. Weather is the study of atmospheric conditions for short duration over small areas.	1. Climate is the study of the average weather condition observed over a long period of time for a larger area.	Warm Climate 
Windy 	2. The weather changes very often ; hour to hour and day to day	2. Climate is more or less permanent and remains the same always.	Monsoon 
Rainy 	3. A place can experience different types of weather conditions in a day. Eg. A day with hot morning can have a rainy noon.	3. A place can experience almost the same type of climate	Wet climate 
Chilly 	4. Weather data is collected every day in the observatories	4. Climate is average of the weather data.	Extreme Climate 
Stormy 	5. Study of weather is called Meteorology	5. Study of climate is called Climatology	cyclone 

City	Latitude	Temperature [In August]
Kanyakumari – Tamil Nadu		
Delhi-India		
Moscow – Russia		

**Altitude:** Altitude refers to the height above mean sea level. The temperature decreases at the rate of **6.5°C per km of height**. This is called **Normal lapse rate**. So, places at the higher altitude have a lower temperature.

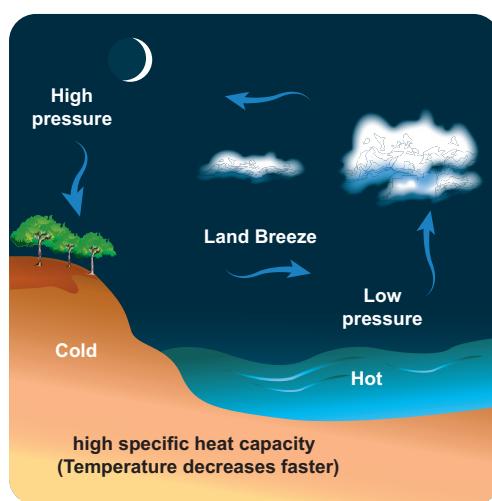
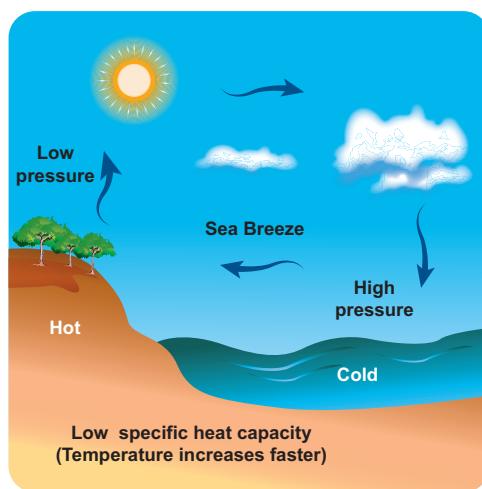
## Activity

Connect the following places with Altitude and the temperature



City	Altitude (height)	Tempera- ture [In May]
Madurai- Tamilnadu		
Uthagamandalam – Tamilnadu		
Simla -Himachal Pradesh		

### Nearness to the sea:



The climate of a place, varies according to its nearness to the sea. Places near the coast experience equable climate due to the influence of the winds from the sea. Places located inland, far from the sea, does not experience the

moderating influence of the sea, such places experience a continental type of climate.

### Fact

During the day, the land masses get heated more rapidly than the oceans. Heated air ascends and this causes low pressure on the adjoining ocean. Therefore, the wind blows from ocean to land in the afternoon. This is called sea breeze. **Sea breeze** helps in reducing the temperature of the coastal region especially during the summer season.

During the night, the land cools more rapidly than the ocean. Cold air sinks and forms high pressure. The wind blows from land to sea during the night, this is called **land breeze**.

### Nature of the Prevailing Winds

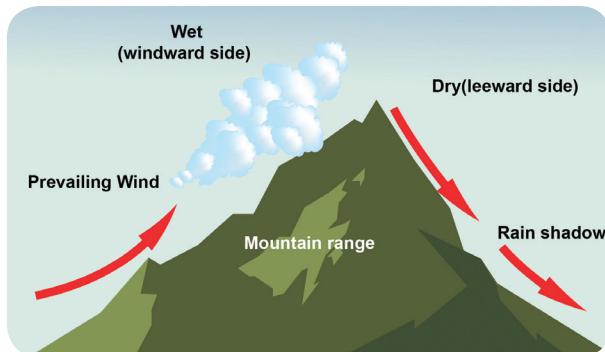
The wind changes the climate of a place based on, from where they blow. When wind blows from a warm region, it makes the place warm and cold, when blows from a colder region. The on-shore winds cause rainfall making the place cool whereas the off-shore winds bring dry weather.

### Mountains barriers

The location of the mountains influence the climate of a place. The mountain chains act as natural barrier for the wind. Sometimes they prevent the entry of cold winds into the country or the escape of monsoon winds, thus having a great influence over the climate.

**DO YOU KNOW?** The windward is the side of a mountain which faces the prevailing wind. It receives heavy rainfall.

The **leeward side** of the mountain is the side sheltered from the wind. It receives very less rainfall.



Anemometer



Wind vane

## Cloud Cover

Clouds reflect a large amount of radiation from the sun. This prevents the entry of heat to the earth's surface. So, in areas generally of cloudless sky like the deserts, temperature is very high. On the other hand under cloudy sky, the temperature is low.

## Ocean currents

The warm ocean currents raise the temperature of the nearby coastal areas, while the cold current lower the temperature of a place.

## Natural vegetation

The trees release water vapour into the air and makes it cool. Thus forest areas have lower range of temperature throughout the year in contrast to non-forested areas.

## 3.4 Winds

The horizontal movement of air along the surface of the earth is called the "**Wind**" while the vertical movement of air is a called an "**Air Current**". The winds always blow from a high pressure area to a low pressure area. Wind is mostly named after the direction from which it blows. For example, the wind blowing from the east is known as the easterly wind or easterlies.

An "**anemometer**" records **wind speed** while a "**wind vane**" measures the **direction of the wind**. The unit of measurement is **kilometre per hour or knots**

## Types of Winds

Winds are generally classified into the following four major types:

- Planetary winds
- Periodic winds
- Variable wind
- Local wind

### Planetary winds:

The winds which constantly blow in the same direction throughout the year are called the Planetary winds. They are also called as permanent winds or the prevailing winds. These winds include **Trade winds**, **Westerlies** and **Polar Easterlies**

### Trade Winds

Trade winds blow from the subtropical high pressure belt to the Equatorial low pressure belt in both the hemispheres. They blow with great regularity, force and in a constant direction throughout the year. These winds were very helpful to traders who depended on the winds while sailing in the seas. And so, they are named as Trade winds.

### Activity

Find the correlation between the Trade Winds and the location of prominent deserts like Sahara, Atacama etc.

### Westerlies

Westerlies are the permanent winds that blow from the tropical high pressure belt to the sub polar low pressure belt in both the hemispheres. They blow from South West to North East in the northern hemisphere and North West to South East in the southern



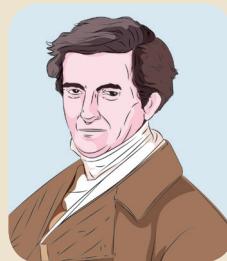
hemisphere. The velocity of westerlies become so vigorous and fast to be called **Roaring Forties** at  $40^{\circ}$ , **Furious Fifties** at  $50^{\circ}$  and **Screaming Sixties** at  $60^{\circ}$  latitudes.

### **Polar Easterlies:**

Polar easterlies are cold and dry polar winds that blow from the polar high pressure belt to the sub polar low pressure belt. These are weak winds blowing from North East direction in the Northern Hemisphere and South East direction in the Southern Hemisphere.

#### **Fact**

The rotation of the Earth causes deflection of winds from their original path, called the "Coriolis effect". Winds are deflected to the right in the northern hemisphere and to the left in the southern hemisphere which is known as "Ferrel's law". This was profounded by William Ferrel. He used "Coriolis force" named after G.G Coriolis (1792-1843) for proving Ferrel's Law



G.G.Coriolis

the surrounding high pressure area converge towards the centre in a spiral form. Due to the rotation of the earth, the cyclonic winds in the northern hemisphere move in anti clock wise direction, where as they move in clockwise direction in the southern hemisphere.

Cyclones can be classified into

Tropical cyclones

Temperate cyclones

Extra tropical cyclones

### **Tropical cyclones:**

Tropical cyclones are known as '**cyclones**' in Indian ocean, '**typhoons**' in the western pacific ocean, '**hurricanes**' in the Atlantic and eastern Pacific ocean, '**baguios**' in Phillipines and '**willy willy**' in Australia, **Taifu** in japan. Tropical cyclones often cause heavy loss of life and property on the coasts and become weak after reaching the landmasses.



### **Periodic winds**

The periodic winds are the seasonal winds that change their direction periodically. These winds are caused by the differential heating of land and ocean.

Winds which reverse their direction with the change of seasons are called monsoons. Tropical Monsoon winds of Indian subcontinent is a best example.

### **Variable wind**

### **Cyclones**

The term cyclone is a Greek word meaning "**coil of a snake**". Cyclones are centres of low pressure where, winds from

#### **Fact**

### **Super Cyclone**

A violent cyclone that hit Odisha, on Friday, **29 October 1999**, was one of the most devastating and strongest storm to hit the Indian coast. Winds of up to 260 kph raged for over 36 hours. The winds caused a seven-metre tidal wave that swept more than 20 km inland and brought massive destruction and death to a number of coastal districts in the state of Odisha. It is estimated that more than 10 million people in 12 coastal belt districts were affected by the cyclone. More than 10,000 people lost their lives.



Deliberations for naming cyclones in the Indian ocean region began in 2000 and a formula was agreed upon in 2004. Eight countries in the region Bangladesh, India, Maldives, Myanmar, Oman, Pakistan, Srilanka, and Thailand contributed a set of names which our assigned sequentially whenever a cyclonic storm develops.

### Temperate cyclones:

Temperate cyclones are formed along a front where hot and cold air masses meet in mid-latitudes between  $35^{\circ}$  and  $65^{\circ}$ N and S. Temperate cyclones do not become weak like the tropical cyclones on reaching the land. Temperate cyclone commonly occurs over the North Atlantic Ocean, North West Europe, Mediterranean basin. Mediterranean basin's temperate cyclones extend up to Russia and India in winter. In India it is as called western disturbances.

A front is the boundary separating warm and cold air masses. One type of airmass is usually denser than the other, with different temperatures and humidity. This meeting of airmass causes rain, snowfall, hail storm, thunder storm, lightning cold days, hot days, and windy days.

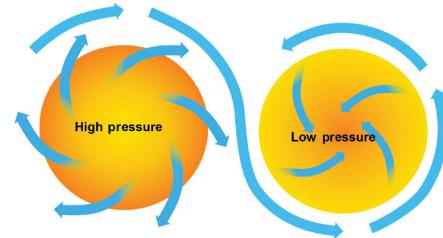
### Extra tropical cyclones:

Extra tropical cyclones occur in the latitudes between  $30^{\circ}$  and  $60^{\circ}$  in both the hemispheres. They are also called as **mid-latitude cyclones**. They collect energy from temperature differences which are found in higher latitudes. Extra tropical cyclones produce mild showers to heavy gales, thunderstorms, blizzards, and tornadoes.

### Hots

Cuddalore and Nagapattinam are always affected by cyclones. Why?

## Anticyclone and Cyclone



### Anticyclones:

Anticyclones are the opposite of cyclones. Here an area of high pressure region is found in the centre surrounded by low pressure on all sides. The wind from the high pressure region move outwards to the low pressure regions in a spiral form. Anticyclones are often accompanied by cold and heat waves.

### Local Winds:

Local winds are the winds that blow only in a particular locality for a short period of time, The effect of these local winds are experienced only in that particular area.

Such as land and sea breeze, mountain and valley breeze. They are mostly seasonal and have local names like....

- Foehn (Alps-Europe)
- Sirocco (North coast of Africa)
- Chinook (Rockies-North America)
- Loo (Thar Desert- India)
- Mistral (Mediterranean sea in France)
- Bora (Mediterranean sea in Italy)

## 3.5 Clouds

According to their height, clouds are classified into the following types

- High clouds (6-20km Height)
- Middle clouds (2.5km-6km Height)
- Lowclouds(groundsurface to 25kmheight)

These major types of clouds are further divided into different types on the basis of shape and structure.

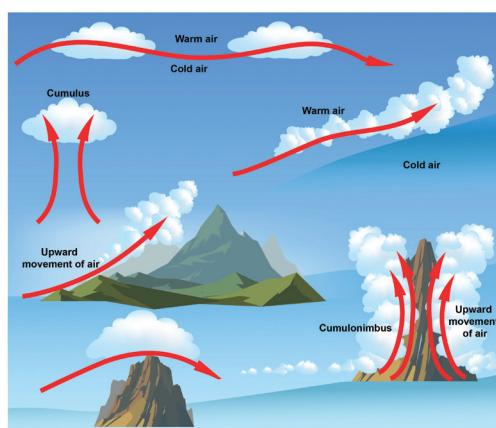


## High clouds

**Cirrus:** Detached clouds in the form of white delicate fibrous silky filaments formed at the high sky (8000 meters to 12000 meters) are called Cirrus clouds. These clouds have Ice crystals and are dry and do not give rainfall.

**Cirro-cumulus:** Whitepatched, sheet or layer like clouds composed of ice crystals.

**Cirro-stratus:** Smooth milky transparent whitish clouds composed of tiny ice crystals.



During sunset cirrus clouds look colourful hence they are called as "Mare's Tails".

## Middle clouds

**Alto-stratus:** Thin sheets of grey or blue coloured clouds in uniform appearance, consisting of frozen water droplets

**Alto-cumulus:** clouds fitted closely together in parallel bands, called as 'Sheep clouds' or wool pack clouds.

**Nimbo stratus:** These are clouds of dark colour very close to the ground surface associated with rain, snow or sleet.



The only sphere which contains all clouds in the atmosphere is troposphere

## Low clouds

**Strato-cumulus:**- Grey or whitish layer of non-fibrous low clouds found in rounded patches at an height of 2500 to 3000 metres, associated with fair or clear weather

**Stratus:**- Dense, lowlying fog-like clouds associated with rain or snow

**Cumulus:**- Dome-shaped with a flat base often resembling a cauliflower, associated with fair weather

**Cumulo-nimbus:**- Fluffy thick towering thunderstorm cloud capable of producing heavy rain, snow, hailstorm or tornadoes

## Precipitation

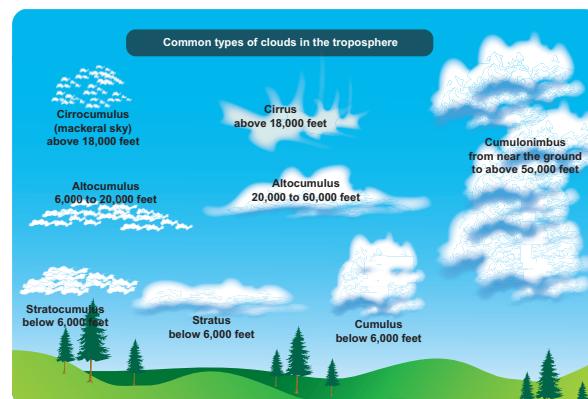
Falling down of condensed water vapour in different forms is called Precipitation. When the dew point is reached in the cloud water droplets become saturated and start to fall. Hence, they fall on the earth as Precipitation.

The climatic conditions/ factors influencing the forms of precipitation mainly are:

- Temperature.
- Altitude
- Cloud type.
- Atmospheric conditions.
- Precipitation process.

The main forms of precipitation include drizzle, rain, sleet, snow, hail etc.

## Drizzle





Falling of numerous uniform minute droplets of water with diameter of less than 0.5 mm is called drizzle from low clouds. Sometimes drizzles are combined with fog and hence reduce visibility.

### Rain

Rain is the most widespread and important form of precipitation in places having temperature above the freezing point. It occurs only when there is abundant moisture in the air. The diameter of a rain drop is more than 5mm.

### Sleet

Sleet refers to a precipitation, in the form of pellets made up of transparent and translucent ice. This precipitation is a mixture of snow and rain

### Snow

Snow is formed when condensation occurs below freezing point. It is the precipitation of opaque and semi opaque ice crystals. When these ice crystals collide and stick together, it becomes snowflakes.

### Hails

**Hails** are chunks of ice (greater than 2cm in diameter) falling from the sky, during a rainstorm or thunderstorm. **Hailstones** are a form of solid precipitation where small pieces of ice fall downwards. These are destructive and dreaded forms of solid precipitation because they destroy agricultural crops and human lives.

### Fact

Any thunderstorm which is associated with fall of hail stones is known as hailstorm. Hailstorm is one of the most feared weather phenomenon because it has the potential to destroy plant, trees, crops, animals and human life.

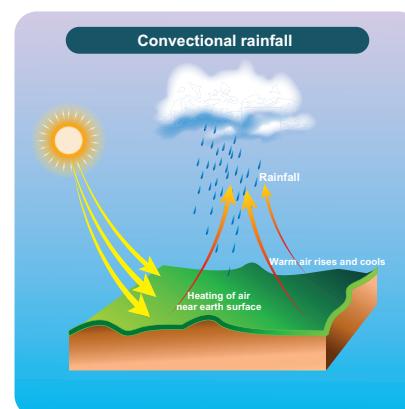
## 3.6 Rainfall

Rainfall is the most predominant type of Precipitation. Moisture laden air masses raise upwards, forms clouds and bring rainfall. Based on the mechanisms of raising the air, there are three types of rainfall.

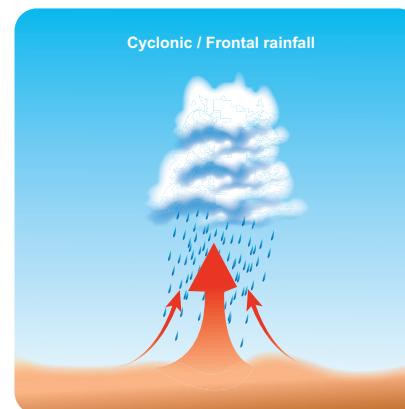
1. Convectional rainfall
2. Frontal or cyclonic rainfall
3. Orographic rainfall.

### 1. Convectional rainfall (or) 4'o' Clock rainfall

Earth surface is intensely heated through solar radiation during the day time. When the air near the earth surface is heated, it rises and expands. This heating results in the formation of **convectional air currents**. Thus the ascending moist air cools, condenses and results in convectional rainfall. **Convectional rainfall** occurs regularly in the equatorial region in the evenings. It is also experienced in tropical, sub-tropical and temperate regions in the summer months and on warmer days.



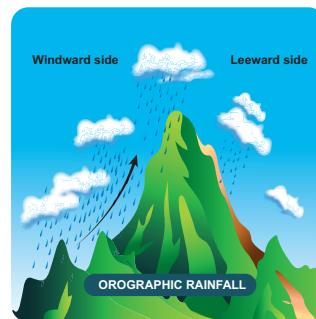
### 2. Cyclonic rainfall (or) Frontal





Cyclonic precipitation occurs during cyclones when air masses are made to converge and move upward so that adiabatic cooling occurs. Cyclonic rainfall occurs in tropical as well as temperate regions. When warm and cold air masses converge, condensation and precipitation takes place on the boundary between warm and cold air masses called as Frontal rainfall.

### 3. Orographic rainfall (or) Relief rainfall



Orographic rainfall, also called relief rainfall, is caused when air is forced to rise against a high mountain. The mountain barriers lying across the direction of air flow, forces the moisture laden air to rise along the mountain slope. This results in the cooling of the air, which leads to the formation of clouds and rain.

This rainfall is called Orographic rainfall. The side of the mountain facing the wind is called the **windward side** and receives heavy rainfall. It is called the rainfed region. The other side of the mountain that does not face the wind is called the **leeward side** and receives less rainfall becomes rain shadow region.



Mawsynram is the wettest place of India as it is located in the windward side of the Purvachal hills, whereas Shillong lies on the leeward side and thus receives less rainfall. This is the same, in the case of Mumbai and Pune.

## 3.7 Humidity

Humidity is an important aspect of the atmosphere because it affects both weather and climate. The amount of water vapour present in the atmosphere is referred to as humidity. Humidity of the atmosphere is high when it has

large quantities of water vapour. The amount of water vapour in the atmosphere is called absolute humidity.



When the relative humidity of the air is 100%, the air is said to be saturated. Saturated air will not absorb any more water vapour.

The temperature at which air gets saturated is called **dew point**.

Humidity of the atmosphere is measured by the wet and dry bulb thermometer also called the **Hygrometer**

Absolute humidity is expressed in terms of grams of water vapour present per cubic metre of air. Relative humidity is expressed in percentage.

## Recap

- Atmosphere is a thin layer of gases that surrounds the earth.
- The major gases in the atmosphere are Nitrogen (78%) and oxygen (21%)
- Five Layers of the atmosphere are Troposphere, stratosphere, mesosphere, thermosphere and exosphere
- Atmosphere gets heated through conduction.
- Wind is the horizontal movement of air
- Wind blows from high pressure belt to low pressure belt.
- The 4 types of winds are permanent (planetary), periodic, local and variable winds.
- Cyclone is an area of low pressure surrounded by high pressure
- Anticyclone is an area of high pressure area surrounded by low pressure.
- Clouds: A visible mass of Condensed water vapour floating in the air
- All precipitation occurs from clouds
- According to height clouds are classified into High clouds, Middle clouds and low-clouds
- The main forms of precipitation are drizzle, rain, snow, sleet, hail etc.



## EXERCISE

### I. Choose The Best

#### Answers:

1. \_\_\_\_\_ is the most important gas for the survival of living organisms.  
a. Helium      b. carbon-di-oxide  
c. oxygen      d. methane
2. The lowest layer of the atmosphere is \_\_\_\_\_  
a. Troposphere    b. Stratosphere  
c. Exosphere    d. Mesosphere
3. \_\_\_\_\_ reflects radio waves.  
a. Exosphere    b. Ionosphere  
c. Mesosphere    d. Stratosphere
4. The average global surface temperature is \_\_\_\_\_  
a. 12°C      b. 13°C  
c. 14°C      d. 15°C
5. The process of change of state of water from gaseous to liquid state is called \_\_\_\_\_.  
a. Precipitation    b. evaporation  
c. transpiration    d. condensation.
6. The \_\_\_\_\_ is the chief energy source of the Earth.  
a. Sun      b. Moon  
c. Stars      d. Clouds.
7. All types of clouds are found in the \_\_\_\_\_  
a. Troposphere    b. Ionosphere  
c. Mesosphere    d. Exosphere
8. \_\_\_\_\_ clouds are called 'Sheep clouds'  
a. Alto-cumulus    b. Alto-Stratus  
c. Nimbo - stratus    d. Cirro-stratus.
9. The Monsoons are \_\_\_\_\_  
a. Prevailing winds  
b. Periodic winds  
c. local winds  
d. none of the above.



10. Dew in the form of ice crystals is called \_\_\_\_\_

- a. frost
- b. fog
- c. mist
- d. sleet.

11. \_\_\_\_\_ is called the eye of the storm/cyclone.

- a. Pressure
- b. wind
- c. cyclones
- d. snow.

12. The vertical movement of air is called

- a. Wind
- b. storm
- c. Air current
- d. drift.

### II. Match the following:

- |                 |                      |
|-----------------|----------------------|
| 1. Meteorology  | — wind speed         |
| 2. Climatology  | — direction of wind  |
| 3. Anemometer   | — cirrus             |
| 4. Wind Vane    | — study of climate   |
| 5. Mare's Tail  | — study of weather   |
| 6. Leeward side | — Australia          |
| 7. Willy willy  | — rain shadow region |

### III. Answer the following Briefly:

1. Define atmosphere
2. Name the different atmospheric layers
3. Mention the factors that affect the climate?
4. Write short note on Lapse rate.
5. What are the processes responsible for heating the atmosphere?
6. Mention the Planetary wind system of the earth.
7. Write short note on:
  - a. Trade winds.
  - b. Roaring Forties
8. How are clouds formed?
9. What are the different types of rainfall?
10. What is Precipitation? What are the different forms of precipitation?
11. Write short notes on:
  - a. drizzle
  - b. rain
  - c. sleet
  - d. snow
  - e. heat
12. How are Cyclones classified?



#### IV. Give reason:

1. Cyclones cause huge loss of life and property.
2. Cloudy days are warmer than cloudless days.
3. Fog is dangerous for traffic.
4. Convective rainfall is also called 4'0 clock rain.
5. Polar Easterlies are cold and dry. Why it is so?

#### V. Distinguish between the following:

1. Weather and climate
2. Land breeze and sea breeze
3. Windward side and Leeward side.
4. Tropical cyclone and Temperate cyclones.

#### VI. Paragraph Questions:

1. Write a paragraph about the structure of the atmosphere.
2. Explain the different types of Permanent winds.
3. How are clouds classified? Explain them.

4. How are cyclones formed? How are they classified?

5. Explain the different forms of precipitation

#### VII. Activity:

1. **Preparing chart of clouds** at various atmospheric layers.
2. **Collecting Proverbs** clouds and rain related Proverbs
3. **Poem on 'clouds', 'rain'**
4. **Report writing** observe the clouds for a week. Write your report about the shape and colours of clouds.
5. **Working models** a) Rain Gauge b) Wind vane
6. **Preparing bar diagram**

Collect the **data of temperature** of Kanyakumari, Delhi, Allahabad, and Itanagar for a day. Also collect the data of **rainfall received** by Jaisalmer (Rajasthan), Mawsynram (Meghalaya), Nagapattinam, Coimbatore for a day.

#### 7. Become a budding Meterologist:

Record the local weather condition of your place for a week.



## ICT CORNER Melting point

Through this activity you will observe the land forms formed by glaciers.



B568\_9\_SS\_EM\_T3

#### Steps

1. Use the URL to download the '**Glaciers**' flash file.
2. Select the '**Glacier type**' from bottom and change them using arrows to see the different land forms affected by it.
3. Select '**Anatomy of Glaciers**' from top of the page and animate the activity to observe the glacier formation.
4. Select '**Glacier Erosion**' and press '**Move Glacier**' button to observe erosion made by glaciers.

#### Website URL:

<https://ees.as.uky.edu/sites/default/files/elearning/module13swf.swf>



UNIT

4

# Hydrosphere



## Learning Objectives

- To understand the importance of water
- To know about fresh water
- To know about the relief features of the ocean floor
- To recognize the movements of ocean water
- To understand marine resources and the need for conservation

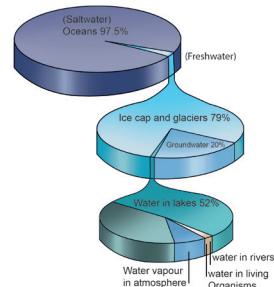


## Introduction

We know that, our planet Earth consists of **four spheres**. They are the **Lithosphere**, **Atmosphere**, **Hydrosphere** and **Biosphere**. In the earlier chapters, we have studied about the Lithosphere and Atmosphere. We shall now learn the other two spheres namely the Hydrosphere and the Biosphere.

## 4.1 Hydrosphere

One of the most indispensable natural resources on earth is water. The Earth is also called the **Blue planet**, as it holds water in abundance and thus stands unique among all other planets. Hydrosphere consists of water in various forms found on the earth. Over 97% of the water on the Earth's surface is confined to oceans. Less than 3% of water is held on land as glaciers, ice caps, groundwater, rivers, lakes, and also as the water vapour in air.



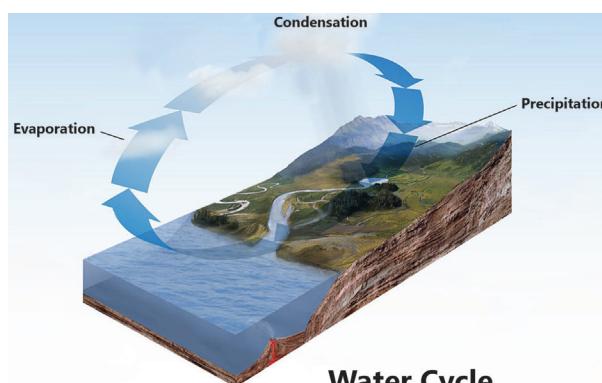
Global Distribution of Water Resource

## 4.2 Hydrological Cycle

The Earth's water is not static. It is always in motion. This continuous movement of water on, above and below the earth's surface is called the **Hydrological Cycle**.

The **three major processes** involved in the water cycle are **evaporation**, **condensation** and **precipitation**. Water changes its form constantly i.e. Ice, water and water vapour. This process happens in the blink of an eye or even over millions of years.

Water resources of the Earth can be broadly divided into **fresh water** and **salt water**.





## 4.3 Fresh Water

Rain water is considered to be the purest form of water, as it contains very less proportion of salts when compared to the oceans and seas. Hence it is called fresh water. A major part of fresh water is found in the frozen state in the form of ice caps and glaciers. Around 1% of it is found in the liquid state as rivers, streams, lakes, ponds etc. Surface water may also penetrate through porous rocks and gets collected beneath the Earth's surface. This is called groundwater.

### Fact

Finland is known as the land of thousand lakes. There are 1,87,888 lakes in Finland.

**DO YOU KNOW?**

Water table is a level below the ground, where water is found collected beneath the Earth's surface.

Aquifers are porous rock strata filled with water, found below the earth's surface.

## 4.4 Oceans

The continents and oceans are however, not evenly distributed in the northern and the southern hemispheres. The northern hemisphere holds 61% of land whereas the southern hemisphere holds 81% of water. It is because of this pattern of land and water distribution, the **northern hemisphere** is called as the **land hemisphere** and the **southern hemisphere** is called as the **water hemisphere**.



### Hots

- 71% of the earth is covered by water, but very little can be used by humans. Why?
- The oceans are salty. Why?

Oceans and seas are considered as resource bowl of the earth because of the immense availability of food, minerals etc., Present distribution of the world's oceans and major seas are illustrated in the map.

**Sylvia Earle** is a famous American oceanographer . She was named as the first, 'Hero for the Planet' by Time magazine for her efforts towards marine life protections.

**Jacques-Yves Cousteau** (1910-1997) was a famous French Ocean explorer, who conducted extensive under-sea investigations .

He belonged to the information service of the French Navy, and was sent on missions to Shanghai and Japan (1935-1938) and in the USSR (1939).

### Honours

- Cross of War 1939-1945 (1945)
- U.S. Presidential Medal of Freedom (1985)

### 4.4.1 Relief Of The Ocean Floor

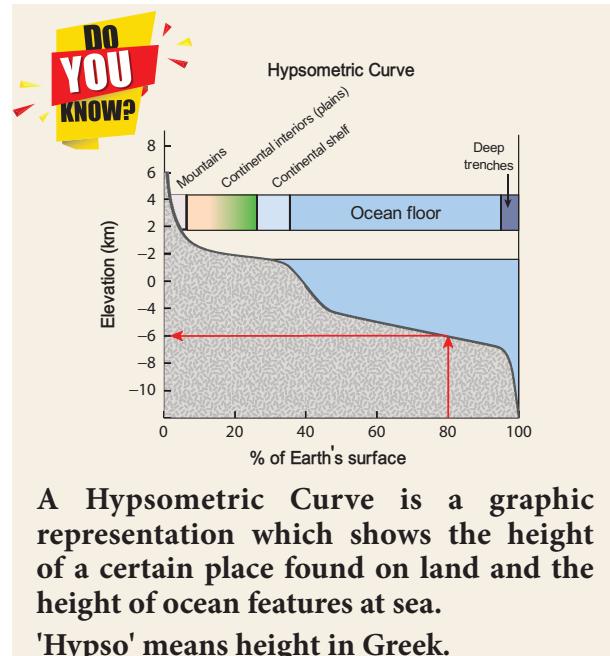
The ocean basins are characterised by the following major relief features:

- (A) Continental shelf
- (B) Continental slope
- (C) Continental rise
- (D) Deep sea plain or Abyssal plain
- (E) Oceanic deep
- (F) Oceanic ridge



#### (A) Continental Shelf

A shallow and gently sloping platform extending out from the adjoining continental land mass into the sea is called Continental Shelf. It is almost a uniform zone of sea bed with a gentle gradient.



A Hypsometric Curve is a graphic representation which shows the height of a certain place found on land and the height of ocean features at sea.

'Hypso' means height in Greek.

The continental shelf is of great significance for the following reasons:

- They are shallower, thus enables sunlight to penetrate through the water. This encourages abundant growth of grass, sea weeds and plankton. Hence these zones become the **richest fishing grounds** in the world. Eg. The **Grand Banks of Newfoundland**.
- The continental shelves have extensive deposits of minerals and mineral fuels. Hence, this zone becomes accessible for oil drilling and mining activities. E.g. Mumbai High in Arabian Sea.

### Geo Connect

ONGC: Oil and Natural Gas Corporation is India's largest oil and gas exploration and production company. Its latest estimate is that about 20 million tons of oil reserves are found west of Mumbai High off shore.



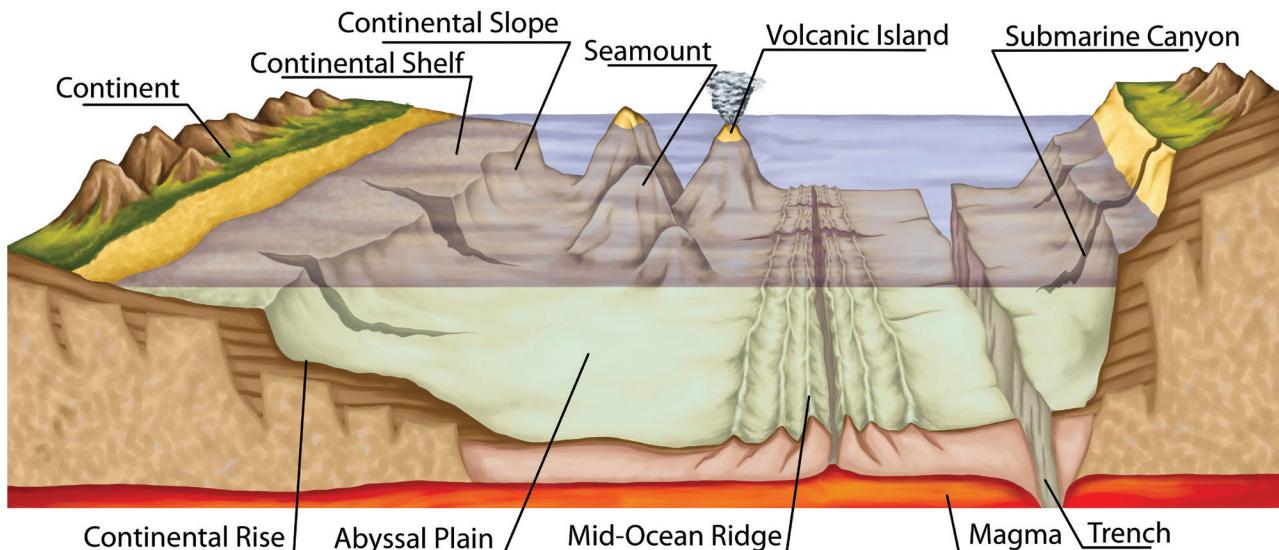
#### (B) Continental Slope

A steep slope which descends from the edge of the continental shelf to the deep ocean-bed is called continental slope. It forms a boundary between the Continental Crust and the oceanic crust. This zone is free from deposits as they are steep. The most important characteristic of continental slope is the **presence of deep canyons and trenches**. Due to the low penetration of sunlight, the slope has nearly freezing temperature. Hence aquatic life has very slow rate of metabolism.

#### (C) Continental Rise

At the base of the continental slope is a gently sloping layer of sediments which merge into the deep-sea floor. This underwater feature found between continental slope and abyssal plains is called the continental rise. It **consists of submarine fans** which are similar to the alluvial fans found on land.

### Major Relief Features of the Ocean





#### (D) Deep Sea Plains or Abyssal Plains

The deep sea plains or abyssal plains are underwater plains found on the deep ocean floor. These plains extend from continental rise to the mid oceanic ridges. The gradient of the slope is very gentle and it appears as a uniform flat and featureless plain. These plains are usually covered by the thick layer of sediments composed of clay, silt and sand, brought by the rivers. These are often characterized by features like abyssal hills, sea mounts, guyots, coral, atoll etc.



BYB58A



Abyssal plains in the Atlantic and Indian Oceans tend to be extensive than the Pacific Ocean because, majority of the world's largest rivers empty their sediments into either Atlantic or Indian Ocean. E.g. Amazon, Ganga and Brahmaputra rivers.

#### (E) Oceanic Deeps

Trenches are the deepest part of the oceans and occupy about 7% of the total relief of the ocean floor. The ocean temperature in the trench is slightly cooler than the freezing temperature. As they are sediment free, most trenches are V-shaped with steep sides. **Epicentre of the great earthquakes** are all found in the trenches.



Dragon Hole is the deepest known underwater sink hole in the world. The local fishermen call it the 'eye' of the South China Sea.

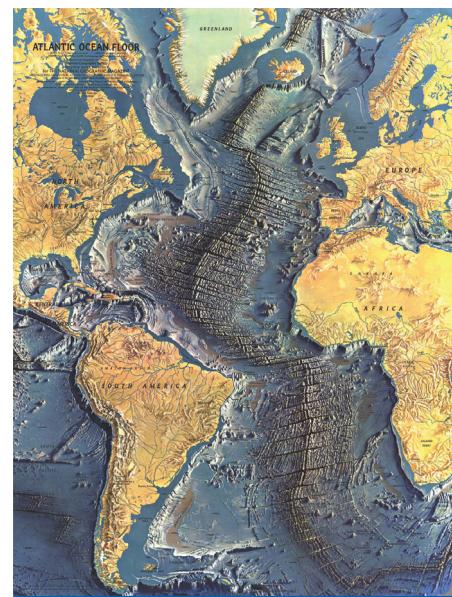


#### (F) Oceanic Ridge

Oceanic ridge is a continuous submarine mountain chain. They are made of young

basaltic rock formed when two tectonic plates moves apart. The mid-ocean ridge is probably the most extensive single feature of the earth's topography. Two of the most well known mid-ocean ridges are the Mid-Atlantic Ridge and the East Pacific Ridge. The Mid-Atlantic Ridge is the largest unbroken oceanic ridge.

<b>DO YOU KNOW?</b>	<b>Fathoms</b> ⇒ A nautical measurement of the depth of water in the ocean.
	<b>Isobath</b> ⇒ An imaginary line on a map joining the points of equal depths.
	<b>Isohaline</b> ⇒ An imaginary line on a map joining the points of equal salinity in oceans.



Mid Atlantic Ridge

#### 4.4.2 Movement of the Ocean Water

The ocean water is dynamic. Temperature, salinity, density, external forces of the sun, moon and the winds keep the ocean waters in movement, both horizontally and vertically. Waves and currents are in **horizontal motion** while tides have **vertical motion**.

##### (A) Waves

Of all the movements of the oceans, sea waves are considered to be the strongest. Sea waves are ripples on water caused when winds blow over



the sea. The height of these waves depends on the speed of wind, its duration and the direction from which they blow. Sometimes waves are also caused by tremors felt on the ocean floor. Such waves are quite destructive and called **Tsunami**.



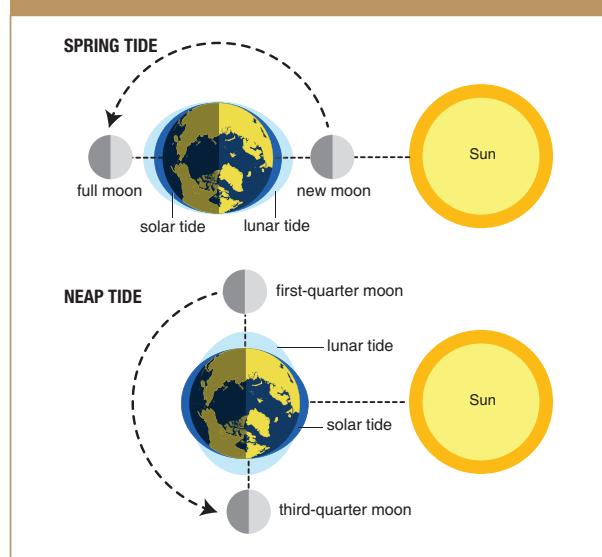
The energy of the falling wave water is used to turn hydro turbines to generate power. Wave energy power plants have been installed at Vizhinjam in Kerala coast and Andaman and Nicobar islands of India.

#### (B) Tides

The periodic rise and fall of sea water due to the gravitational pull of the sun and moon on earth are called tides. They are classified broadly into **Spring tides** and **Neap tides**.

When the Sun, Moon and Earth are aligned in the same line, the collective gravitation pull of the sun and moon on earth's water strengthens to form a high tide known as **spring tide**. Such tides always occur on full moon and new moon days.

#### TYPES OF TIDES



When the sun and the moon are at right angles, their gravitational forces work against each other, causing a low tide called **neap tide**. A neap tide occurs between two spring tides i.e., twice a month, when the first and last quarter moon appears.



Potential tidal energy zones of India are the Gulf of Kutch and Sundarbans.



#### MARITIME BORDERS



Maritime boundary of most the Countries is fixed to be 12 nautical miles from the baseline. This was fixed by the U.N. Convention on the Law of the sea 2013 where as Jordan and Palau have 3 nautical miles as their maritime boundary and Benin, Republic of Congo, El Salvador, Peru and Somalia have 200 nautical miles.

#### (C) Ocean Currents

The movement of oceanic water on the surface and at the depths in a definite direction is called ocean current. Ocean currents are in **clockwise motion in the northern hemisphere** and in the **anti-clockwise motion in the southern hemisphere**.

The factors that generate ocean currents are:

- Earth's rotation
- Prevailing winds and
- Differences in temperature and salinity of ocean water.

On the basis of temperature, ocean currents are classified as **warm currents** and **cold currents**. The movement of ocean currents from the low latitudes (tropical zones) towards high latitudes (temperate and polar zones) is called warm current. Eg. Gulf Stream in Atlantic Ocean, North Equatorial Current in Pacific Ocean.



NIO (National Institute of Oceanography) was established in 1st January 1966. The headquarters of NIO is located at Dona Paula, Goa. It Conducts research and observations to understand oceanic features, Ocean engineering, marine Archaeology etc.



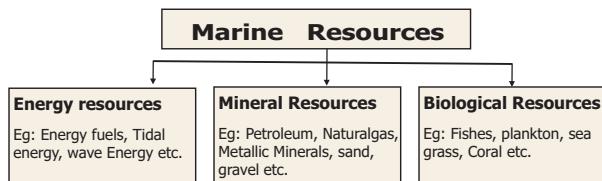
## 4.5 Marine Resources

The biotic and abiotic resources found in the oceanic water and at the bottoms are called marine resources. The ocean's resources play a vital role in sustaining the needs of society. A diverse array of marine organisms is used for food, medicine, cosmetics, and a wealth of industrial applications. The world's demand for energy, minerals and water have become increasingly dependent on non-living marine resources.



### Hots

- What will happen if the seas and oceans contain only fresh water?



### 4.5.1 Conservation Of Marine Resources

Oceans are the life blood of planet earth and mankind. The humankind depends on the marine resources for its survival. They are also essential for the economic prosperity, social well-being and quality of life. Oceans have extensive deposits of oil reserves. Besides a major fishing ground, it helps in generating non-conventional energy, development of many ports and harbours for trade activities. Coastal tourism also attracts people around the world, thereby contributing to the economy of many countries.

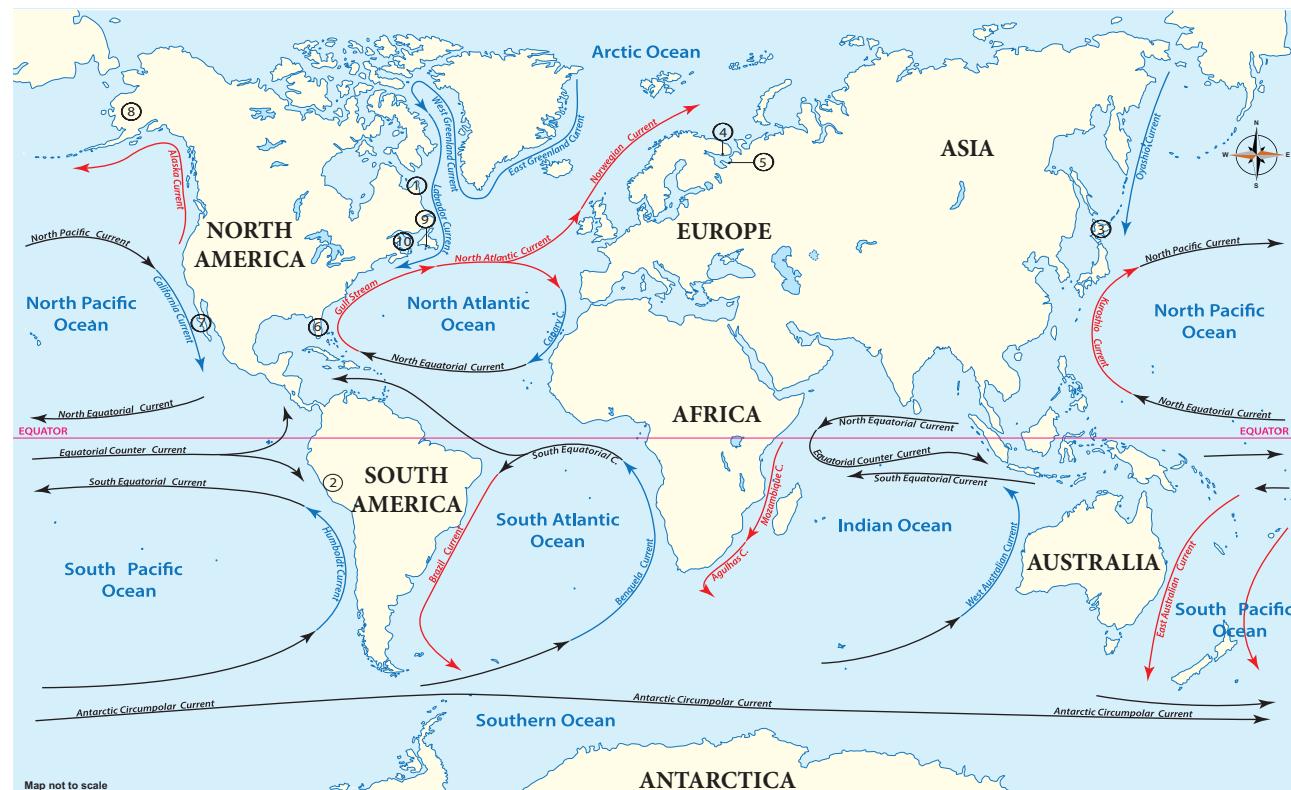
#### DISTRIBUTION OF MAJOR OCEAN CURRENTS AND EFFECTS

Ocean	Name of the Current	Effects
South Atlantic Ocean	Benguela Current [Cold]	Leads to foggy conditions along the coast of Namibia. Helped in the development of Namibian & Kalahari deserts
North Atlantic Ocean	Canaries [Cold]	Influences the extension of Sahara Desert
	Gulf Stream [Warm]	Its confluence with the Labrador current produces heavy fog along the coast of Newfoundland, obstacles the navigation. Hence, Newfoundland is one of the major fishing grounds of the world.
	North Atlantic Drift [Warm]	It keeps the ports at higher latitudes ice-free throughout the year. Eg. Port of Rorvik (Norway), Murmansk and Severodvinsk (Russia)
	Labrador [Cold]	Its confluence with Gulf Stream creates fog and hinders navigation.
South Pacific Ocean	Peruvian / Humboldt Current [Cold]	Helped in the desertification of the Atacama desert. El-Nino effects the weather in western & S. America. It also affects timely arrival of Indian monsoon

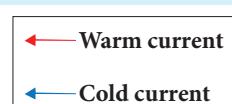


North Pacific Ocean	Kuroshio Current [Warm]	It plays a vital role in carrying large amount of heat to the adjacent land areas and forms cloud cover that cause rainfall.
	Oyashio / Kurile Current [Cold]	Its confluence with the Kuroshio current produces heavy fogs around Hokkaido, which become potential hazards for navigation. Hence, Hokkaido acts as the major fishing ground of the world.
	Alaska Current [Warm]	Keeps the seaports of Alaska open throughout the year.
	California Current [Cold]	Leads to foggy conditions along the coast of California. It helped in the development of Arizona & Sonora deserts.
Indian Ocean	West Australian Current [Cold]	Leads to foggy conditions along the western coast of Australia. It helped in the genesis of west Australian desert.

# Major Ocean Currents of the World



- 1. Labrador**    **3. Hokkaido**    **5. Port Severodvinsk**    **7. California**    **9. Newfoundland**  
**2. Peru**        **4. Port Murmansk**    **6. Florida**                    **8. Alaska**        **10. Grandbank**





## The Great Barrier Reef

The Great Barrier reef is the world's largest coral reef system composed of 2,900 individual reefs and 900 islands stretching for about 2,000 kilometres. It covers an area of about 3,50,000 km. The reef is located in the Coral sea, off the coast of Queensland, Australia. The Great Barrier Reef can be seen from the outer space. This sprawling coral reef system is one of the most biologically diverse places on the planet. Coral reefs are built by billions of tiny organisms, known as Coral polyps. CNN labelled it as one of the seven natural wonders of the world.



## Recap

- Hydrosphere, the third sphere of Earth, is a collection of all forms of water on the earth.
- Hydrological cycle is the continuous movement of water on Earth.
- Water is available on Earth as fresh and salt water. Over 97% of the water on the Earth's surface is confined to oceans.
- The five major oceans of the world are the Pacific, the Atlantic, the Indian, the Southern and the Arctic ocean.
- The major relief of the ocean floor are continental shelf, continental slope, continental rise, abyssal plains, ocean deeps and ocean ridges.
- Marine resources are nothing but the biotic and abiotic resources found in the oceans.
- Oceans are the lifelines of Earth and mankind. Hence, they need to be conserved.



The Gangetic Dolphin was declared the National Aquatic Animal in 2010. This has become an endangered species. Are the Dolphins really at risk? If so, list out the reasons.



## EXERCISE

### I Choose the correct answer



1. The Sunda Trench lies in the \_\_\_\_\_ ocean.  
a) Atlantic      b) Pacific  
c) Indian      d) Antarctic
2. The temperature of the ocean waters generally \_\_\_\_\_ at greater depth.  
a) increases  
b) decreases  
c) remains constant  
d) none of the above
3. Ocean currents are produced due to \_\_\_\_\_  
a) due to rotation of earth  
b) due to variation in temperature  
c) due to earth's movement  
d) all the above
4. Consider the following statements.
  1. Most of the fishing grounds occur in areas where the continental shelf is wide.
  2. Fishing is well developed in warm tropical waters.
  3. Mixing of warm and cold currents facilitates plant nutrients for fish.



5. Inland fishing became significant in India.
- 1 and 2 are correct.
  - 1 and 3 are correct.
  - 2,3 and 4 are correct.
  - 1,2 and 3 are correct
6. The oceanic ridge comes into existence due to
- convergence of tectonic plates
  - divergence of tectonic plates
  - lateral movements of plates
  - steaming of plates.
7. Which of the following indicates the correct sequence of the topography beneath the surface of the sea?
- Continental shelf-Continental slope-Sea plain-Sea trench.
  - Continental slope-Continental shelf-Sea plain-Sea trench.
  - Sea plain-Continental slope-Continental shelf-Sea trench.
  - Continental slope-Sea plain-Continental shelf-Sea trench.
8. Which of the following is not correctly matched?
- Gulf Stream - Pacific Ocean
  - Labrador current - North Atlantic Ocean
  - Canary current - Mediterranean sea
  - Mozambique current - Indian Ocean.
9. The amount of planktons to be found in the ocean is determined by
- Depth of the water.
  - Ocean currents.
  - Temperature and Salinity.
  - Length of day and night.
- 1 and 2 are correct
  - 1,2 and 3 are correct
  - 1,3 and 4 are correct
  - All are correct.

## II. Questions are of Assertion(A), Reason (R) type.

- Both A and R are correct and R explains A.
- Both A and R are correct but R does not explain A.
- A is correct but R is false.
- A is false but R is correct

1. **Assertion (A):** Oceans are always shown in blue in maps.

**Reason(R):** It indicates the natural colour of the oceans.

2. **Assertion(A):** Flat topped seamounts are known as Guyots.

**Reason(R):** All guyot features are of volcanic origin.

3. **Assertion(A):** Submarine canyons are deep gorges on the ocean floor.

**Reason(R):** They are mainly restricted to continental shelf, slope and rise

4. **Assertion (A):** Atolls are more common in the Atlantic ocean.

**Reason(R):** The marine population at the depth is less.

## III. Match the following:

- |                       |                                    |
|-----------------------|------------------------------------|
| 1. Mariana trench     | - Decreases salinity in the oceans |
| 2. Great Barrier Reef | - Along the coast of Japan         |
| 3. Sargasso sea       | - Deepest point in the Pacific     |
| 4. Spring tides       | - Australia                        |
| 5. Heavy rains        | - Second order landform            |
| 6. Kuroshio current   | - North Atlantic Ocean             |
| 7. Continental slope  | - On full and new moon days        |



#### IV. Answer the following in brief:

1. What do you mean by the term Hydrosphere?
2. What is hydrological cycle?
3. Mention the various relief features of ocean floor
4. What are the factors that generate the ocean currents?
5. Write a brief note on sea waves.

#### V. Give reasons for the following:

1. The northern hemisphere and the southern hemisphere are called land and water hemispheres respectively.
2. Continental shelf provides good fishing ground.

#### VI. Distinguish the following:

1. Spring tide and Neap tide.
2. Abyssal plains and Ocean deeps.

#### VII. Answer in a paragraph:

1. Write a paragraph on the origin of oceans.
2. Write a note on continental shelf and continental slope.
3. What do you mean by ocean currents? Explain its types.
4. Explain the influences of the marine resources on mankind.



## ICT CORNER

### Geography - Hydrosphere

Let us know the names of the earth's spheres by using memory cards



#### Steps

Step 1: Open the Browser type the URL Link given below (or) Scan the QR Code.

Step 2: You see the Earth's Spheres cards.

Step 3: Click the cards and choose correct Spheres and Examples

#### Website URL :

<https://matchthememory.com/Earthspheres>

<https://www.purposegames.com/game/the-hydrosphere-game>



B568\_9\_SS\_EM\_T3



UNIT

5

# Biosphere



## Learning Objectives

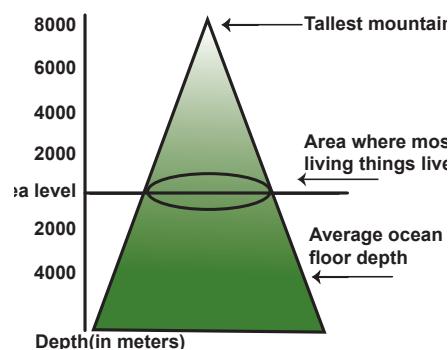
- To understand the scope and meaning of biosphere
- To understand the meaning of ecosystem, its components, functions and biodiversity
- To understand the major biomes of the world
- To know the need for conservation of biomes



## Introduction

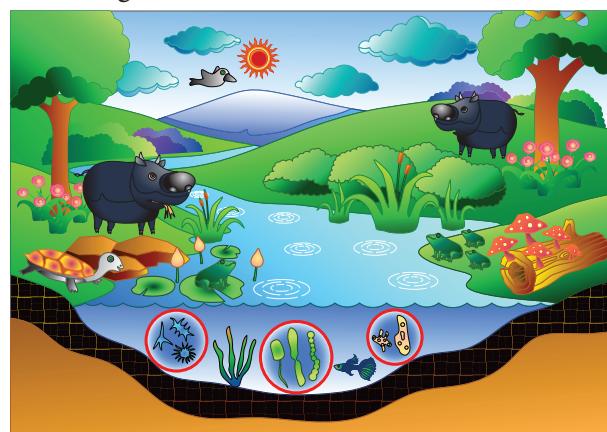
Biosphere, the fourth sphere of the Earth, is a life supporting layer that exists on the earth's surface. This layer on earth encompasses the Lithosphere, Hydrosphere and Atmosphere. It includes flora and fauna that thrive on or near the earth's surface. The vertical range of the biosphere is approximately 20 km, which is measured from the ocean floor to the troposphere. However, most plants and animals live in a very narrow section for about 1 km above and below the Mean Sea Level (MSL). Biosphere is made up of different ecosystems and biomes. All living things, large or small, are grouped into *species*. The area in which an animal, plant or micro organism lives is called its **habitat**. A wide variety of plants and animals live in a particular habitat known as **biodiversity**.

### VERTICAL RANGE OF BIOSPHERE ON EARTH



## 5.1 Ecosystem

An ecosystem is a community, where all living organisms live and interact with one another and also with their non-living environment such as land, soil, air, water etc. Ecosystems range in size from the smallest units (Eg: bark of a tree) that can sustain life to the global ecosystem or ecosphere. (Eg: Cropland, Pond ecosystem, Forest ecosystem, Desert ecosystem etc.). Biosphere harbours all ecosystems on the earth and sustains life forms including mankind.



## Activity

Narrate the forest ecosystem in your own words.



The branch of science that deals about ecosystem is called **Ecology**.

A person who studies ecology is referred to as an **Ecologist**.

### 5.1.1 Components of Ecosystem

An ecosystem consists of three basic components, namely

- A) Abiotic components
- B) Biotic components and
- C) Energy component



#### A) Abiotic Components

Abiotic components include the non-living, inorganic, physical and chemical factors in the environment. Eg. Land, Air ,Water, Calcium, Iron etc.

#### B) Biotic Components

Biotic components include plants, animals and micro organisms. Biotic components can be classified into three categories :

- **Producers** are self nourishing components of the ecosystem. Hence they are called **Autotrophs**. They are found both on land and water. Eg. Plants, Algae, Bacteria etc.
- **Consumers** are those that depend on producers, directly or indirectly. Hence they are called **Heterotrophs**.

The common category of consumers are:

- **Primary consumers** depend on producers for their food. They are exclusively herbivores. Eg. zebra, goat etc.
- **Secondary consumers** are small carnivores i.e., they consume herbivores. Eg. lion, snake etc.
- **Tertiary consumers** are top carnivores that prey on both herbivores and carnivores. Eg. owl, crocodile etc.

- **Decomposers** are some organisms that are incapable of preparing its own food. They live on dead and decaying plants and animals. Hence they are called **Saprotrophs**. Eg. fungus, mushrooms etc.

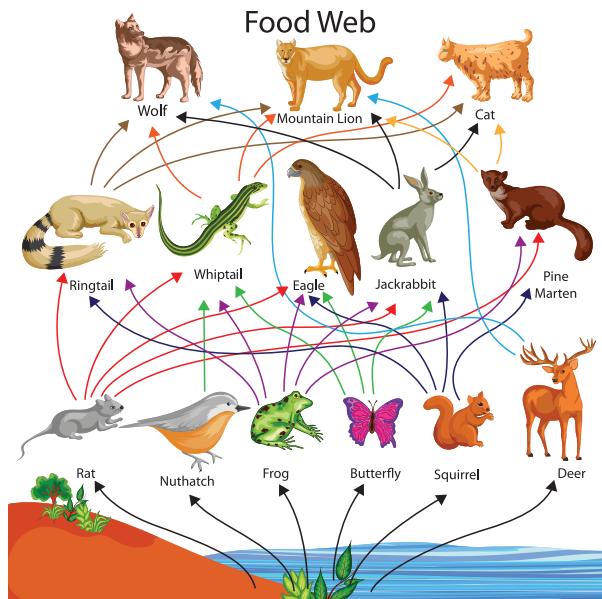
### Activity

Find the etymology of *Herbivores*, *carnivores*, *omnivores* and *scavengers* using dictionary.

#### C) Energy Components

All organisms in the biosphere use energy to work and convert one form of energy into another. The Sun is the ultimate source of energy for the biosphere as a whole. The solar energy gets transformed into other forms of energy through the various components in the ecosystem. The producers, consumers and the decomposers contribute a lot to the energy flow in an ecosystem.

### 5.1.2 Functions of an ecosystem



The living organisms form an interacting set of flora and fauna which are organized into trophic levels, food chains and food webs. The functioning of an ecosystem depends on the pattern of the energy flow, as it helps in the distribution and circulation of the organic and inorganic matter within an ecosystem. Energy flow generally takes place in a hierarchical order in an ecosystem through various levels. These levels are called **trophic levels**.



The chain of transformation of energy from one group of organisms to another, through various trophic levels is called a **food chain**. A system of interlocking and interdependent food chains is called a **food web**.

## 5.2 Biodiversity

Biodiversity or biological diversity refers to a wide variety of living organisms (plants, animals and other micro organisms) which live in a habitat. It is highly influenced by topography, climate as well as human activities. It represents the strength of the biological resources of a place on earth. In biodiversity, each species, no matter how big or small, has an important role to play in the ecosystem. It maintains the ecological balance and facilitates social benefits such as tourism, education, research etc. over an area.

### 5.2.1 Loss of biodiversity

The extinction of species (flora and fauna) due to human and natural influences is called **loss of biodiversity**.

A healthy eco system provides clean water, pure water, enriched soil, food, raw materials, medicines etc. Hence stable biosphere has to be conserved.

## 5.3 Biomes

A biome is a geographically extensive ecosystem where all flora and fauna are found collectively. It is the total assemblage of plant and animal life interacting within the biosphere. Biomes are defined by abiotic factors like, relief, climate, soils and vegetation. They are classified into two broad categories, **terrestrial biomes** and **aquatic biomes**.



■ An ecological region that has lost more than 70% of its original habitat is considered a **hotspot**.

- Hotspots in India are the Himalayas, Western Ghats, Indo Burma Region and Sundaland.
- There are 34 areas around the world which are qualified as biodiversity **hotspots**

### 5.3.1 Terrestrial Biomes

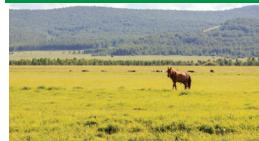
Terrestrial biomes is a group of living organisms that live and interact with one another on land. They are mainly determined by temperature and rainfall. Some of the major terrestrial biomes of the world are

- A. Tropical Forest Biomes
- B. Tropical Savanna Biomes
- C. Desert Biomes
- D. Temperate Grassland Biomes
- E. Tundra Biomes



#### CLASSIFICATION OF BIOMES

##### Natural: Terrestrial



Grassland



Forest



Desert

##### Natural: Aquatic



Marine: Oceans



Freshwater

##### Artificial or Manmade



Aquarium



Crop Land

### A. Tropical Forest Biomes

The tropical forest biome is comprised of several sub-biomes, including evergreen rainforest, seasonal deciduous forest etc.

Tropical forests have the highest biodiversity and primary productivity of any of the terrestrial biomes. The **Amazon basin**, **Congo basin** and **Indonesian islands** are the major regions of this biome. These regions have very dense forests and so have great economic importance. Human



settlements are found scattered here. They sustain their livelihood through food gathering, fishing, lumbering and shifting cultivation. Due to the humid nature of this biome, the people get afflicted to tropical diseases like malaria, yellow fever etc. The chief trees found here are **rubber**, **bamboo**, **ebony**, etc. Bats, pheasants, jaguars, elephants, monkeys etc. are the important birds and animals found here.

**DO YOU KNOW?**

The U.S. National Cancer Institute has identified about 70% of the plants used for treating cancer. Which are found only in rain forests. Eg. Lapacho.



## B. Tropical Savanna (Grasslands) Biomes

Tropical grasslands are generally found between tropical forests and deserts. Tropical Savanna biomes are found between  $10^{\circ}$  to  $20^{\circ}$  N and S latitudes. These grasslands are generally flat and are found in the Sahel, south of Sahara in East Africa and in Australia. This biome is generally hot and dry and experiences moderate to low rainfall. So, the grass which grow here are tall and sharp. Hence the chief occupation of the people found here is herding. The primitive people living here are **nomadic**.

The common animals found here are the lion, leopard, tiger, deer, zebra, giraffe etc. Flora such as **Rhodes grass**, **red oats grass**, **lemon grass** etc. are found in this biome.

**DO YOU KNOW?**

Of late, parts of the Savanna grasslands are being converted into farmlands, which pose a great threat to the wide range of fauna. For Eg. The population of the big cats like cheetah, lion etc. are dwindling drastically.

## C. Desert Biomes

Deserts are usually found on the western margins of the continents between

$20^{\circ}$  and  $30^{\circ}$  N and S latitudes. The annual rainfall is less than 25 cm in these regions. Due to the lack of rainfall and arid conditions, these regions do not possess any vegetation but have special vegetation type called **Xerophytes**. As the soil is sandy and saline, deserts remain agriculturally unproductive. Drought resistant thorny scrubs and bushes, palms are found here.



Tribal people who live here practice food gathering and hunting. They move their temporary settlements frequently in search of pastures. Transportation becomes very difficult here and is carried on by camels. Reptiles like snakes, lizards, scorpions etc., are most commonly found here.

**DO YOU KNOW?**



An oasis is a fertile fresh water source found in deserts and semi-arid regions. Oases are fed by springs. Crops like date palms, figs, citrus fruits, maize etc. are cultivated near these oases.

## D. Temperate Grassland Biomes

Temperate Grasslands are usually found in the interior of the continents and are characterized by large seasonal temperature variations, with warm summer and cold winter. The type of grassland in these regions strongly depends upon precipitation. **Higher precipitation** leads to **tall** and soft grass and **lower precipitation** leads to **short** and soft grass. These regions favour wheat cultivation. Extensive mechanised agriculture is practised due to lack of farm labour. Pastoral industry



becomes the main occupation, thereby facilitating slaughtering of animals, packing of raw and processed meat, dairy products etc. The common birds and animals are grass hopper, wolf, bison, prairie dog etc.



Temperate grasslands are called differently in different parts of the world.

Prairies -- North America

Steppes -- Eurasia

Pampas -- Argentina and Uruguay

Veld -- South Africa

Downs -- Australia

Canterbury -- New Zealand

Manchurian -- China

## E. Tundra Biomes

These vast lowlands are found where the ground remains frozen. Greenland, Arctic and Antarctic regions and Northern parts of Asia, Canada and Europe fall in this biome. These regions are also called **Barren lands**. This biome experiences long severe winter and short cool summer. Due to the prevailing of low temperature and short growing seasons, the net primary productivity is very low in tundra. People are nomadic. Hunting and fishing are their major occupations. The population here is extremely sparse and the harsh environment makes them change their settlement frequently. They live in igloos in winter and in tents during summer. Arctic moss, Arctic willow, lichens etc. grow here. Fauna like the polar bear, wolverine, reindeer, snowy owl are found here.



## 5.3.2 Aquatic Biomes

Aquatic biome is a group of living organisms that live and interact with one another and its aquatic environment for nutrients and shelter. Like terrestrial biomes, aquatic biomes are influenced by a series of abiotic factors. It is broadly classified as **fresh water biomes and marine biomes**.

### A. Fresh water Biomes:

It comprises lakes, ponds, rivers, streams, wetlands etc. It is influenced by various abiotic components such as the volume of water, water flow, composition of oxygen, temperature, etc. Humans rely on freshwater biomes for drinking water, crop irrigation, sanitation and industry. Water lily, lotus, duck weeds etc. are the common plants found here. Trout, salmon, turtles, crocodiles etc. are the animals found here.



### B. Marine Biomes:

They are the largest aquatic biomes on earth. They are continuous bodies of salt water and provide a wide range of habitats for marine plants and animals. Coral reefs are a second kind of marine biomes within the ocean. Estuaries, coastal areas where salt water and fresh water mix, form a third unique marine biome. As water provides maximum mobility to marine organisms, nutrients are circulated more quickly and efficiently here than the terrestrial biomes. Apart from animals, plants such as kelp, algae, phytoplankton etc. also grow in water. Aquatic biomes are not only important for plants and animals, but also for humans. Humans use aquatic biomes for water, food and leisure activities.



Some of the threats and issues to aquatic biomes are overfishing, pollution and rise in sea level.



### 5.3.3 Conservation

The biosphere extends from the deep ocean trenches to lush rain forests. People play an important role in maintaining the flow of energy in the biosphere. At the same time, the primary cause of today's loss of biodiversity is habitat alteration caused by human activities. The ever increasing population results in over exploitation of biological resources. This has an adverse impact on flora and fauna on earth. There are places on earth that are both biologically rich and deeply threatened. Hence it is man's duty to conserve and care for the earth and make it a better place to live in.



A Biosphere Reserve is a special ecosystem or specialized environment with flora and fauna that require protection and nurturing. **There are 18 Biosphere Reserves in India.**

### Recap

- The biosphere is a thin layer on, above and beneath the earth where life exists.
- The place on earth where living organisms live and interact with one another and with their physical environment is called an ecosystem.
- The three major components of ecosystem are biotic components, abiotic components and energy flow.
- Biotic components are classified into producers, consumers and decomposers.

- The functioning of the ecosystem depends on the energy flow through various levels called trophic levels.
- The wide variety of living organisms that are found on the planet is called biodiversity.
- The extinction of such biological diversity due to human influences or nature is called loss of bio diversity.
- The geographically extensive ecosystem where living organisms are collectively found is termed as biome.
- Biomes are broadly classified as terrestrial and aquatic biomes.
- Biosphere has to be conserved, as it is considered to be an asset to planet earth.



### EXERCISE

#### I. Choose the correct answer



1. The coldest biome on Earth is
  - a) Tundra
  - b) Taiga
  - c) Desert
  - d) Oceans
2. This is the smallest unit of biosphere.
  - a) Ecosystems
  - b) Biome
  - c) Environment
  - d) None of the above
3. Nutrients are recycled in the atmosphere with the help of certain micro organisms, referred to as
  - a) Producers
  - b) Decomposers
  - c) Consumers
  - d) None of the above
4. To which climatic conditions are Xerophytic plants specifically adapted to?
  - a) Saline and sandy
  - b) Limited moisture availability
  - c) Cold temperature
  - d) Humid



5. Why is the usage of rainforest biomes for large scale agriculture unsustainable?
- because it is too wet.
  - because the temperature is too warm.
  - because the soil is too thin.
  - because the soil is poor.

### Questions 6 – 8 are assertion type questions. Directions:

- Both assertion (A) and reason(R) are true; R explains A
  - Both assertion(A) and reason(R) are true; R does not explain A
  - A is true; R is false
  - Both A and R are false
6. A: Heterotrophs do not produce their own food.  
R: They depend on autotrophs for their nourishment.
7. A: Hotspots are the regions characterised by numerous endemic plants and animal species living in a vulnerable environment.  
R: To manage and focus on conservation work more effectively, researchers identified hotspots.
8. A: The number of gorillas in Africa has plummeted by 60% in the past twenty years.  
R: Non intervention of human beings in the forest areas.

### II. Fill In The Blanks

- An area where animals, plants and micro organisms live and interact with one another is known as \_\_\_\_\_
- \_\_\_\_\_ are also called Heterotrophs.
- \_\_\_\_\_ is a system of interlocking and independent food chains.
- \_\_\_\_\_ is an extensive large ecosystem.
- The vegetative type commonly found in desert biomes is called \_\_\_\_\_

6. \_\_\_\_\_ is an aquatic biome that is found where fresh water and salt water mix.

### III. Answer the following in brief:

- What is Biosphere?
- What is an ecosystem?
- What does the term 'biodiversity' mean?
- What is meant by loss of biodiversity?
- Mention the various terrestrial biomes.

### IV. Give reasons for the following:

- Producers are also called autotrophs.
- Biosphere provides a stable ecosystem.

### V. Distinguish between the following:

- Producers and Decomposers.
- Terrestrial biomes and Aquatic biomes.
- Tropical vegetation and Desert vegetation
- Savannas and Tundra

### VI. Answer the following in a paragraph:

- Explain the various components of ecosystem.
- Write a paragraph on the functions of an ecosystem.
- Explain about the aquatic biomes on Earth.

### VII. Find out the dates for the following:

- World Wild Life Day .....
- International Day of Forest .....
- World Water Day .....
- Earth Day .....
- World Environment Day June 5th
- World Oceans Day .....

### VIII. Map Study

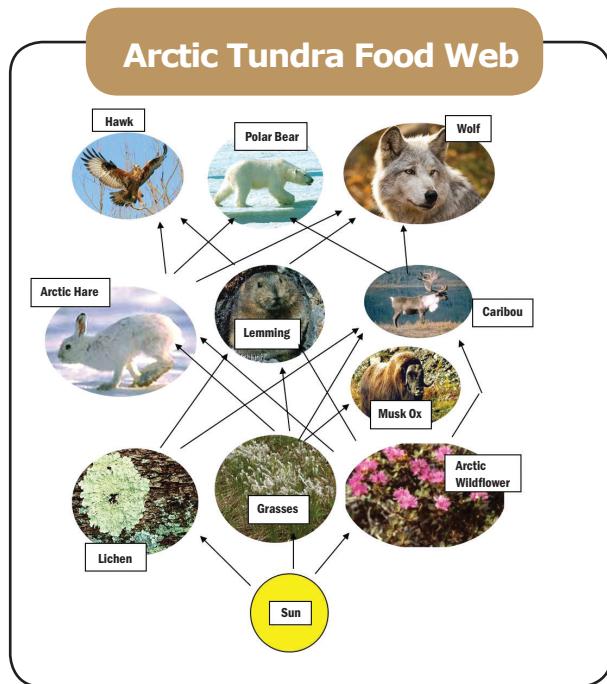
Locate the following on the world outline map.

- Prairies
- Downs
- Tundra Biomes
- Equatorial Biomes



## IX. Picture Study

Narrate the given food web of Arctic Tundra in your own words.



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3. [www.nasa.gov](http://www.nasa.gov)
4. [www.britannica.com](http://www.britannica.com)
5. <http://earth.usc.edu>



## ICT CORNER Geography -Biosphere

Let us know 'Biosphere' with the help of videos



### Steps

- Step 1: Open the Browser type the URL Link given below (or) Scan the QR Code.
- Step 2: Register as a student or teacher with your email id.
- Step 3: Select the option Video and see the Biosphere video.
- Step 4: Select the option Quiz and choose the correct answer.

### Website URL :

<https://matchthememory.com/Earthspheres>



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UNIT

6

# Man and Environment



## Learning objectives

- To know the components of environment
- To understand the various features of human-environment interaction
- To know various settlement patterns
- To know the different economic activities of man
- To understand the environmental effects of human behaviour



## Introduction

Environment is a set of relationships between man and nature. Man has survived through the ages, dwelling within his surrounding called the environment. The word 'environment' is derived from the French word 'environ' meaning encircled or surrounded. Environment includes both living (biotic) and non living (abiotic) components.

### 6.1 Man and Environment

Early man depended entirely on nature for food, clothing and shelter. Man has enjoyed a dominant position over the other living organisms around him because of his erect posture, hands and intelligence. From the paleolithic period to the neolithic period, man has invented and developed the wheel, fire, tools and patterns of agriculture and housing to his comfort, which led him to improve the standard of living making himself technologically advanced. Thus, modern man modified the environment where he multiplied in numbers to increase population and has always extended his territories, leading to the exploitation of natural resources.

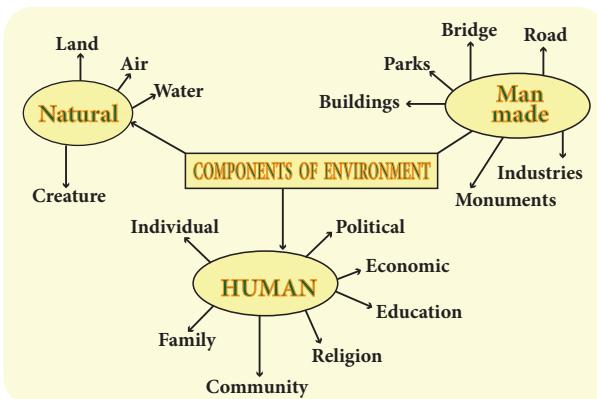


The Stockholm Conference, 1972, declared man as both a creator and moulder of his environment. 'The Earth Summit' formally known as the United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro in 1992.

### Classification of Environment:

Environment is generally classified as

- (a) Natural environment
- (b) Human environment and
- (c) Man made environment





### (a) Natural environment

Earlier, we have learnt about the natural components of environment such as lithosphere, atmosphere, hydrosphere and biosphere. In this chapter, we will study about the human and man-made components in a detailed manner.

### (b) Human Environment

Human environment is defined as the interaction between man as an individual, with his family, occupation and society. It is also related to various cultural aspects such as education, religion, economics and politics.

### (c) Man-made environment

Man-made environment has been created by man himself for the purpose of fulfilling his needs and to make his life more convenient and easy. For example, building, transport, park, industry, monument, etc. To bring an equilibrium between man and the environment, man has to study the distribution of population, availability of resources, development in technology, alternate means of fulfilling the increasing demand created by the growing population and other man-made features.

## 6.2 Population

Can you imagine a world without human beings? Humanbeings are important to develop the economy and society. The Latin word 'populus' means 'people'. Population is the total number of people living together in a particular place at the given point of time.



### What is Demography?

In ancient Greek, 'demos' means people and 'graphis' means study of measurement. So, 'Demography' is the statistical study of human population.

### 6.2.1 Population Growth

**'It is easy to add but difficult to maintain'** Population is a dynamic phenomenon where the number, distribution and composition are constantly changing. Human population increases as babies are born and decreases as people die. For most of human history, births have only slightly exceeded deaths every year. As a result, human population grow slowly. About the time of Industrial Revolution, it began to increase rapidly.

**Natural increase** of population is the difference between the birth rate and death rate. In fact population is always increasing but only in very rare cases it may decrease through natural or man-made disasters such as famine, landslides, earthquakes, tsunami, epidemics, extreme weather conditions and war.

**Population change** refers to an increase or decrease in the population of an area influenced by the number of **births, deaths and migration**. The population of the world doubled from 500 million in 1650 to 1000 million in 1850. The **projected population for 2025 and 2050 is about 8 billion and 9 billion respectively**.

**Population growth** refers to an increase in the number of people who reside in a particular area during a particular period.

### Census

Census is an official enumeration of population carried out periodically. It records information about the characteristics of population such as age, sex, literacy and occupation. Different countries of the world conduct census every 5 to 10 years as recommended by the United Nations. The first known census was undertaken nearly six thousand years ago by the Babylonians in 3800 BC (BCE). Denmark was the first country in the modern world to conduct a census. In **India, the first census was carried out in the year 1872**. Censuses have been conducted regularly every tenth year **since 1881**. The Indian Census is the most comprehensive source of demographic, social and economic data. Have you ever seen a census report? Check in your library.



Population increases when there are more births and immigration. It decreases when there are more deaths and emigration. Population growth, can be calculated as

**DO YOU KNOW?** The **black death** is estimated to have killed 30 - 60 percent of Europe's total population during the 14th century. The dominant explanation for black death is attributed to the outbreak of plague.

## 6.2.2 Distribution of Population

Population distribution refers to the way in which people are spread out across the earth's surface.

The world population is not uniformly distributed, owing to the following factors.

### a). Physical Factors

Physical factors include temperature, rainfall, soil, relief, water, natural vegetation, distribution of minerals and availability of energy resources.

### b). Historical Factors

Regions with historical importance (river valley civilizations), war and constant invasions fall under historical factors responsible for population distribution.

### c). Economic Factors

Educational institutions, employment opportunities, manufacturing industries, luxurious amenities, trade and commerce and

other facilities encourage dense population in an area.

**DO YOU KNOW?** The World Population Day is observed on 11<sup>th</sup> July every year. It seeks to raise awareness of global population issues. The United Nations Development Programme started celebrating this event from the year 1989.

## 6.2.3 Density of Population

Density of population refers to the number of people living per square kilometre. An area is said to be sparsely populated when it has a large area with less number of people. Similarly, smaller the area with a large number of people, it is said to be densely populated.

$$\text{Population Density} = \frac{\text{Total Population}}{\text{Total land area}}$$

**The world's population density is divided into three main groups.**

- Areas of high density (above 50 people per sq.km) - East Asia, South Asia, North West Europe & Eastern North America.
- Areas of moderate density (10 to 50 people per sq.km) - The sub tropical regions like Angola, Congo, Nigeria and Zambia in Africa.
- Areas of low density (less than 10 people per sq.km) - Central Africa, Western Australia, Northern Russia, Canada, etc...

## Activity

**The population data of the five most densely populated districts of Tamil Nadu is given below. (Findout the population density and their rank)**

District	Area (square km)	Population (2011 census)	Population Density	Rank
Chennai	178.2	46,46,732		
Kanchipuram	7857	39,98,252		
Vellore	6077	39,36,331		
Thiruvallur	3424	37,28,104		
Salem	5205	34,82,056		



## Over population and Under Population

Over population is a condition when a country has more people than its resources to sustain. Under Population is a condition where there are too few people to develop the economic potential of a nation fully.



‘India has an official population policy implemented in 1952. India was the first country to announce such a policy. The main objective of this policy was to slow down the rate of population growth, through promotion of various birth control measures.

## 6.3 Human Settlements

A settlement can be described as any temporary or permanent unit area where people live, work and lead an organized life. It may be a city, town, village or other agglomeration of buildings. During the early days, man preferred tree branches, caves, pits or even rock cuts as his shelter. As days passed by, man slowly learnt the art of domesticating animals and cultivating food crops. The evolution of farming took place along four major river basins i.e. the Nile, Indus, Hwang Ho, Euphrates - Tigris. Man built huts and mud houses. Slowly settlements came into existence. A settlement generally consisted of a cluster of houses, places of worship and a place of burial. Later, small settlements developed into villages. Several villages together formed a town. Bigger towns developed into cities. Settlements were formed in different shapes, sizes and locations.

### 6.3.1 Classification of Settlements

On the basis of occupation, settlements may be classified as **rural** and **urban** settlements.

#### 6.3.1 (A) Rural Settlements

Any settlement where most of the people are engaged in primary activities like agriculture, forestry, mining and fishery is known as a rural settlement. Most of the world's settlements are rural, that are mostly

stable and permanent. The most important and unique feature of rural settlements is the vast, open spaces with green, pollution-free environment.

### Patterns of Rural Settlements:

#### Rectangular pattern:

Rectangular pattern of settlements are found in plain areas or valleys. The roads are rectangular and cut each other at right angles.



#### Linear pattern:

In a linear pattern, the houses are located along a road, railway line and along the edge of the river valley or along a levee.



#### Circular or semicircular pattern:

The pattern of settlement that is found around the lakes, ponds and sea coasts are called circular or semi circular pattern.



#### Star like pattern:

Where several metalled or unmetalled roads converge, star shaped settlements develop. In the star shaped settlements, houses are spread out along the sides of roads in all directions.





### Triangular pattern:

Triangular patterns of rural settlement generally develop at the confluence of rivers.



### T-Shaped, Y-Shaped, Cross-Shaped or Cruciform settlements:

T-shaped settlements develop at trijunctions of the roads (T), while Y-shaped settlements emerge as the places where two roads converge with the third one. Cruciform settlements develop on the cross-roads which extend in all four directions.



### Nebular pattern:

The arrangement of roads is almost circular which ends at the central location or nucleus of the settlement around the house of the main landlord of the village or around a mosque, temple or church.

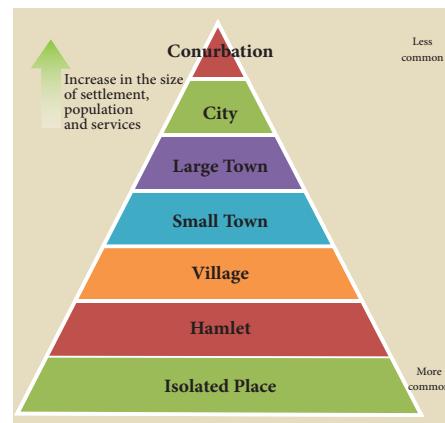


### 6.3.1 (B) Urban Settlements

Urban is the term related to cities and towns where people are primarily engaged in non-agricultural activities, such as secondary, tertiary and quaternary activities. The common characteristic feature of an urban unit is that they are compact, congested and liable to a large number of population. They comprise of mostly man-made structures that fulfill the requirements of a society's administrative, cultural, residential and religious functions. The factors responsible for urbanization are better employment opportunities, suitable conditions for business, education, transport, etc.

### Classification of Urban Settlements

Urban centres are classified as towns, cities, metropolitan cities, mega cities, conurbation, etc., depending on the size and services available and functions rendered to it.



**Town:** A town is generally larger than a village, but smaller than a city. It has a population of less than 1 lakh. E.g.: Arakkonam near Chennai

**City:** Cities are much larger than towns and have a greater number of economic functions. The population in cities are estimated to be more than 1 lakh. E.g.: Coimbatore

**Metropolitan cities:** Cities accommodating population between 10 lakhs and 50 lakhs are metropolitan cities. E.g.: Madurai

**Megacities:** Cities with more than 50 lakh population are called Megacities. E.g.: Greater Chennai

**Conurbation:** A conurbation is a region comprising of a number of cities, large towns and other urban areas. E.g.: Delhi conurbation



- Damascus is widely believed to be the oldest, continuously inhabited city in the world, dating back to at least 11,000 years.
- Tokyo is the world's largest city with the greater Tokyo area, housing about 38 million inhabitants.
- According to the Quality of Living Rankings by Consultancy Mercer, in 2016, the city offering the best quality of life was Vienna, with Zurich falling second. (Sources: United Nations, UNESCO, Mercer).



## 6.4 Economic Activities

Economic activities are those efforts or actions that involve production, distribution and consumption of commodities and services at all levels within a region.

### Types of Economic Activities

#### Primary Activities:

Primary Activities pertain to the extraction of raw materials from the earth's surface. For example: food gathering, hunting, lumbering, fishing, cattle rearing, mining and agriculture.

#### Secondary Activities:

Secondary Activities transform raw materials into finished goods. For example: Iron and Steel industries, automobile manufacturing etc.

#### Tertiary Activities:

Activities which by themselves do not produce goods, but support the process of production are called tertiary activities. For example: Transport, communication, banking, storage and trade.

#### Quaternary Activities:

The activities related to Research and Development, as well as knowledge are called Quaternary activities. For e.g. Services like consultation, education and banking

#### Quinary Activities:

The activities that focus on the creation, rearrangement and interpretation of new and existing ideas are called quinary activities. It includes the highest levels of decision making in a society or economy. E.g.: Senior business executives, scientists and policy makers in the Government.

## 6.5 Environmental Issues

Environment is the basic life support system that provides air, water, food and land to all living organisms. But human beings degrade the environment through rapid industrialization.

Some of the environmental issues that we are going to learn are:

- Deforestation
- Pollution such as air, water ,noise, etc
- Urbanisation
- Fracking
- Waste disposal



### Deforestation

Deforestation is the cutting down of trees permanently by the people to clear forests in order to make the land available for other uses.

#### Effects of Deforestation:

Deforestation results in many effects like floods and droughts, loss of soil fertility, air pollution, extinction of species, global warming, spread of deserts, depletion of water resource, melting of ice caps and glaciers, rise in sea level and depletion of ozone layer.

The United Nations Conference on Environment and Development (UNCED) by name Earth Summit Conference held at Rio de Janeiro, Brazil, on June 1992 concluded that all member countries should reduce their emission of carbon dioxide, methane and other green house gases thought to be responsible for global warming.

### Conservation of forests

(i) Conservation of forests can be done through the **regulation of cutting of trees**.

(ii) **Control over forest fire:** Through regular monitoring and controlling the movement of the people forest fire can be prevented.

(iii) **Proper use of forest products:** We depend on forests for our survival from the air we breathe, to the wood we use. Besides providing habitats for animals and livelihoods for humans, forest products are one of the most essential things in our day to day life. Therefore we must use forest products properly

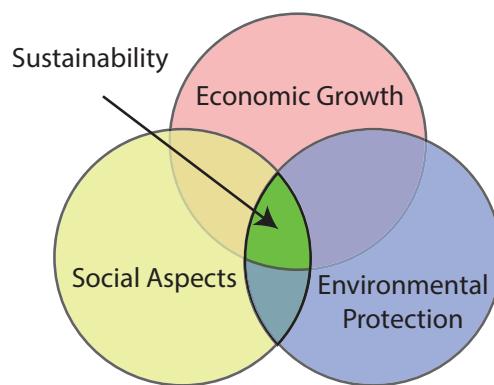


## 6.6 Sustainable Development

In 1987, the Brundtland Commission cited the definition of sustainability.

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

For sustainable development to be achieved, it is crucial to harmonize three core elements: **economic growth, social aspects and environmental protection**. These elements are interconnected and are crucial for the well-being of individuals and societies. To achieve true sustainability, we need to balance the economic, social and environmental factors of sustainability in equal harmony.



### Social Sustainability

The ability of a social system such as a country, family or organization to function at a defined level of social well being and harmony is called social sustainability. Problems like war, endemic poverty, widespread injustice and low education rates are symptoms of a system in socially unsustainable. The balancing capacity of a government in maintaining peaceful existence towards other countries and at the same time providing the requirements of its citizens without affecting the environment creates social sustainability.

### Economic Sustainability

The people on earth consume far more than what is their fair share.

- The economic sustainability is successfully implemented through strong Public Distribution System.
- Economic sustainability ensures that our economic growth maintains a healthy balance with our ecosystem.

### Environmental Sustainability

Environmental sustainability is the ability of the environment to support a defined level of environmental quality and natural resource extraction rates forever to mankind. Unnecessary disturbances to the environment should be avoided whenever possible.

#### Students' Activity

(Teacher should get a record of the students)

\* **Play outside!**

This simple activity goes a long way in teaching sustainability. Sharing in and appreciating a love of the outdoors will inspire children to care for earth.

\* **Read books about the earth.**

Books are great for young children to begin to learn about the earth.

\* **Make your own paper.**

Kids can use recycled paper scraps to make new paper!

### Why is sustainability important?

The excessive usage of natural and manmade resources deplete its availability for the future generation. We need to look after our planet, our resources and our people to ensure that we can hand over our planet to our children to live in true sustainability. Hence conservation and awareness are the two important terms that can bring sustainability to our living. When we use the word sustainability to mean maintain, it means to maintain it forever. This is because our actions have a lasting effect on the environment and we should protect it for our future generations.



## How to help the value of sustainability grow among students?

### • Lifestyle

Your lifestyle is your choice and you can change it. For example, when you go to the grocery store, make sure you always carry a cloth bag. This way the shopkeeper does not have to give you many plastic bags.

### • Fixing

If your watch or a toy or a camera is broken or not working, try getting it fixed before you buy yourself a new one.

### • Recycle

Try and be conscious about the things around you. When you consume something, see if you can re-use it later.

### • Needs vs Wants

Before you buy something, ask yourself the question- do I NEED this or do I WANT it? Remember sustainability begins with you. So act locally and think globally.

## Recap

- The place, things and nature that surround any living organism is called environment.
- The interaction between man as an individual with his family, occupation and society is called human environment.
- Population is a dynamic phenomenon where the number, distribution and composition are constantly changing.
- Population change refers to an increase or a decrease in the population of an area influenced by births, deaths and migration.
- The density of population is measured by dividing the total population by its total area.
- On the basis of occupation, settlements are classified as rural and urban.

- Primary, secondary, tertiary, quaternary and quinary are the different types of economic activities.
- Problems such as climatic changes, poverty, war and uneven distribution of resources leads to an unbalanced ecosystem. Therefore, to sustain mankind, it is a must to learn about sustainable development.



## EXERCISE

### I Choose the correct answer



1. All external influences and factors that affect the growth and development of living organisms is \_\_\_\_\_.  
a) Environment      b) Ecosystem  
c) Biotic factors      d) Abiotic factors
2. The 'World Population Day' is observed on \_\_\_\_\_ every year.  
a) August 11<sup>th</sup>      b) September 11<sup>th</sup>  
c) July 11<sup>th</sup>      d) January 11<sup>th</sup>
3. The statistical study of human population is \_\_\_\_\_.  
a) Demography      b) Morphology  
c) Etymology      d) Seismography
4. The extraction of valuable minerals and other geological minerals from the mines, is \_\_\_\_\_.  
a) Fishing      b) Lumbering  
c) Mining      d) Agriculture
5. The Secondary sector of the economy produces \_\_\_\_\_ from raw materials.  
a) Semi finished goods  
b) Finished goods  
c) Economic goods  
d) raw materials



6. Gradual increase of the earth's temperature by the Green house gases in the atmosphere is called \_\_\_\_\_.

- a) Acid rain      b) thermal pollution
- c) Global warming d) Deforestation

## II. Match the following:

- 1. Loudspeaker - Push factor
- 2. Rio de Janeiro, Brazil - Pull factor
- 3. Cruciform settlement - noise pollution
- 4. Natural disaster - T-shaped settlement
- 5. Better living conditions - Earth Summit, 1992

## III. Consider the given statements and choose the right option given below

1. **Assertion(A):** Ozone layer in the stratosphere is considered as a protective shield.

**Reason(R):** It prevents the UV radiation from reaching the earth's surface.

- a) A and R are correct and A explains R
- b) A and R are correct, but A does not explain R
- c) A is incorrect but R is correct
- d) Both A and R are incorrect

2. **Assertion(A):** In tertiary activities, instead of producing goods by themselves, they are in the process of production.

**Reason(R):** People in Tertiary activities are purely eco friendly.

- a) Both A and R are incorrect
- b) A and R are correct but A does not explain R
- c) A is correct and R is incorrect
- d) A and R are correct and A explains R

## IV. Answer the following in brief:

1. What do you mean by the term 'density of population'?
2. What is 'black death'?
3. Where do we have high and low densities of population?
4. Write any two ways of how the locals and the government restored Palk Bay.
5. Define.
  - i) Population growth
  - ii) Census
  - iii) Sustainable Development.

## V. Give reasons for the following:

1. Deforestation is encouraged throughout the world.
2. Acid rain destroys the ecosystem..
3. The economy of the quaternary sector is called knowledge economy.
4. Population growth has to be brought under control.
5. Sustainable development growth has been set to protect the planet.

## VI. Distinguish the following:

1. Birth rate and Death Rate
2. Rural settlement and urban settlement
3. Primary activities and Secondary activities

## VII. Answer in a paragraph:

1. Explain the factors affecting the distribution of population.
2. Describe the patterns of rural settlement with neat diagrams.

## VIII. Map skill:

- A. On the outline map of the world mark the following.
  1. An area of high density of population in Europe.



2. An area of low density of population in Australia.
3. Palk Bay.
4. A fracking banned country.
5. England - A country affected by 'black death'.
6. Denmark - First country where the modern census was conducted.
7. River Hwang Ho.

B. On the outline map of Tamil Nadu mark the following.

1. A metropolitan city
2. A district with 7857 people per sq. km.
3. Gulf of Mannar
4. Palk Strait

## IX. HOTS:

Study your area and write down about its settlement pattern.



## REFERENCE BOOKS

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2. Majid Husain, (2015), *Environment and Ecology* Access Publishing India Pvt. Ltd, New Delhi.
3. Sharma. J.P. (2011), *Environmental Studies*, an Imprint of Laxmi Publications Pvt. Ltd, New Delhi.



## INTERNET RESOURCES

[https://www.google.co.in/search?  
https://www.curbed.com/2017/8/9/16059384/vertical-  
forest-italy-climate-change](https://www.google.co.in/search?q=https://www.curbed.com/2017/8/9/16059384/vertical-forest-italy-climate-change)

[https://www.un.org/development/  
desa/publications/world-population-  
prospects-the-2017-revision.html](https://www.un.org/development/desa/publications/world-population-prospects-the-2017-revision.html)



## ICT CORNER

### MAN AND ENVIRONMENT

Through this activity, you will know about the population growth from the ancient age to the present.

#### Procedure

- Step 1: Use the URL or scan the QR code to open the activity page.
- Step 2: Click the 'Change Projection' to explore the map and data from the globe
- Step 3: Click the 'Reset Map' button to reset the map to starting position.
- Step 4: Click the 'Play' button in timeline to show the gradual growth of population.

#### URL:

<https://worldpopulationhistory.org/> (or) scan the QR Code

\*Pictures are indicatives only.





## UNIT

# 7

# Mapping Skills



## Learning objectives

- To introduce maps
- To read maps using its components
- To learn the methods of surveying and other techniques of acquiring map data like aerial photography and satellite remote sensing
- To gain knowledge of the latest techniques of mapping, namely GIS and GNSS



## Introduction

With maps on hand, one can see the world in one sweep. A map is worth a thousand words. Mapping skills are the basics to understand a map and to interpret the area depicted. Maps are introduced with its components such as scale, signs and symbols. Surveying is the process of recording the measurement of a land area. Its outcomes are the data sources of maps. This lesson deals with the latest techniques of mapping - remote sensing, GPS, GIS, global navigation system and web maps of the 21<sup>st</sup> century.

### 7.1 Map as a Tool

A map is the basic tool of a geographer. It illustrates the earth's surface clearly and effectively through a combination of drawings, words and symbols. Thus, maps form an integral part of teaching geography. A map is a location guide.

**DO YOU KNOW?** A cartographer is one who measures, analyzes and interprets geographical information to create maps and charts for political, cultural and educational purposes.

### 7.1.1 Maps and Cartography

Maps are drawings of an area as seen from above. A map is defined as the miniature image of the 3 dimensional earth's surface on a paper/cloth or any flat surface. Maps can show a whole or part of the world. Maps are drawn to a scale and direction. Maps have legends to explain the meaning of symbols and colours used on it. The art of map - making is called **Cartography**.

### 7.1.2 Components of a map

A map should include the following components namely, the title, scale, direction, grid system, projection, legend, conventional signs and symbols.



#### (A) Title

It indicates the purpose or theme of the map. Example: India – Physical, World – Political, Tamil Nadu – Transport.

#### (B) Scale

Scale makes it possible to reduce the size of the whole earth to show it on a piece of paper. A scale is a ratio between the actual



distance on the map to the actual distance on the ground. Scales can be represented in three methods. They are the **Statement**, **Representative Fraction (R.F)** and **Linear or Graphical scale methods**.

### Statement scale

The statement scale describes the relationship of map distance to ground distance in words, such as one centimetre to ten kilometres. It is expressed as  $1\text{cm} = 10\text{ km}$ .

### The Representative Fraction (R.F)

It describes the proportion or ratio of the map distance to ground distance. It is usually abbreviated as R.F. It is stated as  $1/100000$  (or)  $1:100000$ . This means that one unit on the map represents 100,000 of the same unit on the ground. This unit may be an inch or a centimetre or any other linear measurement unit. Thus,

$$\text{Representative Fraction (R.F.)} = \frac{\text{Distance on the map}}{\text{Distance on the ground}}$$

**For example:** To find the RF when the scale is 1 cm to 1km. Here, 1 cm = 1 km

According to the formula, R.F. =  $\frac{1\text{ cm}}{1\text{ km}}$

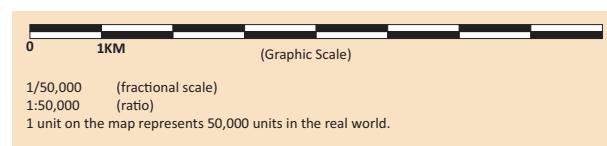
Convert the km to cm. Therefore,  $1\text{ km} = 100000\text{ cm}$ . So, RF. is  $1:100000$ .

Find the R.F. when the scale is 1 centimetre to 2 kilometre.

### Linear (or) Graphical scale

In a map, a linear scale is represented by a straight line divided into equal parts (Primary and secondary) to show what these markings represent on the actual ground. This scale helps in the direct measurement of distance on the map.

### Linear scale model



### (C) Direction

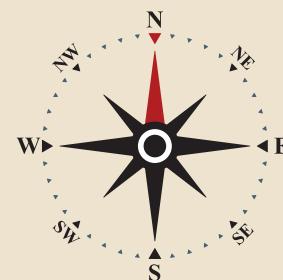
Maps are drawn normally with north orientation. North direction in a map is always

towards the North Pole of the earth. If you position yourself looking at the North Pole, on your right will be the east; your left will be the west; at your back will be south. These four main directions are called the cardinal directions. Direction is usually indicated on a map by a North-South line, with the North direction represented by an arrow head.

### Activity

Imagine you are standing in India facing north, find in which direction are the following located using the map given below

- Saudi Arabia \_\_\_\_\_  
Myanmar \_\_\_\_\_  
China \_\_\_\_\_  
Indian ocean \_\_\_\_\_  
Kazakhstan \_\_\_\_\_  
Sumatra \_\_\_\_\_  
Afghanistan \_\_\_\_\_



Mnemonic device or memory technique to recall cardinal directions is the sentence "Never Eat Soggy Wheaties." (North, East, South and West)

### (D) Grid System

The location of a place can be simply defined by its latitude and longitude. In normal practice, latitude is stated first and then comes the longitude. The latitude and longitude of a place can be expressed in units of **degree, minutes and seconds**.

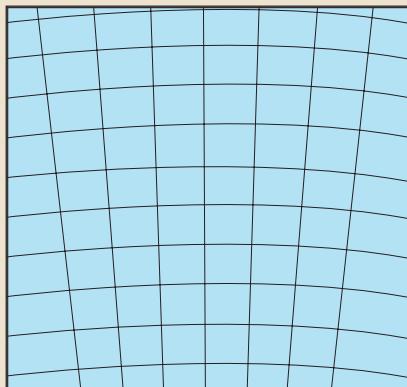
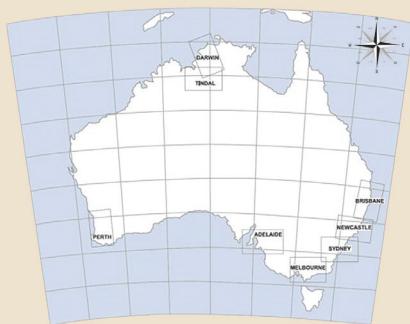


**DO YOU KNOW?**

The mainland of India extends from  $8^{\circ}4'N$  to  $37^{\circ}6'N$  latitude and from  $68^{\circ}7'E$  to  $97^{\circ}25'E$  longitude. Here, ( $^{\circ}$ ) is degree and ( $'$ ) is minutes.

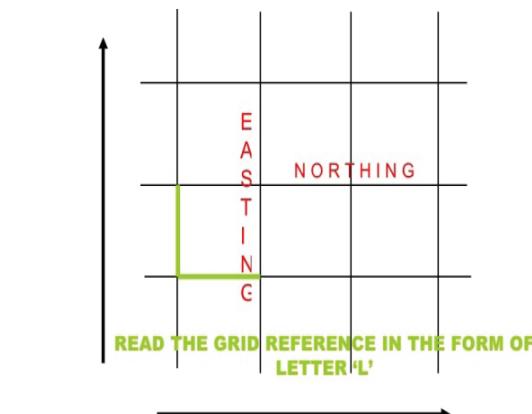
## Activity

Use grids to enlarge Australia.



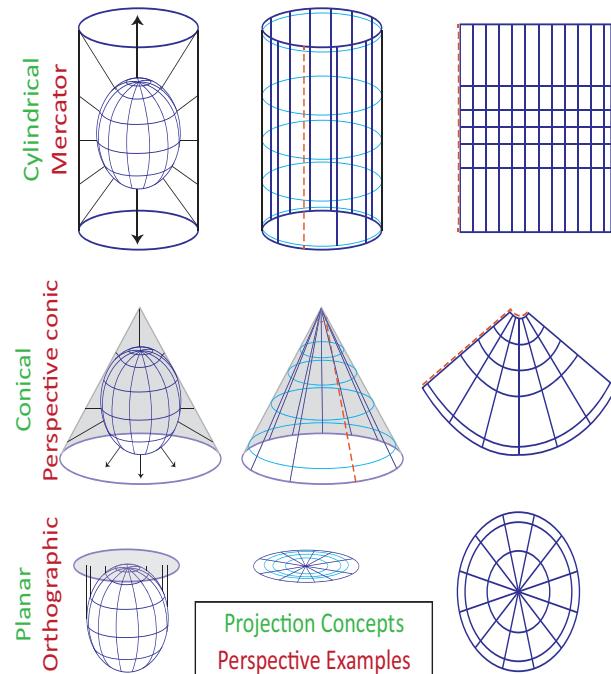
## (E) Projection

A map projection is a way of showing the spherical shaped earth on a flat piece of paper. Where does the word 'projection' come from? Imagine a clear globe with latitude and longitude lines and the outlines of the landmasses on it. Suppose there was a light bulb inside the globe. If you wrapped a piece of paper around the globe and turned on the light bulb, the outlines of the grid and landmasses would be projected onto the paper. Map projection is defined as the transformation of spherical network of latitudes and longitudes on a plane surface. Projections are drawn to maintain the **shape, area and directions**.



The three methods in widest use are as follows:

- Projection on the surface of a cylinder
- Projection on to the surface of a cone
- Projection directly onto a flat plane, called planar or zenithal or azimuthal projection



## (F) Legend

The legend of a map helps to understand the map details which are placed at the left or right corner at the bottom of the map.

## (G) Conventional signs and symbols

Conventional signs and symbols are standard symbols used on a map and explained in the legend to convey a definite meaning. The topographic map contains a variety of information about physical and cultural features.



These are shown by using signs and symbols in various colours so that the clarity of the map is maintained.

### There are three types of map symbols

- Point Symbols** - buildings, dipping tanks, trigonometrical beacons
- Line Symbols** - railways, roads, power lines, telephone lines
- Area Symbols** - Cultivated lands, ponds, orchards and vineyards

**DO YOU KNOW?** The actual shape of the Earth is termed Geoid, which is an oblate spheroid.

The “azimuthal” polar projection is depicted on the United Nations flag.

North America was prominent on the initial 1945 UN flag (which had the longitude line 90 degrees west pointing upwards). The following year, the map on the flag was reoriented to be more neutral by having the International Date Line (180 degrees east, lying in the middle of the Pacific Ocean) pointing upwards. The map ends at 60 degrees South latitude, meaning Antarctica does not appear.

The following colour codes are used with map symbols

- Brown:** land or earth features - contour lines, eroded areas, prominent rock outcrops, sand areas and dunes, secondary or gravel roads
- Light Blue:** water features - canals, coastlines, dams, lakes, marshes, swamps and levees, ponds, rivers and water towers.
- Dark Blue:** national waterways
- Green:** vegetation features - cultivated fields, golf courses, nature and game reserve boundaries, orchards and vineyards, recreation grounds, woodland

- Black:** construction features - roads, tracks, railways, buildings, bridges, cemeteries, communication towers, dam walls, excavations and mine dumps, telephone lines, power lines, windpumps, boundaries
- Red:** construction features - national, arterial and main roads, lighthouses and marine lights
- Pink:** international boundaries

### Conventional Signs and Symbols

	Fort		Metalled Road
	Church		Cart track
	Pagoda		Pack-track
	Graveyard		Foot-path with bridge
	Chhatri		Aerodrome
	Mosque		Light-house
	Temple		Electric power Line
<b>PO</b>	Post Office		Perennial Stream
<b>PS</b>	Police Station		Dry Stream
<b>RH</b>	Rest House		Canal
<b>CH</b>	Circuit House		Dry River
<b>IB</b>	Inspection Bungalow		Dam with masonry work
	Railway station		Dam with earth work
	Broad Gauge Railway		Permanent Hut
	Level Crossing		Temporary Hut
	Metalled Road		Tower Antiquities

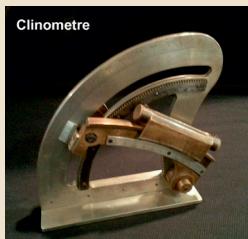
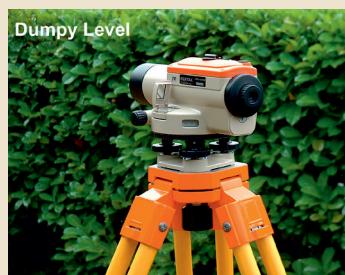
### 7.1.3. Survey

Surveying is done to measure the angle, direction, area, height and distance of an object or place on the surface of the earth using instruments. Surveying techniques are used to obtain the field data and to prepare maps. A knowledge of surveying helps one in map-making, particularly in the preparation of physical maps.

Geographers mainly use **Chain**, **Prismatic compass**, **Plane table**, **Dumpy level**, **Abney level**, **Clinometre**, **Theodolite**, **Total Station** and **GNSS** to measure the distance, angle, altitude and position of the area of survey.

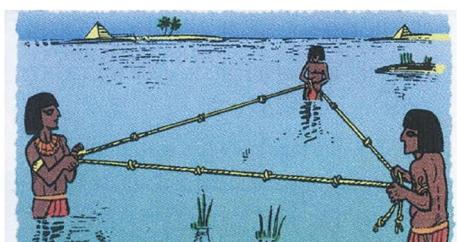


## Modern survey tools used by geographers for map making.



**Early History of Surveying:** In Egypt, surveyors were called 'rope stretchers' because they used ropes to measure distances.

### The Egyptian 'Rope Stretchers'



## 7.2 Remote Sensing as a Source of Map Data

**Remote Sensing refers to the observation and measurement of earthly objects without touching them.**

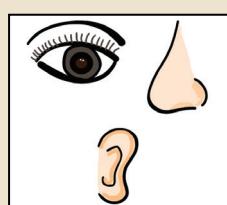
'Remote' means far away and 'Sensing' means observing or collecting information. Remote sensing means acquiring information

of things/places from a distance, using a variety of tools and methods.



We operate three remote sensing organs in our body.

- a) Eyes -sense of sight
- b) Nose - sense of smell
- c) Ear – Sense of hearing



Remote sensing has a long history, dating back from the use of cameras carried by balloons and pigeons in the 18th and 19<sup>th</sup> centuries. During the 20th century, airborne photographs and satellite remote sensing developed swiftly.

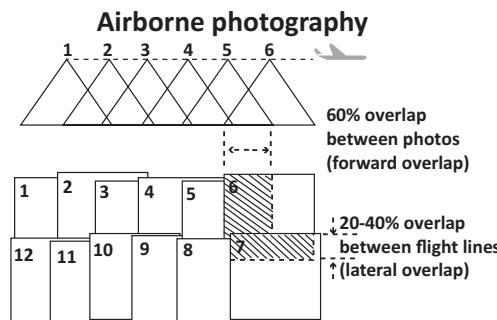
### 7.2.1. Aerial photography

Aerial photography refers to the technique of obtaining information about places or objects or phenomena with the help of photographs taken using cameras mounted on **low flying birds, balloons, helicopters, aeroplanes and drones**. The aerial photographs are captured continuously with a time gap of 10-30 seconds at a fixed height. Each photo will have a slight overlap of the area in the preceding photo. By making a mosaic of all the photos excluding the overlapping areas, a stereoscopic (3D) image of the study area can be produced.



Felix Nadar was a French photographer, journalist, novelist and balloonist. In 1858, he became the first person to take aerial photographs. He took his first photograph in 1853 and pioneered the use of artificial lighting in photography, working in the catacombs of Paris. Around 1863, Nadar built a huge (6000 m<sup>3</sup>) balloon named Le Géant ('The Giant').





Aerial photography using drone in the techno world

### 7.2.2 Satellite Remote Sensing

Satellite remote sensing is the science of collecting data about an object or area from artificial satellites orbiting the Earth. The term ‘satellite imagery’ refers to digitally transmitted images of the satellites.

The preliminary data is retrieved from satellites like LANDSAT, CARTOSAT, OCEANSAT, etc. Fire and flood details can be extracted and delivered to relevant authorities within two hours of satellite image capture. E.g. major earthquakes in China and New Zealand, bushfire in Victoria and floods in Kerala. Dynamic phenomena such as flood,

movement of wild animals, shoreline changes, finding lost ships and planes. Researchers use satellite imageries for these.

### Components of Remote Sensing

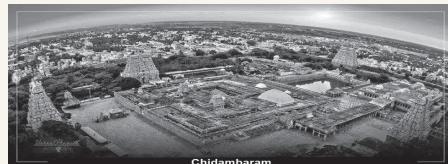
- |                 |                     |
|-----------------|---------------------|
| ■ Energy source | ■ Transmission path |
| ■ Target        | ■ Sensor            |

**DO YOU KNOW?** People cannot be tracked generally by satellite or aerial photographs but they can be tracked by their mobile phone signals.

### 7.2.3 Global Navigation Satellite System (GNSS)

Have you ever booked a cab using a smart phone app? Did you see the map showing the route of your travel and movement of your vehicle on mobile phones? How is it possible to calculate the time duration of your travel?



Satellite remote sensing	Aerial Photography
 <ul style="list-style-type: none"> <li>■ High cost of satellite systems. Takes at least 10 years to plan, construct, test and launch.</li> <li>■ Satellites collect large amount of data of the entire area in a short span.</li> <li>■ It allows global coverage and does not require permission.</li> <li>■ Satellites circle the Earth; they can repeat and revisit easily.</li> <li>■ Weather does not affect the functioning of satellites.</li> <li>■ All information is digital; it can be easily integrated with software for image improvement.</li> </ul>	 <ul style="list-style-type: none"> <li>■ Surveying can be planned and executed in a shorter time economically.</li> <li>■ Takes more time to capture an area. Aircraft needs to fly back and forth.</li> <li>■ It covers a small area and needs permission from authorities.</li> <li>■ Revisits or repeatability involves extra cost.</li> <li>■ Adversely affected by bad weather</li> <li>■ It is an analogue record, so no further improvement is possible after obtaining photographs.</li> </ul>



In the 21<sup>st</sup> century, GNSS has become a part of our lives to promote the safety and convenience of transport. **Global Navigation Satellite System (GNSS)** is a satellite system connected with a small electronic receiver or tracker to locate, monitor and track a user's vehicle wherever in the world. It can also set up instant alerts when a driver of a vehicle speeds or deviates from a particular area. GNSS applications are used in tracking or mapping vehicles, ships and aircraft. A group of satellites (Space Segment) working with a network of ground stations (Control Segment) provide location data. The receiver (User Segment) converts satellite signals into location, speed and time data.

### Examples of GNSS

- Europe-Galileo
- USA-NAVSTAR Global Positioning System (GPS)
- Russia-Global'naya Navigatsionnaya Sputnikovaya Sistema (GLONASS)
- China- BeiDou Navigation Satellite System
- India's-IRNSS (NAVIC) system

### a. Global Positioning System (GPS)

Without the Global Positioning System (**GPS**) on our vehicles and mobile phones, we would feel lost. GPS is the U.S. implementation of the world's first and currently the most used Global Navigation Satellite System (GNSS) created by the U. S. Department Of Defense (**DOD**). It became fully operational in 1995. NAVSTAR (Navigation Satellite Timing and Ranging) is a network of 24 U.S. satellites in six different orbits in space flying 20,350 km above the surface of the Earth; each one circles the planet twice a day to provide continuous, worldwide coverage. GPS receivers now come in all shapes and sizes, Most are the size of a cellular phone. Some are handheld, others are installed in ships, planes, trucks and cars.

### Advantages of GPS

- GPS technology has tremendous applications in everything from mobile phones, watches, bulldozers, shipping containers and ATMs.

- The main purpose of GPS is to help in providing accurate transport data (distance, route and direction). It helps in military searches and rescue in wars. It can work as a reliable tourist guide.
- GPS helps during accident and rescue efforts, speeding the delivery of emergency services and disaster relief.
- Weather forecasting, earthquake monitoring and environmental protection can be done effectively by using GPS.

### b. Geographic Information System (GIS)

Geographic Information System is a computer-based tool for managing a large amount of data collected for a given geographic region through remote sensing, GPS and other sources. The Geographic Information System is a combination of computer hardware, software, geographic data and the personnel.

G - Geographic - A particular area  
I - Information - facts in order  
S - System - arrangement

GIS was first recognised in the late 1950s by Waldo Tobler and Roger Tomlinson (Canada). Prime examples of importing GIS for public welfare are Google Maps, Yahoo Maps and Google Earth.

The key ingredient is location. We must have a coordinate, an address or a distance from a known point that helps us to link the information to a location on a map. Each type of data of an area is stored as a separate 'layer' of the map. In GIS, layers may be used some times and removed according to need. Examples are hospitals, schools, water bodies, parks and ATMs. The computers can create maps showing any combination of data.

### 7.3 Bhuvan

Bhuvan (Sanskrit for Earth) is a **free internet based computer application** launched by the **Indian Space Research Organization (ISRO)**



on August 12<sup>th</sup> 2009. It enables visualization of Indian Remote Sensing (IRS) images taken over a year ago, by ISRO's seven satellites, including CartoSat-1 and CartoSat-2. Using Bhuvan connected to Internet, one can explore places of interest, scenes of events in the news or parts around the world they may never visit in person, by either entering the names of places or coordinates (latitudes and longitudes). Bhuvan has tremendous uses for scientists, academicians, policy makers and the general public.

## Recap

- Surveying is the process of recording the measurements of a land area.
- Anaximander was the first ancient Greek to draw a map of the known world.
- Maps can show the whole or a part of the world.
- The art and science of map making is called Cartography.
- A map should include certain components namely, the title, scale, direction, grid reference, projection, legend, conventional signs and symbols.
- Grids are sets of lines for defining a location on a map.
- Remote sensing means acquiring information of things / places from a distance.
- Global Navigation Satellite System (GNSS) helps to locate, monitor and track a user's vehicle anywhere in the world.
- GIS is a combination of computer hardware, software, geographic data and the personnel.



## EXERCISE

### I. Choose the best answer



1. The new phase in topographical surveying in the 20<sup>th</sup> century is \_\_\_\_\_.  
a) toposheets      b) aerial photography  
c) maps              d) satellite imagery
2. \_\_\_\_\_ indicates the purpose or theme of the map.  
a) Title              b) Scale  
c) Direction        d) Legend
3. Standard symbols that are used in maps to convey a definite meaning are called \_\_\_\_\_.  
a) conventional signs and symbols  
b) coordinates  
c) grid references  
d) directions
4. Which one of the following maps show us a very large area with less details?  
a) Large scale      b) Thematic  
c) Physical          d) Small scale
5. GPS consists of a constellation of \_\_\_\_\_ satellites.  
a) 7                  b) 24  
c) 32                d) 64

### II. Match the following

- |                                   |                    |
|-----------------------------------|--------------------|
| 1. The art and science of mapping | - a) USA           |
| 2. Thematic mapping               | - b) Geoid         |
| 3. Actual shape of the earth      | - c) Inmarsat      |
| 4. A satellite                    | - d) Political map |
| 5. NAVSTAR                        | - e) Cartography   |



### III. Consider the given statements and choose the right option given below

1. **Assertion (A):** The points at which the vertical and horizontal lines of the grid intersect are called coordinates.

**Reason (R):** The lines that run horizontally and vertically are called Northings and Eastings respectively.

- (a) Both (A) and (R) are true ; (R) explains (A)
- (b) Both (A) and (R) are true ; (R) does not explain (A)
- (c) (A) is correct ; (R) is false
- (d) (A) is false ; (R) is true

2. **Assertion (A)** The legend of a map does not help us to understand the information in a map.

**Reason (R)** It is usually placed at the left or right corner at the bottom of the map.

- (a) (A) is false ; (R) is true
- (b) Both (A) and (R) are true ; (R) does not explain (A)
- (c) (A) is correct ; (R) is false
- (d) Both (A) and (R) are true ; (R) explains (A)

### IV. Answer in brief

1. Name the different methods to represent the Earth.
2. What is a map?
3. What are the components of a map?
4. The distance between two cities A and B is 5 km. It is represented by a line of 5 cm on the map. Calculate the distance and give the answer in RF.
5. Mention a few surveying instruments.
6. Define remote sensing.
7. What are the components of remote sensing?

### V. Give Reasons

1. Satellite imageries stimulate map making.
2. Map is the basic tool of a geographer.
3. Grid references are essential to find the exact location of places on a map.

### VI. Distinguish Between The Following

1. Globe and Map
2. Large scale map and small scale map
3. Aerial photographs and satellite imageries
4. GIS and GPS

### VII. Answer in Paragraph

1. What do you mean by the term 'scale of the map'? Explain its classification.
2. Write a note on directions with relevant diagram.
3. Explain the major uses of GPS? Explain about any one.
4. Bhuvan has tremendous uses for scientists, policy makers and the general public. Justify.

### VIII. Map Exercise:

1. With the help of an atlas, mark the following on the outline map of Tamil Nadu.
  - a) The latitude and longitude of Chennai.
  - b) Mark the city located at  $10^{\circ}$  N,  $78^{\circ}$  E.
  - c) Locate the city approximately on  $11^{\circ}$  N and  $76^{\circ}$  E.
  - d) Find the latitude and longitude of Kanyakumari and mark it.

### IX. HOTS

1. Can you imagine a world without satellites?
2. Imagine you are a cartographer. Draw the map of your area.



## REFERENCE BOOKS

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2. Pijushkanti Saha and the Partha Basu (2013), 'Advanced Practical Geography – a Laboratory Manual', Books and Allied (P) Ltd., Kolkatta.
3. Anji Reddy, M, (2015) Fourth Edition, *Text Book of Remote Sensing and Geographical information systems*, BSP Books Pvt. Ltd., Hyderabad.
4. Panda, B.C, (2009), 'Remote sensing principles and Applications', Viva books, New Delhi.

5. Misra, R.P and Ramesh, A, (1969) 'Fundamentals of cartography' Prasaranga University of Mysore, Mysore.
6. LO, C.P and Albert, K.W, Young (2002) 'Concepts and Techniques of Geographic Information Systems' Prentice – Hall of India Pvt. Ltd., New Delhi.



## INTERNET RESOURCES

[www.usgs.gov.in](http://www.usgs.gov.in)  
[www.nasa.gov.in](http://www.nasa.gov.in)  
[www.surveyofindia.gov.in](http://www.surveyofindia.gov.in)  
<https://bhuvan.nrsc.gov.in>  
<https://www.isro.gov.in>



### ICT CORNER

#### MAPPING SKILL

Through this activity, you will know about the distance between any two landmarks in the maps.



#### Procedure

- Step 1: Use the URL or scan the QR code to open the activity page.
- Step 2: Click 'Polyline' button. Draw a poly line between any two favourable places.
- Step 3: After finishing, the Poly line shows the measurement of distance as miles and kilometres.
- Step 4: Click '+' and '-'button to zoom in and zoom out.

#### URL:

<https://mapmaker.nationalgeographic.org/> (or) scan the QR Code

\*Pictures are indicatives only.





UNIT

8

# Disaster Management: Responding to Disasters



## Learning objectives

- To know the phases of disaster management
- To understand how to respond to disaster such as Tsunami, earthquake, riot and fire
- To describe the measures to manage riots disaster



### Case Study - Tsunami

Shortly before 8 am on 26 December 2004, the cicadas fell silent and the ground shook in dismay. The Moken, an isolated tribe on the Andaman Islands in the Indian Ocean, knew that the Laboon, the ‘wave that eats people’, had stirred from his ocean lair. The Moken also knew what was next: a towering wall of water washing over their island, cleansing it of all that was evil and impure. To heed the Laboon’s warning signs, elders told their children, run to high ground. ‘If the water recedes after an earthquake, run immediately to high ground’

The tiny Andaman and Nicobar Islands were directly in the path of the tsunami generated by the magnitude 9.1 of earthquake off the coast of Sumatra. Final total put the islands’ death toll at 1,879 alone with another 5,600 people missing. The islanders who had heard the stories about the Laboon or similar mythological figures survived the tsunami essentially unscathed. Most of the casualties that occurred in the southern Nicobar Islands were outsiders, leaving them with no indigenous tsunami warning system to guide them to higher ground.

## Introduction

Humans have passed down stories through the ages that helped cultures to cope when disaster inevitably struck. These stories were fodder for anthropologists and social scientists, but in the past decade, geologists have begun to pay more attention to how indigenous people understood and prepared for disaster. These stories, which couched myth in metaphor, could ultimately help scientists prepare for cataclysms to come. In this lesson, you will learn about how to respond to certain disasters to become resilient.

A disaster is “a catastrophe that causes great damage or loss of life and property”.

### 8.1 Disaster Response

Disaster response entails restoring physical facilities, rehabilitation of affected population, restoration of lost livelihoods and reconstruction efforts to restore the infrastructure lost or damaged. The Response Phase focuses primarily on emergency relief: saving lives, providing first aid, restoring damaged systems (communications and transportation), meeting the basic life requirements of those impacted by disaster (food, water and shelter) and providing mental health and spiritual support and care.



## Who are the first responders?

No matter how large or small, local communities are expected to provide immediate disaster response. On a daily basis, **police officers, firefighters, and emergency medical technicians** are a community's first responders, whether during fire, flood or acts of terrorism. Mental health professionals and the community's hospitals may also be activated in those early minutes and hours after disaster.

Disaster management includes Prevention, Mitigation, Preparedness, Response and Recovery. Disaster management involves all levels of government. Non-governmental and community based organizations play a vital role in the process. Modern disaster management goes beyond post-disaster assistance. It now includes pre-disaster planning and preparedness activities, organizational planning, training, information management, public relations and many other fields. Crisis management is important, but is only a part of the responsibility of a disaster manager.



**Disaster Management Cycle**

The traditional approach to disaster management has a number of phased sequences of action or a continuum. These can be represented as a disaster management cycle. We mainly focus on the way how the community should respond to disasters.

### 8.1.1 Earthquake

An earthquake is a sudden vibration of the part of the earth caused by plate movements. It occurs along the plate boundaries. The place

inside the earth where an earthquake originates is **focus**. The point on the earth's surface above the called a focus is called an **epicentre**. The damage caused by the earthquake is the highest near the **epicentre**. The earthquake is measured by an instrument called a **Seismograph**. It is recorded in **Richter scale**. Let us now see how the communities can better respond to earthquakes.

1. Japan is in a very active seismic area and it has the densest seismic network in the world.
2. Which country actually has the most number of earthquakes? Indonesia is in a very active seismic zone also, but because it is larger than Japan, it has more earthquakes.
3. Which country has the most earthquakes per unit area? This would probably be Tonga, Fiji or Indonesia, since they are all in extremely active seismic areas along subduction zones.

### What to do during an earthquake?

Be aware that some earthquakes are actually foreshocks and a larger earthquake might occur later. Minimize your movements to a few steps that reach a safe place nearby and stay indoors until the shaking has stopped and you are sure exiting is safe.

#### If indoors

1. DROP to the ground; take COVER by getting under a sturdy table or other piece of furniture and HOLD ON until the shaking stops. If there is no table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building.
2. Protect yourself by staying under the lintel of an inner door, in the corner of a room, under a table or even under a bed.
3. Stay away from glass windows, outside doors and walls and anything that could fall (such as lighting fixtures or furniture).
4. Stay inside until the shaking stops and go outside.



## If outdoors

1. Move away from buildings, trees, streetlights and utility wires.
2. If you are in open space, stay there until the shaking stops. The greatest danger exists directly outside buildings at exits and alongside exterior walls. Most earthquake-related casualties result due to collapsing walls, flying glass and falling objects.

## If in a moving vehicle

1. Stop as quickly as safety permits. Avoid stopping near or under buildings, trees, overpasses and utility wires.
2. Proceed cautiously once the earthquake has stopped. Avoid roads, bridges or ramps that might have been damaged by the earthquake.

### Activity

#### Mock drill: Earthquake.

It is important that we know what to do if an earthquake occurs. In case we are inside the class when it occurs, instruct loudly “earth quake position – drop, cover, and hold on”. Drop down on your knee. Cover your head, neck and face. Go under a table to protect your head and neck.

#### 8.1.2 Tsunami

A tsunami can kill or injure people and damage or destroy buildings and infrastructure as waves come forth and recede. A tsunami is a series of enormous ocean waves caused by earthquakes, underwater landslides, volcanic eruptions or asteroids. Tsunamis can travel 700-800 km per hour, with waves 10-30 meter high. It causes flooding and disrupts transportation, power, communications, and water supply.



#### How to respond to Tsunami?

1. You should find out if your home, school, workplace or other frequently visited locations are in tsunami hazard areas along the sea-shore.

2. Plan evacuation routes from your home, school, workplace, or any other place you could be, where tsunamis poses a risk.
3. Use a weather radio or stay tuned to a local radio or television station to keep informed of local watches and warnings.
4. Discuss tsunamis with your family. Everyone should be aware of what to do when tsunami strikes. Discussing tsunamis ahead of time will help reduce fear and save precious time in an emergency. Review flood safety and precautionary measures with your family.

#### What to do after a Tsunami?

1. You should continue using a weather radio or staying tuned to a Coast Guard emergency frequency station or a local radio or television station for updated emergency information.
2. Check yourself for injuries and get first aid if necessary, before helping injured or trapped persons.
3. If someone needs to be rescued, call professionals with the right equipment to help.
4. Help people who require special assistance, like Infants, elderly people, those without transportation, large families who may need additional help in an emergency situation, people with disabilities, and the people who care for them.
5. Stay out of a building if water remains around it. Tsunami water, like floodwater, can undermine foundations, causing buildings to sink, floors to crack, or walls to collapse.
6. Check for gas leaks. If you smell gas or hear a blowing or hissing noise, open a window and get everyone outside quickly.

#### 8.1.3 Riot

Though riot may seem dramatic, an angry mob can be just as dangerous and unpredictable as just about any natural disaster. Thousands of people are killed in riots all over the world each year, and



these riots erupt from a number of racial, religious, economic, political, or social causes that cannot be predetermined. As per Pew Research Center analysis of 198 countries on April 11, 2015. Syria tops in riot in the world followed by Nigeria, Iraq and India.

If you've found yourself in the middle of a riot, you may not be able to run away immediately, but you can take some measures to protect yourself from harm. If you want to know how to survive a riot, just follow these steps.

### **Surviving a Riot**

#### **At Travel Destination: What to Do**

1. Keep abreast of the current news if you are in a volatile area.
2. If you come across a demonstration, don't become inquisitive, just leave the area and find another route to your intended destination.
3. Avoid any place where police or security forces action is in progress.

#### **If caught in a riot:**

1. If you find yourself caught up in a demonstration, keep to the edge of the crowd where it is safer. At the first opportunity, break away and seek refuge in a nearby building or find a suitable doorway or alley and stay there until the crowd passes.
2. When leaving the fringe of the demonstration, just walk away – don't run as this will draw attention to you.
3. In the event that you are arrested by the police/military, do not resist. Go along peacefully and contact your law advisor to help you resolve your predicament.
4. If you are caught up in the crowd, stay clear of glass shop fronts, moreover, move with the flow.
5. If shooting breaks out, drop to the ground and cover your head and neck, and lie as flat as you can.

### **8.1.4 Fire**

Wildfires occur when vegetated areas are set alight and are particularly common during hot and dry periods. They can occur in forests, grasslands, bush and deserts, and with blowing wind, can spread rapidly.

Fires can lead to the destruction of buildings, wooden bridges and poles, power, transmission and telecommunication lines, warehouses containing oil products and other fuel. It causes injury to people and animals.

The most common causes of fires are lightning strikes, sparks during arid conditions, eruption of volcanoes and man-made fires arising from deliberate arson or accidents.

A side-effect of wildfires which also threatens inhabited areas is smoke. Fires create large quantities of smoke, which can be spread far by wind and poses a respiratory hazard.

On an average, in India, every year, about **25,000 persons die** due to fires and related causes. Female accounts for about 66% of those killed in fire accidents. It is estimated that about **42 females and 21 males die every day in India due to fire**.

#### **Think why**

Smoke kills more than fire.





## Fire Safety Do's and Don'ts

1. Know your building's evacuation plan.
2. Evacuate calmly and quickly, whenever a fire alarm or carbon monoxide alarm sounds.
3. Before opening a door, feel it with the back of your hand. If the door is hot, do not open it.
4. If you encounter smoke during your evacuation, stay low to the floor.
5. Know the outside rally point for your building.
6. Know the locations of fire extinguishers, fire alarm pull stations and exits.

## Activity

### Mock Drill :

To escape a **fire**, **stop**, **drop**, and **roll**. In case your clothes burn, stop running, drop on the floor and roll to stop the fire spreading.

## What you should do during a fire:

1. Stay calm.
2. Pull the nearest fire alarm or call 112.
3. Give your name and location of the fire. Do not hang up until the police dispatcher tells you to do so.
4. Leave the building immediately.
5. Inform others as you pass them to leave the building immediately.
6. Walk—don't run—to the nearest exit.
7. Never use elevators—an elevator may become a trap.

## HOTS

Why should you cut off all the branches of trees below 3 metres of height standing near your house?



## Exercise

### I. Choose the best answer



1. One among the following is not the first responder in case of a disaster.
  - a. police officers
  - b. firefighters
  - c. insurance agents
  - d. emergency medical technicians
2. 'Drop, Cover, Hold' is a mock drill a vowel for
  - a. Fire
  - b. Earthquake
  - c. Tsunami
  - d. Riot
3. When you happen to see a fire break out, you will make a call to
  - a. 114
  - b. 112
  - c. 115
  - d. 118
4. Which of the following statements is untrue?
  - a. 'Stop, Drop, Roll' is for fire.
  - b. 'Drop, Cover, Hold' is for an earthquake.
  - c. 'If sea water recedes back, run to higher places' is for flood.
  - d. 'If gunshots are heard, drop to the ground and cover the head with hand' is for riot.
5. Which of the following statements belongs to responding to earthquake?
  - a. Avoid, any place where police or security forces action is in progress.
  - b. Know the height of your street above sea level and the distance of your street from the coast.
  - c. Stay away from glass, windows, outside doors and walls and anything that could fall.
  - d. Before opening a door, feel it with the back of your hand.



## II. Answer in brief

1. Who are the community's first responders to disaster?
2. What are the four phases of the Disaster Management Cycle?
3. Though Japan has the densest seismic network, Indonesia has the most number of earthquakes. Why?
4. How many males and females die per day due to fire in India?
5. What should you do after a Tsunami?

## III. Answer in Paragraph

1. Write a short note on Tsunami.
2. What do you do if you are indoors during an earthquake?
3. How do you respond to Tsunami?
4. Write three sentences about what to do during fire.

## Practice

1. Mock drill for fire
2. Mock drill for earthquake



## REFERENCE BOOKS

1. Disaster management Module, TNSCERT.
2. NDMA.
3. Wikipedia



## INTERNET RESOURCES

<http://www.ndmindia.nic.in/>

Helpline Numbers

011-23438252

011-23438253

011-1070

## A-Z GLOSSARY

### Asthenosphere

Upper layer of the earth's mantle below the lithosphere.

### Air current

Movement of air when it rises upward or sinks down.

### Cataclysms

Large scale violent events in the natural world

### Condensation

Process of change of state of water from gaseous to liquid.

### Continental drift

The gradual movement of the Earth's continents on the surface of the planet

### Coriolis Force

Deflection of winds from their original path due to Earth's rotation.

### Doldrums

The equatorial low pressure belt, extending between 5°N and 5°S.

### Eruption

The ejection of molten rock, steam, etc. from a volcano or geyser.

### Geology

The science that deals with the physical structure and substances of the earth, their history and the processes which act on them.

### Hazard

Potential threat to life

### Hostility

Unfriendliness

### Inquisitive

Curious about learning things

### Internal

Radiations emitted from radioactive metals inside the earth and act as a driving force for the earth's tectonics.

### Radioactivity



<b>Lair</b>	A place where a wild animal lives in
<b>Mitigation</b>	Action of reducing severity
<b>Normal</b>	
<b>Lapse rate</b>	Decrease of temperature at the rate of $6.5^{\circ}\text{C}/\text{km}$ increase in altitude.
<b>Orogeny</b>	Mountain building process due to lateral compression of the crust.
<b>Pacific ring of fire</b>	The Pacific Ring of fire is an arc around the Pacific Ocean where many volcanoes are found.
<b>Pangea</b>	A super continent that existed during the late Palaeozoic and early Mesozoic eras.
<b>Panthalasa</b>	Super ocean that surrounded Pangaea.
<b>Predicament</b>	Unpleasant situation
<b>Rehabilitation</b>	Act of restoring someone to health or normal life through training and therapy
<b>Riot</b>	An occasion where a large number of people behave in a noisy, violent and uncontrolled way
<b>Unscathed</b>	Without suffering any injury or damage
<b>Wind vane</b>	Also known as windcock. It is a device to find out the direction of wind.



# STANDARD NINE

# CIVICS



## UNIT

# 1

# Forms of Government and Democracy



## Learning Objectives

- Know the forms of government
- Understand the meaning of democracy
- Know the merits and demerits of democracy
- Know the challenges to Indian democracy



## Introduction

We are going to learn from this lesson how various forms of government have developed globally. Today, many countries of the world follow different types of governments, but the modern world prefers democracy.

## 1.1 Forms of Government

The governance of nations differs significantly based on who has power. There are different forms of government: aristocracy, monarchy, autocracy, oligarchy, theocracy, democracy and republic.

### 1.1.1 Aristocracy

A form of government in which power is in the hands of a small privileged ruling class (nobels).

Example: United Kingdom, Spain

### 1.1.2 Monarchy

A system of government in which one person reigns supreme, usually a king or queen (constitutional monarchy).

Example: Bhutan, Oman, Qatar

### 1.1.3 Autocracy

A system of government by one person with absolute power.

Example: North Korea, Saudi Arabia

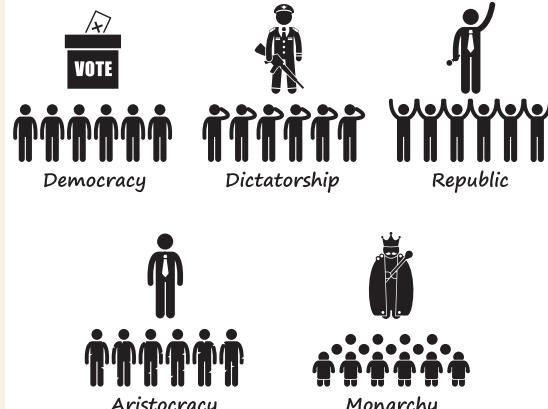
### 1.1.4 Oligarchy

A small group of people having control of a country or organisation.

Example: Former Soviet Union, China, Venezuela North Korea.

### 1.1.5 Theocracy

A system of government in which religious doctrines form the basis of





government headed by a priest who rules in the name of God or proclaims himself as a God.

Example: Vatican.

### 1.1.6 Democracy

A system of government in which eligible members in the population vote to elect their elected representatives, and the party or individual who obtains the majority votes forms the government.

Example: India, USA, France

### 1.1.7 Republic

A state in which supreme power is held by the people and their elected representatives and which has an elected or nominated President rather than a monarch.

Example: India, Australia



The term ‘republic’ was first coined in 500 BCE in Rome. It is derived from *res publica*, a Latin word meaning public matter.

India became a Republic on 26 January 1950. It is governed in accordance with the Constitution adopted on 26 November 1949, which came into force on 26 January 1950.

## 1.2 What is Democracy?

- Democracy is a form of government that allows people to choose their rulers.
- Only leaders elected by people should rule the country.
- People have the freedom to express views, freedom to organise and freedom to protest.

### 1.2.1 Meaning of Democracy

Democracy is a system of government in which the supreme power is vested in the people of a country and people elect their

representatives either directly or indirectly through fair and free elections, which are usually held periodically.



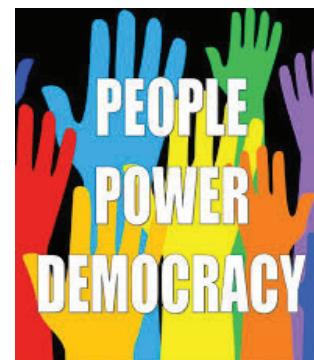
The term ‘democracy’ is derived from two Greek words: *DEMOS* meaning people and *cratia* meaning power. Thus, literally democracy means “the power of the people”.

### 1.2.2 Definition

According to Mahatma Gandhi, “True democracy cannot be worked by twenty men sitting at the centre. It has to be worked from below by the people of every village.”



J2F6UG



### 1.2.3 Salient Features of Democracy

1. Elected representatives of people and final decision-making power to the representatives.
2. Free and fair elections.

Abraham Lincoln, one of the Presidents of USA, defines democracy as a government of the people, by the people and for the people.



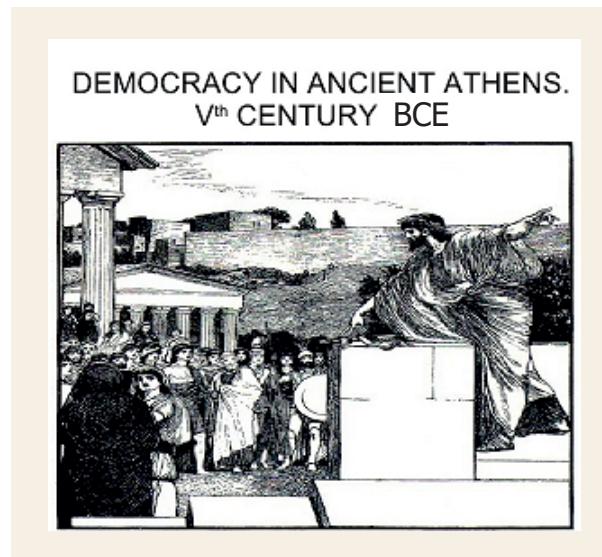
Abraham Lincoln



3. voting right is with equal value to those who have attained the age of 18
4. Fundamental rights and protection of individual freedom.

#### 1.2.4 Evolution of Democracy

Democracy began 2,500 years ago in some of the city-states of ancient Greece. It is important to know that democratic institutions existed in India as early as the Vedic period. Chanakya's *Arthashastra* tells us that in ancient India, an autonomous village community was the basic unit of the local government. During the later Chola period in ancient Tamil Nadu, Kudavolai system was a



very notable and unique feature of the village administration of the Cholas. The evolution towards a democracy is represented by the following values: freedom, equality, fraternity, accountability, transparency and trust.

#### 1.2.6 Types of Democracy

There are two types of democracies:

1. Direct democracy
2. Indirect (representative) democracy

The types of democracy refers to the kind of government or social structures which allow people to participate equally.

##### Direct Democracy

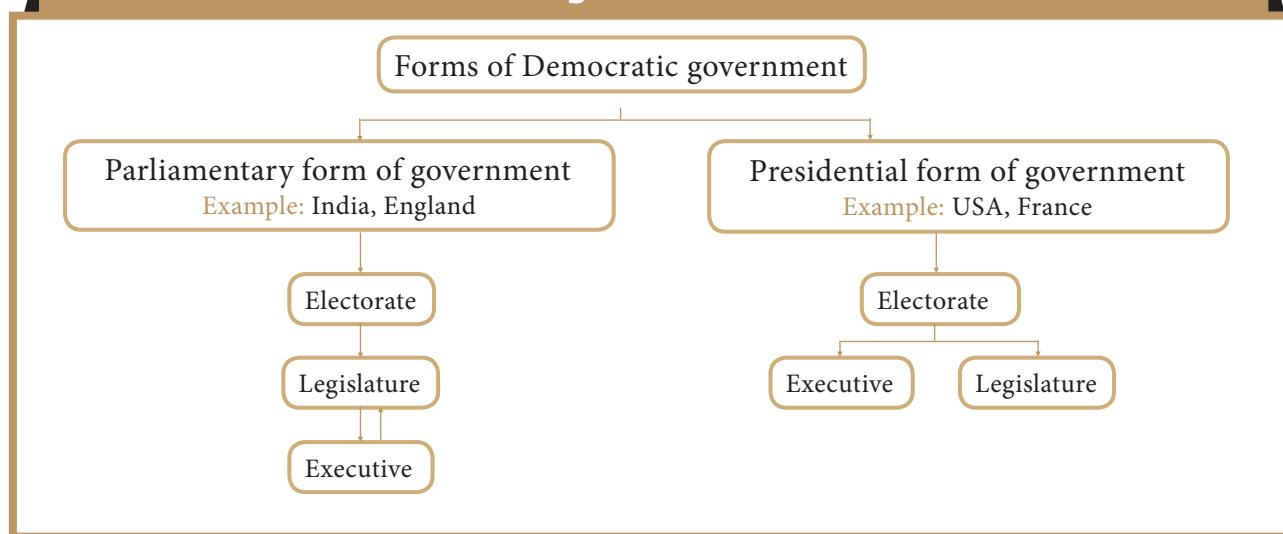
When the people themselves directly express their will on public affairs, the type of government is called pure or direct democracy.

Example: Ancient Greek city-states, Switzerland

##### Indirect Democracy / Representative Democracy

When the people express their will on public affairs, through their elected representatives, the type of government is called indirect or representative democracy.

#### 1.2.5 Forms of Democratic government





Example: The prevailing system of democracy in India, USA and UK

### 1.2.7 Merits and Demerits of Democracy

#### Merits

1. Responsible and accountable government
2. Equality and fraternity
3. Sense of responsibility among common people
4. Local self-government
5. Development and prosperity for all
6. Popular sovereignty
7. Sense of cooperation and fraternal feeling

#### Demerits

1. Indirect or representative nature of democracy
2. Lack of interest in democratic process and hence lower turnout in elections
3. Instability in governance due to fractured mandate
4. Delay in decision-making process.

### 1.2.8 Democracy in India

India has a parliamentary form of democracy. The Indian Parliament comprises the elected representatives of people and makes the laws for the country. The participation of people in the decision making and the consent of citizens are the two important elements of the parliamentary form of government in India.



Parliament of India

India is the largest democratic country in the world. Democracy in India works on five basic principles. These are sovereign, socialist, secular, democratic, republic.

Every person who is a citizen of India and who is not less than 18 years of age can exercise their right to vote in India, based on universal adult suffrage. There is no discrimination based on a person's caste, creed, religion, region, gender and education when it comes to providing the right to vote.

**DO YOU KNOW?** The Parliament House in India was designed by the British architects Edwin Lutyens and Herbert Baker in 1912-13 and construction began in 1921 and ended in 1927

### 1.2.9 Elections in India

India has a quasi-federal government, with elected representatives at the federal, state and local levels. The general elections are conducted by the Election Commission of India. At the national level, the President of India, appoints the Prime Minister, who enjoys majority in the Lok Sabha, the lower house of the Parliament of India.

<b>DO YOU KNOW?</b>	Two Houses of Parliament
Lok Sabha / Lower House / House of People	Rajya Sabha / Upper House / Council of States

All members of the Lok Sabha are directly elected through general elections, which take place once in every five years, in normal circumstances. Two Anglo Indian members can be nominated by the President of India to the Lok Sabha.



Members of the Rajya Sabha, the Upper House of the Indian Parliament, are elected by an electoral college consisting of elected members of the legislative assemblies of the states and the Union Territories of India. The President of India nominates 12 members for their contributions to art, literature, science and social services.

### 1.2.10 The First Elections in Democratic India

General elections to the first Lok Sabha since independence were held in India between 25 October 1951 and 21 February 1952. The Indian National Congress



Elections in India

emerged victorious by winning 364 of the 489 seats. Jawaharlal Nehru became the first democratically elected Prime Minister of the country.

**DO YOU KNOW?**

#### British India –General elections, 1920

General elections were held in British India in 1920 to elect members to the Imperial Legislative Council and the Provincial Councils. They were the first elections in the country's history.

### 1.2.11 Major challenges to Indian Democracy

Democracy is the dominant form of government in the contemporary world. It

has not faced a serious challenge or a rival so far. In the last hundred years, there has been an expansion of democracy all over the world. The various aspects of democracy and its challenges are:

1. Illiteracy
2. Poverty
3. Gender discrimination
4. Regionalism
5. Casteism, communalism and religious fundamentalism
6. Corruption
7. Criminalisation of politics
8. Political violence

### 1.2.12 Conditions for the Success of Democracy in India

- Empowerment of the poor and illiterates to enjoy the goodness of democracy.
- Willingness among the elected people not to misuse their powerful position and public wealth.
- Eradication of social evils and dangers from which democracy suffers.
- An impartial and efficient press to form public opinion.
- Presence of strong public opinion.
- Feeling of tolerance and communal harmony among the people.
- Awareness among the people of the fundamental rights that they are entitled to enjoy.
- Conscious check and vigilance on the working of the elected representatives.
- Powerful and responsible opposition.

Indian democracy can be successful and vibrant only when its citizens imbibe and reflect in their behavior the basic democratic values like equality, freedom, social justice, accountability and respect for all. Their mindset, thinking and behavior are expected to be in tune with the essential conditions of democracy. They have to appreciate the opportunities for their desired roles like participation, making the system accountable,



fulfilling obligations, and playing proactive roles to actualize the goals of democracy.

## Recap

- Government is a group of people who govern a community or unit.
- Monarchy is a system of government in which one person reigns supreme, usually a king or queen.
- Types of democracy refer to kind of government or social structures which allow people to participate equally, either directly or indirectly.
- When the people themselves directly express their will on public affairs, the type of government is called pure or direct democracy.
- Based on universal adult suffrage, every Indian citizen, above 18 years of age, can exercise the right to vote in India.



## EXERCISE



### I. Choose the correct answer:

1. A system of government in which one person reigns supreme, usually a king or queen, is called\_\_\_\_\_  
(a) autocracy      (b) monarchy  
(c) democracy      (d) republic
2. A system of government with absolute power.  
(a) Aristocracy      (b) Theocracy  
(c) Democracy      (d) Autocracy
3. Former Soviet Union is an example for \_\_\_\_\_.  
(a) aristocracy      (b) theocracy  
(c) oligarchy      (d) republic
4. Select the odd one  
(a) India      (b) USA  
(c) France      (d) Vatican

5. Abraham Lincoln was the President of the \_\_\_\_\_.  
(a) USA      (b) UK  
(c) USSR      (d) India
6. Kudavolai system was followed by  
(a) Cheras      (b) Pandyas  
(c) Cholas      (d) Kalabhras
7. Direct Democracy in olden times existed  
(a) In the republics of ancient India  
(b) Among the USA  
(c) In the city-state of ancient Greece  
(d) Among the UK
8. From which language was the term "Democracy" derived?  
(a) Greek      (b) Latin  
(c) Persian      (d) Arabic
9. In democracy the final authority rests with  
(a) The Parliament  
(b) The People  
(c) The council of Ministers  
(d) The President
10. Which one of the country has Presidential form of government  
(a) India      (b) Britain  
(c) Canada      (d) USA
11. The largest democratic country in the world is  
(a) Canada      (b) India  
(c) USA      (d) China
12. **Assertion (A):** Direct democracy is practised in Switzerland.  
**Reason (R):** People directly participates in decision making.  
(a) Both (A) and (R) are true and (R) explains (A)  
(b) Both (A) and (R) are true and (R) does not explain (A)  
(c) (A) is correct and (R) is false  
(d) (A) is false and (R) is true



- 13.** Assertion (A): India has parliamentary form of democracy.

**Reason (R):** Indian parliament comprises two houses.

- (a) Both (A) and (R) are true and (R) explains (A)
  - (b) Both (A) and (R) are true and (R) does not explain (A)
  - (c) (A) is correct and (R) is false
  - (d) (A) is false and (R) is true

- 14.** The meaning of Franchise is

- (a) Right to elect
  - (b) Right to vote for the poor
  - (c) Right to vote
  - (d) Right to vote for the rich

- 15.** The grant of universal franchise creates

  - (a) Social equality
  - (b) Economic equality
  - (c) Political equality
  - (d) Legal equality

- 16.** Prime Minister of India is appointed by  
(a) Lok Sabha                    (b) Rajya Sabha  
(c) Speaker                        (d) President

- 17.** The President of India can nominate

  - (a) 12 members to Lok Sabha
  - (b) 2 members of Rajya Sabha
  - (c) 12 members to Rajya Sabha
  - (d) 14 members of Rajya Sabha



## **II. Fill in the blanks:**

1. The Constitution of India was finally adopted on \_\_\_\_\_
  2. The two types of democracy are \_\_\_\_\_ and \_\_\_\_\_
  3. An example for direct democracy is \_\_\_\_\_
  4. India has a \_\_\_\_\_ form of democracy.

5. \_\_\_\_\_ was the first Prime Minister of independent India.

6. The first general elections were held in British India in the year \_\_\_\_\_

7. The Parliament House in India was designed by \_\_\_\_\_ and \_\_\_\_\_

### **III. Match the following:**

- 1. Autocracy - 18
  - 2. Right to vote - Arthashastra
  - 3. Chanakya - Vatican
  - 4. Theocracy - North Korea

#### **IV. Give short answers:**

1. Give Abraham Lincoln's definition for democracy.
  2. Mention the forms of democracy.
  3. Distinguish between direct and indirect democracy.

### **V. Answer in detail:**

1. What are the challenges to Indian democracy? explain.
  2. Explain the conditions necessary for the success of democracy in India.
  3. What is your opinion about democracy in India?

## **VI. Project and Activity**

1. Discuss in the class what is universal adult franchise? Why is it important?
  2. “Democracy is the power of majority which respects minority.” Discuss.
  3. Conduct a mock election in your class.
  4. A group discussion on the merits and demerits of democracy of India in the classroom.

## VII. HOTS

1. Will you have the right to equality under dictatorship? What would be the attitude regarding public opinion in such a country?
  2. How does democracy lead to a peaceful and a harmonious life among the citizens? Explain.



## VIII. Life Skills

Select a group of countries. Research each country and tell what type of government it has: Aristocracy, Monarchy, Autocracy, Oligarchy, Theocracy, Democracy, Republic. Then, provide characteristics of this country that helped you determine the type of government.

Country name	Type of government	Characteristics of the country's government



### ICT CORNER

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**1098**



#### Steps:

- Type the URL link given below in the browser OR scan the QR code. You can also download the “child line” from the given URL.
- Under report a child click a child in distress.
- On the menu bar select vulnerability map.
- When you click on download section you can get and download songs and videos about helpline.

#### Child help line

<http://www.childlineindia.org.in/1098/b1a-telehelpline.htm>



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## UNIT 2

# Election, Political Parties and Pressure Groups



## Learning Objectives

- Know about the electoral system in India
- Know the different types of elections in India
- Understands the meaning of political party
- Know the functions of state party and national party
- Understand the pressure groups in India



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### Introduction

An election is a formal decision-making process by which a people chooses an individual to hold public office by voting.

#### 2.1 Electoral System in India

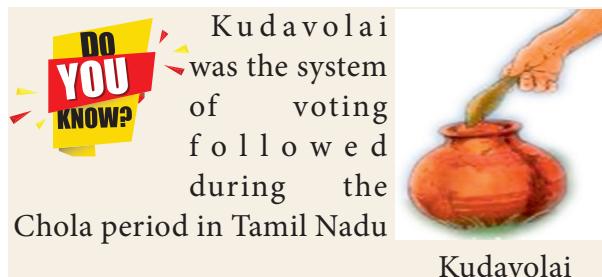
The electoral system in India has been adapted from the system followed in the United Kingdom. India is a socialist, secular, democratic republic and the largest democracy in the world. The modern India the constitution of India came into force on 26th January ,1950

Articles 324 to 329 in part XV of the Constitution make the following provisions with regard to the electoral system in our country.

- (i) Article 324 of the Indian Constitution provides for an independent Election Commission in order to ensure free and fair elections in the country. At present, the commission consists of a Chief Election Commissioner and two Election Commissioners.
- (ii) The Parliament may make provision with respect to all matters relating to elections to the Parliament including

the preparation of electoral rolls, the delimitation of constituencies and all other matters necessary for securing their due constitution.

- (iii) The state legislatures can also make provisions with respect to all matters relating to elections to the state legislatures including the preparation of electoral rolls and all other matters necessary for securing their due constitution.

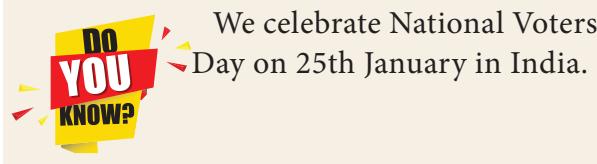


Do YOU  
KNOW?  
Kudavolai was the system of voting followed during the Chola period in Tamil Nadu

Kudavolai

#### 2.1.1 Election Process

At the national level, the head of government, the Prime Minister, is elected by members of the Lok Sabha, the lower house of the Parliament in India.





In representative democracy like ours, elections are extremely important. Voting in elections are the best way to make your 'voice' heard.

## 2.1.2 Introduction of the NOTA Option

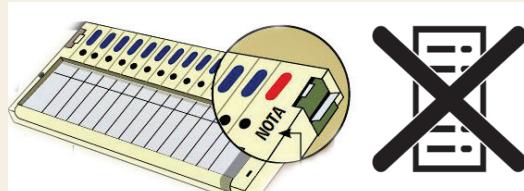
If the people in a democratic country are not willing to elect any candidate, they can vote for the option called NOTA (None Of The Above). Rule 49-O in the Conduct of Elections Rules, 1961, of India describes this procedure.



Voters Verified Paper Audit Trail  
(VVPAT)

**DO YOU KNOW?** Voters Verified Paper Audit Trail (VVPAT) is the way forward to enhance credibility and transparency of the election process. This system was first introduced in the 2014 General Election.

**DO YOU KNOW?** NOTA was first introduced in the General Elections held in 2014. India is the 14th country in the world to introduce NOTA.



Symbol used with NOTA option on electronic voting machines in India

## 2.1.3 Types of Elections in India

Elections are classified into two types: direct and indirect elections.

### Direct Elections

People directly vote for the candidates in the fray and elect their representatives. The following are examples of direct elections in which people over the age of 18 years participate in the electoral process by casting their votes.

- (i) Lok Sabha elections, in which the Members of Parliament are elected.
- (ii) Elections to the state Legislative Assemblies, in which the Members of Legislative Assemblies are elected.
- (iii) Elections to the local governing bodies, i.e such as village panchayat, town panchayat, municipalities, municipal corporation are conducted by the state election commission.

### Merits

- (i) As the voters elect their representatives directly, direct elections are considered to be a more democratic method of election.
- (ii) It educates people regarding the government activities and helps in choosing the appropriate candidates. Also, it encourages people to play an active role in politics.
- (iii) It empowers people and makes the rulers accountable for their actions.



### Demerits

- (i) Direct elections are very expensive.
- (ii) Illiterate voters sometimes get misguided by false propaganda. Campaigning based on caste, religion and various other sectarian considerations pose serious challenges.



- (iii) Since conducting direct elections is a massive exercise, ensuring free and fair elections at every polling station is a major challenge to the Election Commission.
- (iv) There are instances of some political candidates influencing the voters through payments in the form of cash, goods or services.
- (v) Election campaigns sometimes results in violence, tension, law and order problems and affects the day-to-day life of people.

### Indirect Elections

Voters elect their representatives, who, in turn, elect their representatives this method of election is followed for the election of president of India.

#### Merits

- (i) Indirect elections are less expensive.
- (ii) It is more suited to elections in large countries.

#### Demerits

- (i) If the number of voters is very small, there exists the possibility of corruption, bribery, horse trading and other unfair activities.
- (ii) It is less democratic because people do not have a direct opportunity to elect, but they instead do it through their representatives. So, this may not reflect the true will of the people.

## 2.2 Political Parties

Political parties are an essential part of democracy. Parties are the link between government and the people.

### 2.2.1 Meaning of Political Party

A political party is an organisation formed by a group of people with a certain ideology and agenda to contest elections and hold power in the government. A political party has three components: a leader, active members and the followers.



### How is the President of India elected?

The President of India is elected by the members of an electoral college consisting of

1. The elected members of both Houses of Parliament
2. The elected members of the Legislative Assemblies of all the states and Union territories in India

NOTE: The members nominated to either House of Parliament or the Legislative Assemblies of states are not eligible to be included in the electoral college.

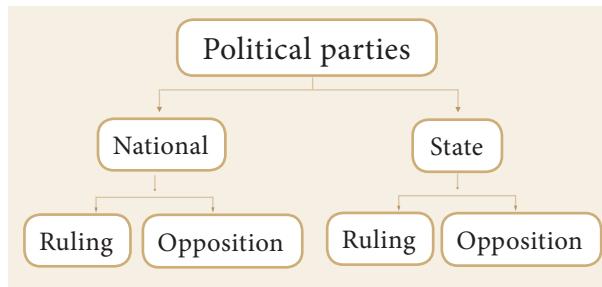
### 2.2.2 Types of a Party System

There are three types of party system in the world namely.

- i. Single-party system in which one ruling party exists and no opposition is permitted. China, Cuba, the former USSR (Union of Soviet Socialist Republics) are the examples for the single-party system.
- ii. Two-party system in which only two major parties exist, for example, USA, UK.
- iii. Multi-party system in which there are more than two political parties, for example, India, Sri Lanka, France and Italy.

### 2.2.3 Types of Political Parties

Political parties in India are classified according to their area of influence into two main types:(1) national and (2) state parties.





## National Parties

A party which is recognised as a state party in at least four states is recognised as a national party. Every party in the country has to register with the Election Commission while the Commission treats all the parties equally. It offers some special facilities to state and national parties. These parties are given a unique symbol. Only the official candidate of the party can use that election symbol. In 2017, there were seven recognised national parties.

## State Parties

Other than the seven national parties, most of the major parties of the country are classified by the Election Commission as 'state parties'. These are commonly referred to as regional parties. A party is recognised as a state party by the Election Commission of India based on certain percentage of votes secured or a certain number of seats won in the Assembly or Lok Sabha elections.

## Recognition to the Parties

For getting recognition as 'national party', a party has to fulfill any one of the following criteria:

- i. At least 6% votes in at least four states and members to the Lok Sabha.
- ii. In the election of Lok Sabha, at least 2% members from at least three states are elected to Lok Sabha.
- iii. Recognition as a state party at least four states.

## Functions of Political Parties

- Parties contest elections. In most democracies, elections are fought mainly among the candidates put up by political parties.
- Parties put forward their policies and programmes before the electorate to consider and choose.
- Parties play a decisive role in making laws for a country. Formally, laws are debated and passed in the legislature.

- Parties form and run the governments.
- Those parties that lose in the elections play the role of the Opposition to the party or a group of coalition parties in power, by voicing different views and criticising the government for its failures or wrong policies.
- Parties shape public opinion. They raise and highlight issues of importance.
- Parties function as the useful link between people and the government machinery.

## 2.2.4 Role of Opposition Parties in a Democracy

In a democracy, there may be a two-party system like in the USA or a multi-party system like in India and France. The ruling party may have received the mandate of the majority people and the Opposition party represented the remaining people. The Leader of the Opposition party occupied a prominent place in all democratic forms of the government. He enjoys the rank of a Cabinet Minister. He opposes the wrong policies of the ruling party, which affects the general public. As the Chairman of the Public Accounts Committee questions the functioning of the government departments and examines the public money used for the well-being of the people. Similarly, he plays an important role to select the Chairman and members of the Central Vigilance Commission, Chairperson and members of the Information Commission. The Opposition Parties reflect genuine demands and concern of the people to play a constructive role in a democracy.

## 2.3 Pressure Groups

The term 'pressure group' originated in the USA. A pressure group is a group of people who are organised actively for promoting and defending their common interest. It is so called as it attempts to bring a change in the public policy by exerting pressure on the government.

The pressure groups are also called 'interest groups' or vested groups. They are different from

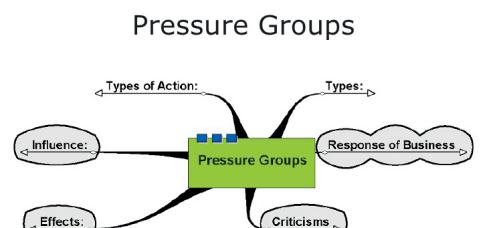


the political parties in that they neither contest elections nor try to capture political power.

# Pressure Groups

## 2.3.1 Pressure Groups in India

A large number of pressure groups exist in India. But, they are not developed to the same extent as in the USA or the Western countries like Britain, France, Germany and so on.



The pressure groups in India can be broadly classified into the following categories:

1. Business groups
2. Trade unions
3. Agrarian groups
4. Professional associations
5. Student organisations
6. Religious organisations
7. Tribal organisations
8. Linguistic groups
9. Ideology-based groups
10. Environmental protection groups



## Functions of Pressure Groups in India

Pressure groups are the interest groups that work to secure certain interest by influencing the public policy. They are non-aligned with any political party and work as an indirect

yet powerful group to influence the policy decisions. Pressure groups carry out a range of functions including representation, political participation, education, policy formulation and policy implementation.

### DO YOU KNOW? Examples for Pressure Groups

1. Federation of Indian Chamber of Commerce and Industry (FICCI)
2. All India Trade Union Congress (AITUC)
3. All India Kisan Sabha
4. Indian Medical Association (IMA)
5. All India Students Federation (AISF)
6. All India Sikh Students Federation
7. Young Badaga Association
8. Tamil Sangam
9. Tamil Nadu Vivasayigal Sangam
10. Narmada Bachao Andolan

## Political Participation

Pressure groups can be called the informal face of politics. They exert influence precisely by mobilising popular support through activities such as petitions, marches, demonstrations and other forms of political protest. Such forms of political participation have been particularly attractive to young people.

## Education

Many pressure groups devote significant resources by carrying out research, maintaining websites, commenting on government policy and using high-profile academics, scientists and even celebrities to get their views across, with an emphasis to cultivate expert authority.

## Policy Formulation

Though the pressure groups themselves are not policy-makers, yet it does not prevent many of them from participating in the policy-making process. Many pressure groups are vital sources of information



and render advice to the government and therefore they are regularly consulted in the process of policy formulation.

## 2.4 Mobilisation and People's Participation

### 2.4.1 Mobilisation

Mobilising people towards socially productive activities that lead to the overall betterment of people's lives is essential. Sometimes earthquakes, tsunamis, floods and other such natural disasters on a massive scale occur and people's immediate mobilisation for evacuation and emergency relief becomes most essential.

### 2.4.2 Democratic Participation

Democracy can succeed only when smaller local groups and, in fact, every citizen can take action that supports the tax and revenue collection systems, observance of national norms in environmental protection, cleanliness, health and hygiene, sanitary drives and immunisation programmes like pulse polio.

However, we must keep in mind that there is no better form of government than Democratic government. To create a better society and nation, the people of India along with the union and state governments should come together to fight against the miseries of human life.

### Recap

- The Prime Minister is elected by members of the Lok Sabha.
- There are two types of elections: direct and indirect elections.
- A political party has three components: a leader, active members and the followers.
- Political parties in India are classified into two types: (1) National Parties (2) State Parties.
- In 2017, there were seven recognised national parties.
- The term 'pressure group' originated in the USA.
- A large number of pressure groups exist in India.



### EXERCISE

#### I. Choose the correct answer:



1. India has adapted the electoral system followed in the
  - (a) USA
  - (b) United Kingdom
  - (c) Canada
  - (d) Russia
2. The Election Commission of India is a / an
  - (a) Independent body
  - (b) Statutory body
  - (c) Private body
  - (d) Public corporation
3. Which Article of the Constitution provides for an Election Commission?
  - (a) Article 280
  - (b) Article 315
  - (c) Article 324
  - (d) Article 325
4. Which part of the constitution of India says about the election commission?
  - (a) Part III
  - (b) Part XV
  - (c) Part XX
  - (d) Part XXII
5. Who accords recognition to various political parties as national or regional parties?
  - (a) The President
  - (b) The Election Commission
  - (c) The Parliament
  - (d) The President in consultation with the Election Commission
6. **Assertion (A) :** Indian Constitution provides for an independent Election Commission  
**Reason (R):** To ensure free and fair elections in the country.
  - (a) Both (A) and (R) are true and (R) explains (A)
  - (b) Both (A) and (R) are true and (R) does not explain (A)
  - (c) (A) is correct and (R) is false
  - (d) (A) is false and (R) is true






## **II. Fill in the blanks:**

1. The Election Commission of India is a body of \_\_\_\_\_ members.
  2. National Voters day has been celebrated on\_\_\_\_\_.
  3. In India \_\_\_\_\_ party system is followed.
  4. In 2017, there were \_\_\_\_\_ recognised national parties.
  5. Narmada Bachao Andolan is a \_\_\_\_\_.

### **III. Match the following:**

- |                        |   |                 |
|------------------------|---|-----------------|
| 1. National party      | - | a. Trade unions |
| 2. Single-party system | - | b. USA          |
| 3. Two-party system    | - | c. China        |
| 4. Pressure groups     | - | d. Seven        |

#### **IV. Give short answers:**

1. Explain the electoral system in India.
  2. Give the meaning of a political party.
  3. Distinguish between two-party system and the multi-party system.
  4. What is a pressure group?

## **V. Answer in detail:**

1. Discuss merits and demerits of direct elections?
  2. What are the functions of political parties?
  3. What are the function of Pressure groups in India?

## **VI. Project and Activity**

- 1.** Compare the policies, programmes and achievements of a national party and a state party.

VII. HOTS

1. “Elections are considered essential for any representative democracy”. Why?
  2. What is the principle of universal adult franchise? What is its importance?
  3. Discuss merits and demerits of democracy.
  4. Discuss the multi-party system.

## **VIII. Life Skill**

Conduct a mock poll in your classroom.



## UNIT 3

# Human Rights



### Learning Objectives

- To know about the international efforts for protecting human rights
- To understand the basic human rights ensured in the Indian Constitution
- To understand about the functions of institutions and issues involved in human rights
- To know about the types of human rights



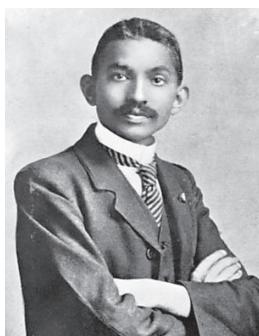
### Introduction

The lesson travels through the history of organisations for human rights. The rights ensured by the Universal Declaration of Human Rights being highlighted. Fundamental rights are enshrined in the Indian Constitution and fundamental duties incorporated in the Constitution along with the introduction to National and State Human Rights Commissions and their functions are explained. Extended rights like child rights, SC and ST rights, women rights, labour rights, etc., are also discussed.

On 7th June 1893, while a person was on his way to Pretoria, in South Africa a white man objected the person's presence of a

non-white man in a first class carriage and the person was ordered to move to a van compartment at the end of the train. The man who had the first-class ticket refused to leave and was thrown off the train at Pietermaritzburg. Shivering in the winter night in the waiting room of the station changed the course of his life. He took up the fight against racial oppression. The spirit for active non-violence started from that moment.

Mahatma Gandhi made the momentous decision to stay on in South Africa and fight



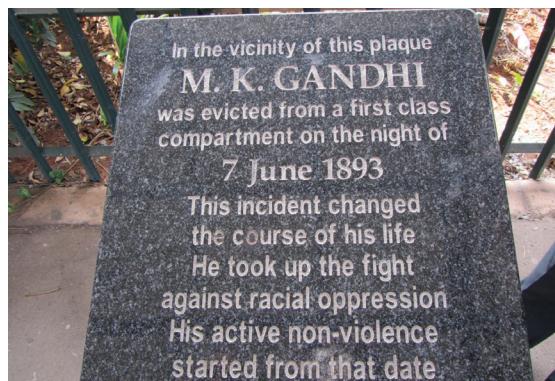
Gandhi in South Africa



racial discrimination against the Indians. Out of that struggle emerged his unique way of protest nonviolent Satyagraha.

As a human being, Gandhi had all the rights to travel in the first class compartment. But he was discriminated because of his skin colour. Discrimination is not only based on colour, it is on the basis of race, gender, place of birth, caste, religion and so on.

Due to these discriminations, people are prohibited from enjoying their basic human rights.



Inscription at the railway station

### 3.1 What are Human Rights?

The U.N.O defines Human rights as “The right inherent to all human beings, regardless of race, gender, nationality, ethnicity, language, religion or any other status. Every one is entitled to these rights without discrimination.”

Human Rights day is celebrated every year on 10th December

The history of human rights has roots in all the great events of the world and it has sustained the struggle for freedom and equality everywhere. The United Nations Organisation (U.N.O) was formed on 24th October 1945 after the Second World War. It proposed to deal with the consequences of war and to prevent such happenings in the future.

October 24 is UNO day

The Universal Declaration of Human Rights(UDHR) has played a crucial role in promoting human rights.

### End of Apartheid



Mandela raises his fist soon after his release from jail after 27 years

Apartheid was the highest form of discrimination that existed in South Africa. Places of residence were determined by racial classification.

It was the governing policy in the country by the minority whites over the majority non-whites. The people of South Africa protested against racial discrimination.

Nelson Mandela raised his voice against apartheid. When he organised defiant campaigns against the government, he was imprisoned. Amid growing domestic and international pressure and with the fear of a racial civil war, President F. W. de Klerk released him in 1990.

The efforts taken by Mandela and de Klerk put an end to apartheid. In 1994, a multiracial general election was held, in which Mandela led the African National Congress to victory and became President.

### 3.2 Universal Declaration of Human Rights (UDHR)

The Universal Declaration of Human Rights is a milestone document in the history of human rights. It was drafted by the representatives with different legal and cultural backgrounds from all regions of the world. The Declaration was proclaimed by the United Nations General Assembly in Paris on 10th



December 1948 (General Assembly resolution 217A) as a common standard of achievement of all people and all nations. The first time it sets out the fundamental human rights to be universally protected and the UDHR has been translated into many languages.

There are 30 articles in the Universal Declaration of Human Rights and it guarantees freedom of expression as well as civil, political, social, economic and cultural rights. These rights apply to all people, irrespective of their race, gender and nationality, as all people are born free and equal.

### 3.2.1: Social, Economic and Cultural Rights:

Social, economic and cultural rights are integral part of the human rights law that was developed due to the aftermath of World War II.

Social rights are necessary for full participation in the society. Economic rights guarantee every person to have conditions under which they are able to meet their needs. They are a part of a range of legal principles through which economic equality and freedom are preserved in a State.

Cultural rights are human rights that aim at assuring the enjoyment of culture and its components in conditions of equality, human dignity and non-discrimination.

### 3.2.2 Civil and Political Rights:

Civil and political rights protect an individual's freedom from infringement by the government, social organizations and private individuals. These rights ensure one's ability to participate in the civil and political life of the society and state.

The term 'Civil rights' refers to the basic rights afforded by laws of the government, to every person regardless of race, nationality, colour, gender, age, religion etc.,

Political rights exercised in the formation and administration of a government. They are given to the citizens by law. These rights give power to the citizens to participate either directly or indirectly in the administration.

## 3.3 Fundamental Rights in India

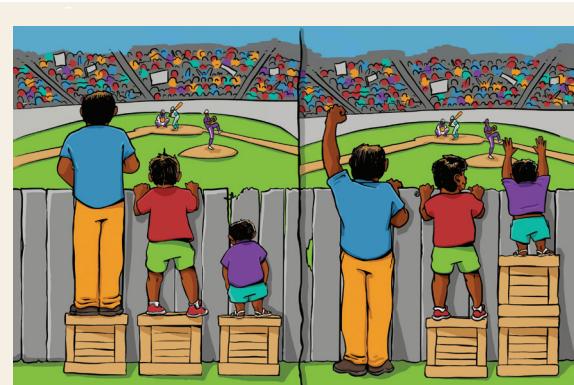
Fundamental rights are required for the all round development of a human being. They make the life of people meaningful by giving them rights like speech and to live in an area of their choice.

**The fundamental rights are :**

- Right to Equality
- Right to Freedom
- Right against Exploitation
- Right to Freedom of Conscience and Religion
- Cultural and Educational Rights for minorities
- Right to Constitutional Remedies

### 3.3.1 Right to Equality:

It refers to equality before law and equal protection of law. Prohibition or discrimination on the grounds of religion, caste, races, gender or place of birth is offensive and one can seek justice from court.



Share your views about this picture

### 3.3.2. Right to Freedom

Six different types of freedom are mentioned in the Constitution.



They are:

- Freedom of speech and expression.
- Freedom to assemble peacefully without arms.
- Freedom to form associations and unions.
- Freedom to reside and settle in any part of India.
- Freedom to move freely throughout the territory of India.
- Freedom to practice any profession and carry on any occupation, trade or business.



### 3.3.3 Right against Exploitation:

It is against the law to employ children below 14 years of age in mines, factories or other occupations. Neither contractor nor an employer can force a worker to do a job against their will.



### 3.3.4 Right to Freedom of Conscience and Religion:

This right gives the citizens freedom to follow and practice a religion of their choice.



All citizens have the freedom of conscience or ideas. The citizens also have the freedom to follow their own ways for practicing any religion.

### 3.3.5 Cultural and Educational Rights:

The Constitution gives us the right to preserve, protect and promote culture. We have the right to open schools, associations and societies to preserve and promote our tradition and culture. Similarly a group of people may open a school for imparting religious education to children. The government also promotes such activities

Differences Between Human Rights and Fundamental Rights	
Human Rights	Fundamental Rights
<ul style="list-style-type: none"><li>The rights that a human being deserves to survive with respect and freedoms.</li></ul>	<ul style="list-style-type: none"><li>The elemental rights of the citizens of a country, which are listed in the constitution and enforceable under the law is known as fundamental rights.</li></ul>
<ul style="list-style-type: none"><li>Human rights include those rights which are basic to a real life and are absolute, i.e. it cannot be taken away.</li><li>Human rights are recognised at international level.</li></ul>	<ul style="list-style-type: none"><li>Fundamental rights includes only those rights which are basic to a normal life.</li><li>Fundamental rights are guaranteed under the constitution of the country.</li></ul>

Human rights as declared by the UN, suggest minimum standards of rights to be adopted by Government and these serve more or less like Directive Principles.



by giving grants. However, such institutions cannot deny admission to anyone based on their caste, colour, creed or even religion.

WRIT is a written order from the court or other legal authority ordering to do an act or not to do it.

### 3.3.6 Right to Constitutional Remedies

Fundamental Rights are guaranteed by the Constitution. By this right, a person can adopt Constitutional means and approach a court if he is denied the Fundamental Rights. The court then issues orders which are called 'Writs' to the government to restore the rights to the citizen. The Constitutional Remedies put to right anything which may be wrong in terms of the Constitution. This right therefore protects and safeguards all other rights.

PreethikaYashini won her right of employment by approaching the court according to the Right to Constitutional remedies.

#### *As Yashini takes last step towards her SI dream, it's a giant leap for 3rd gender*



Chennai: After a long struggle through legislative, executive and judicial processes, gritty transgender activist Preethika Yashini has finally实现了她梦想的成为泰米尔纳德邦警察局的一名警官。 Chennai: After a long struggle through legislative, executive and judicial processes, gritty transgender activist Preethika Yashini has finally实现了她梦想的成为泰米尔纳德邦警察局的一名警官。 She was entitled to be appointed as a constable in the police force under the condition of a separate category to accommodate transgender employees. The law minister had initially agreed to her demand, but later the next recruitment process was postponed due to the COVID-19 pandemic. When Preethika approached the Tamil Nadu High Court, she was given a stay order. The court directed the police to take necessary measures for fulfilling her demand. Through Tamil Nadu police already has a separate category for transgender people, Yashini will be the first transgender from the state to become a constable. Photo: Aishwarya Raghavan/ Hindustan Times

### 3.4 Fundamental Duties

These are in the form of duties and responsibilities of citizens. 'The original Constitution which came into force with effect from 26th January, 1950 did not contain Fundamental Duties.

These were incorporated in the Constitution by the 42nd Amendment Act in 1976. The Constitution states eleven Fundamental Duties as given below:

1. Respect for the Constitution and its ideals and institutions, the National Flag and the National Anthem.

2. To follow and cherish the noble ideals which inspired our National Struggle for freedom.
3. To uphold and protect the sovereignty, unity and integrity of India.
4. To defend the country and render national service when called upon to do so.
5. To promote harmony and spirit of common brotherhood amongst all the people of India, transcending religious, linguistic, regional or sectional diversities, to renounce practices derogatory to the dignity of women.
6. To value and preserve the rich heritage of our composite culture.
7. To protect and improve the natural environment including forests, lakes, rivers and wildlife and have compassion on living creatures.
8. To develop the scientific temper, humanism and the spirit of inquiry and reform.
9. To safeguard public property and to abjure from violence.
10. 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.
11. To provide opportunities for education by the parent and guardian to their child or ward upto the age of 14 years.



Maintenance and welfare of parents and Senior Citizens Act, 2007 is a legislation passed in 2007 by the Government of India. This Act is a legal obligation for children and heirs to provide maintenance to senior citizens and parents.



### 3.5 National Human Rights Commission





The National Human Rights Commission is an autonomous body constituted on 12th October 1993 under the protection of Human rights Act, 1993. It consists of a chairman and few other members. 3 from judiciary and 4 from other department NHRC is responsible for the protection and promotion of human rights in India defined by the Act as rights relating to life, liberty, equality and dignity of the individual guaranteed by the Constitution or embodied in the international covenants the office is located in New Delhi .

#### Functions of NHRC

- To inquire into the violation of human rights or negligence in the prevention of such violation by a public servant
- To intervene in court proceedings relating to human rights
- To undertake and promote research in the field of human rights
- To engage in human rights education among various sections of society
- To encourage the efforts of NGOs and institutions working in the field of human rights.

### 3.6 State Human Rights Commission(SHRC)



Every state in India has a State Human Rights Commission established in accordance with the power conferred on the state under section 21 of the Protection of Human Rights Act, 1993. The protection and promotion of human rights constitute the principal concern of the Commission. Moreover, the procedures adopted by the Commission to conduct its proceedings, the suo motu actions taken on complaints regardless of the sources received and the transparency of the proceedings of

the SHRC add strength to its functioning in a state. The office is the Human Rights is located in Chennai.

#### Functions of SHRC

- The SHRC shall enquire into violation of human rights in respect of matters specified in the state and concurrent lists.
- Its objectives and duties are the same as NHRC, but confined only to the state. It has a chairman and two members.
- It has the power of a civil court and can take cognizance of cases if received or in suo motu.
- It can also recommend compensation to victims.

#### 3.6.1 Child Rights

Apart from the fundamental rights described by the Constitution, we have to ensure certain other rights.

A child is a person who has not completed the age of 18 years i.e. a minor as per UNO. This principle is exhibited in Articles 25 of the Universal Declaration of Human Rights. Based on these principles, the declaration of the Rights of the child was accepted and adopted in the UN General Assembly on 20th November, 1989.

- Right to life
- Right to family environment
- Right to Education
- Right to benefit from Social security
- Right against sexual exploitation
- Right against sale or trafficking
- Right against other forms of exploitation like Child labour.

#### Right to life

A child has the right to survive even before its birth. The right to survival also includes the right to be born, the right to basic needs of food, shelter and clothing and a dignified living.

#### Right to Family Environment

A child has the right to live a normal childhood in a family environment. Children who have been left destitute, abandoned or orphaned also have the right to live. These children can be given for adoption to caring families.



## Right to benefit from Social security

Children should get financial support from the country when their parents or guardians are unable to provide them with a good standard of living by themselves, due to any illness, disability or old age.

## Right to Education

Right to Education Act is an Act of the Parliament of India enacted in 2009 for free and compulsory education for children from 6 to 14 years of age as under Article 21A of the Constitution.

**Malala** - Nobel Peace prize laureate says

"I loved school. But everything changed when the fundamentalist took control of our town in Swat Valley.



They said girls could no longer go to school. I spoke out publicly on behalf of girls and our right to learn. And this made me a target.

In October 2012, on my way home from school, a masked gunman boarded my school bus and asked, "Who is Malala?" He shot me on the left side of my head. I woke up 10 days later in a hospital in Birmingham, England. After months of surgeries and rehabilitation, I joined my family in our new home in the U.K. I determined to continue my fight until every girl could go to school.

Every day I fight to ensure all girls receive 12 years of free, safe, quality education. With more than 130 million girls out of school today, there is more work to be done. I hope you will join my fight for education and equality. Together, we can create a world where all girls can learn and lead.

If you were Malala, what would you have done?

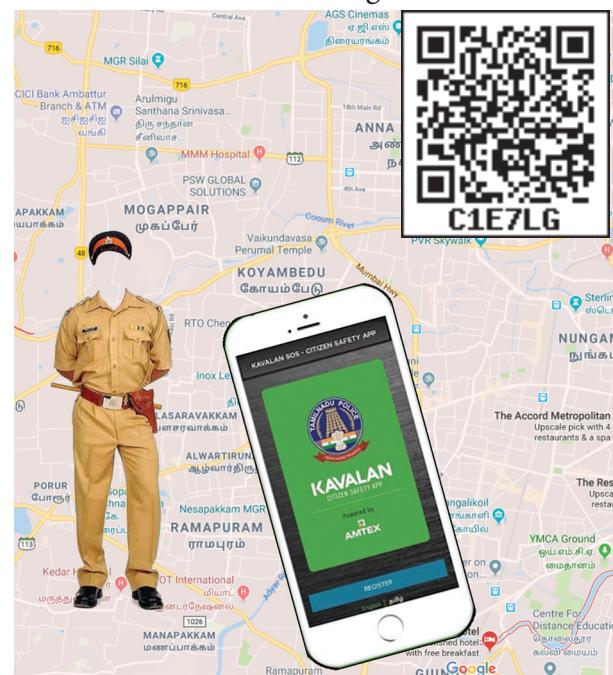
Is Malala's fight necessary?

Are girl children treated and given education equally?

The Right of children To free and compulsory Education (RTE) Act, 2009, means that every child has a right to formal Elementary Education. This right of children provides free and compulsory education till the completion of elementary education in a neighbourhood school. The child need not pay any kind of fee for completing elementary education.

## Right against sale or trafficking of children

Children should be treated as individuals with fundamental human rights. Children are vulnerable. There are root causes such as poverty, gender discrimination, broken families etc., behind the sale or trafficking of children.



**DO YOU KNOW?** The Kavalan SOS App is launched by the Government of Tamil Nadu for public use during emergencies. Anyone in a critical situation, not only women, can easily and directly access the State Police Control Room using this App.

Children are subjected to sale or trafficking for various reasons – economic exploitation, sexual exploitation, sexual abuse, drug trafficking and child labour.



Have you heard about child trafficking?  
Conduct a debate on this topic in your class.

### Right against sexual exploitation

The state should protect children from sexual exploitation and abuse, when they are forced or persuaded to take part in sexual activities physically or mentally.

POCSO Act - Protection of Children from Sexual Offences Act  
The Protection of Children from Sexual Offences Act, 2012 regards the best interest of the child as being of paramount importance at every stage.



### Salient features of POCSO Act

- The Act defines a child as any person below eighteen years of age, to ensure the healthy, physical, emotional, intellectual and social development of the child.
- When the abuse is committed by a person in a position of trust or authority vis-à-vis the child, like a family member, neighbours or any other acquaintances.
- The statement of the child is to be recorded exactly as the child narrates.
- A child not to be called repeatedly to testify.

An ordinance providing the death penalty for rapists of girls below 12 years of age and other stringent penal provisions for rape has been promulgated in April 2018. The Criminal Law Amendment Ordinance, 2018, amended the Indian Penal Code. Another salient feature of this amendment is that the fine imposed shall be just and reasonable to meet the medical expenses and rehabilitation of the victim.



1098

Childline is India's first 24 hours free emergency phone service for children in need of assistance. Special care is given for vulnerable children like those affected by child labour, child marriage and children affected by any abuse.

### Right against other forms of exploitation like Child labour

Children are often employed in several industries. These children are deprived of their childhood, health and education. This will lead to a life of poverty and want. These children are made to work in glass, match-box, lock-making factories, rag-picking, carpet – making industry, beedi - rolling, mining, stone quarrying, brick kilns and tea gardens etc.

Work is mostly gender – specific, with girls performing more home – based work, while boys are employed as waged labour. Since these children work in agricultural fields, restaurants, motor repair workshops and home – based industries, elimination of child labour remains a challenge.



Kailash Satyarthi is a Nobel Peace Prize recipient and the founder of Bachpan Bachao Andolan, and many other child rights organisations. More than 86,000 children in India have been liberated by him and his team members from child labour, slavery and trafficking. An 80,000 km long Global March against Child Labour was led by Kailash in 1998 which turned the world's attention towards the issue of Child labour. He received Nobel prize for peace in the year 2014.



The findings of an international survey reveals that children with disabilities are 3.4% more sexually abused than normal children.

### Child Rights in the Indian Constitution

**Article 24** – No child below the age of 14 must be employed in hazardous employment.

**Article 45** – Free and compulsory education for all children until they attain the age of 14 years.



Children are the foundation of any nation. When girls get married early, they lose many privileges like childhood happiness, availing education and a healthy life. The society in turn gets affected by child marriage. Thus child marriage should be avoided at any cost.

### 3.6.2 Women Rights

The National Commission for Women (NCW) is constituted in India to review the Constitutional and legal safeguards for women, recommends remedial measures and advises the government on all matters of policy affecting the welfare and development of women in the country.

In modern India, women have held high offices including that of the President, Prime Minister, Speaker of the Lok Sabha, Leader of the Opposition, Union Ministers, Chief Ministers and Governors.

In Tamil Nadu, ancestral property rights were given to women through Hindu Succession (Tamil Nadu Amendment) Act 1989.

The Central Government amended the Hindu Succession Act in 2005. By this amendment, women are now given equal shares in inheritance of the undivided property.

Women's rights under the Constitution of India mainly include equality, dignity, and freedom from discrimination; additionally, India has various statutes governing the rights of women. On 1924 at Vaikkam in Kerala Periyar E.V. Ramasamy agitated for temple entry for dalits. In 1925 he started the self respect movement.

**Women Labourers' Welfare and Ambedkar**  
Dr B.R. Ambedkar framed many laws for women workers in India such as the 'Mines Maternity Benefit Act', 'Women Labour Welfare Fund', 'Women and Child Labour Protection Act', 'Maternity Benefit for Women Labour', and 'Restoration of Ban on Employment of Women on Underground Work in Coal Mines'.

### Reservations

The state of Tamil Nadu provides 69% of reservation to the Scheduled Castes, Scheduled Tribes, Most Backward Classes / Denotified Communities and Backward Classes in public employment and in educational institutions. Backward class Muslims are granted separate reservation.

The following table gives us a very clear picture of the percentage of reservation for various communities by the Government of Tamil Nadu.

Communities	Reservation in (%)
Backward Classes	26.5
Backward Class Muslims	3.5
Most Backward Classes/Denotified Communities	20
Scheduled Castes	18
Scheduled Tribes	1
<b>Total</b>	<b>69</b>

Under each reserved category and in General category 30% is reserved for women and 4% is reserved for differently abled persons. Special reservation to Arunthathiyaars has been granted by preferential allotment of seats with in the seats reserved for Scheduled castes. For persons studied in Tamil medium 20% seats are offered under each category on priority basis.

In Tamil Nadu Transgenders has been classified under Most Backward Classes.

### 3.6.3 Right to Information Act (RTI)

The Right to Information Act is a revolutionary act that aims to promote transparency in the government institutions in India. This act was enacted in October 2005.

A common man can demand any government organization to provide information. The information must be provided within thirty days. If not, a fee will be collected as penalty from the concerned official.



### RTI Activists



**Aruna Roy**

**Nikil Dev**

It is one of the most powerful laws of the country. This act is people friendly; even an illiterate person can ask any Public Information Officer to write it down for him. All government agencies like Municipal Corporations, Government departments, Government Schools, Road Authorities, etc., come under this Act.

Through RTI one can get even copies of government documents such as records, reports, papers, etc., Personal information of individuals and organisations related to the country's defence and intelligence, such as BSF, CRPF, Intelligence Bureau are exempted from the RTI.

- Sign the Application form with your full name and address along with the date and send it through a registered post to the office of the concerned authority.
- If a reply is not received within 30 days, an appeal can be filed with the Appellate Authority.

### 3.6.4 Labour Rights

The Constitution ensures right to equality, equality of opportunity in public employment, right to form associations and unions, right to livelihood, prohibits trafficking, forced labour and child labour. Article 39(d) ensures equal wages to male and female workers for equal work.

"The rights of every man are diminished when the rights of one man are threatened" said John F. Kennedy. Civilized nations of the world insist on equality. Nations pay more attention on human rights to ensure equality. This helps in maintaining peace, harmony and development of the country.

### Activity

List out various jobs in the format given below and fill in the amount of wages for male and female employees.

S. No	Job / Occupation	Wages of male employee	Wages of female employee
1.			
2.			
3.			
4.			
5.			

### Contribution of Dr.B.R. Ambedkar

Dr.B.R. Ambedkar's contribution to labourers.

- Reduction in Factory Working Hours (8 hours a day)
- Compulsory Recognition of Trade Unions
- Employment Exchange in India
- Employees State Insurance (ESI)
- Minimum Wages for labourers
- Coal and Mica Mines Provident Fund



**DO YOU KNOW?** It is a great victory for female workers who stand all the time more or less 12-14 hours per day while they are working in shops and commercial malls

Female workers who are working in shops and commercial malls are not allowed to sit or even lean on the wall. They were allowed only 5 minutes of break two times a day to take rest.

There was a strong voice against this inhuman practice among women workers for a long time. Considering this, the Government of Kerala has decided to redress by amending the Shops and Commercial Establishment Act in July 2018.



## Recap

- Discrimination is the partial treatment of people.
- UNO's definition of human rights.
- History of human rights has its roots from the aftermath of second world war.
- Universal Declaration of Human Rights.
- Indian Constitution ensures six fundamental rights and eleven duties of a citizen.
- Formation and functions of National and State Human Rights Commissions.
- Extended rights such as child rights, SC and ST rights, women rights, Right to Information Act (RTI) and labor laws.



### EXERCISE

#### I Choose the correct answer



1. 'Apartheid' was followed by \_\_\_\_\_  
a) South Sudan    b) South Africa  
c) Nigeria        d) Egypt
2. \_\_\_\_\_ right exercises in the formation and administration of a government.  
a) Social            b) Economic  
c) Political        d) Cultural
3. A 10 year old boy is working in a shop. Which right can you use to recover him?  
a) Right to equality  
b) Right to freedom  
c) Right against child labour exploitation  
d) Right to freedom of Religion
4. What is the time limit to get the information from RTI Act 2005?  
a) 20 days          b) 25 days  
c) 30 days        d) 35 days
5. Which of the following statements are true?
  - i) The State Human Rights commission was established in 1993.
  - ii) It has the power of a civil court.
  - iii) Its power extend beyond the state.
  - iv) It can also recommend compensation to victims.  
a) i and ii are true  
b) i and iii are true

- c) i, ii and iii are true  
d) ii, iii and iv are true

6. Consider the following statements.

**Assertions (A):** Rights and duties are the two sides of the same coin.

**Reason (R):** We have a right to freedom of religions. We have to promote harmony and the spirit of the people of other religions.

- a) Both A and R are correct and R explains A  
b) Both A and R are correct but R does not explain A  
c) A is correct but R is false  
d) A is false but R is correct

7. According to the UNO a child is a person who has not completed the age of \_\_\_\_\_ years.

- a) 12    b) 14    c) 16    d) 18

8. Kailash Satyarthi and Malala have been awarded Nobel Prize for \_\_\_\_\_.

- a) Literature      b) Peace  
c) Physics          d) Economics

#### II Fill in the blanks

1. The Universal Declaration of Human Rights Contains \_\_\_\_\_ articles.
2. The fundamental Duties were incorporated in the Constitution by \_\_\_\_\_ Amendment Act.



3. The National Human Rights commission was established on \_\_\_\_\_.
4. Indian state to implement women ancestral property Act in 1989 was \_\_\_\_\_.

### III Match the following

1 Right to Vote	Cultural Rights
2 Right to form union	Right against exploitation
3 Right to preserve tradition	Political Rights
4 The Hindu Succession Act	Right to freedom
5 Child labour	2005

### IV Give short answers

1. What is Human Right?
2. What are the fundamental rights?
3. What are the Child Rights defined by the UNO?
4. Write a short note on the Right to Constitutional Remedies.
5. Define: POCSO
6. Why do children need special attention?
7. What are the contributions to labourers by B.R. Ambedkar?
8. 'All are equal before law'. But we have enacted a separate law for women – Justify
9. Write about the Right against exploitation.
10. Differentiate: Fundamental Rights and Human Rights.

### V Answer in detail

1. Write a paragraph about UDHR.
2. What are fundamental duties? How would you follow these in your school premises?
3. How does the National Human Rights Commission protect our rights?
4. What are the benefits for workers provided by labour law?
5. How do you enjoy the fundamental rights in your life?

### VI Project and Activity

1. How do you protect yourself from child abuse / sexual exploitation and trafficking.
2. Write an article titled "My country, My Rights".



## UNIT 4

# Forms of Government



## Learning Objectives

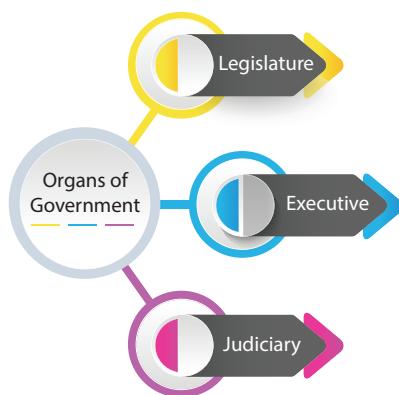
- To know about the type of constitutions
- To understand the forms of government
- To learn the merits and demerits of the different forms of government
- To understand the differences between the Unitary and Federal, Presidential and Parliamentary forms of governments



## Introduction

Government is the main agency of the state. It comprises of several members belonging to political and administrative wings. It serves as the instrument for delegation and execution of the state policies for the welfare of the people. It formulates, expresses and realises the will of the state. It exercises certain legislative, executive and

judicial powers based on the constitution and the laws. There are three organs in government, namely – Legislature, Executive and Judiciary. These organs carry out the activities of the state. Governments are classified into unitary, federal, parliamentary and presidential forms.



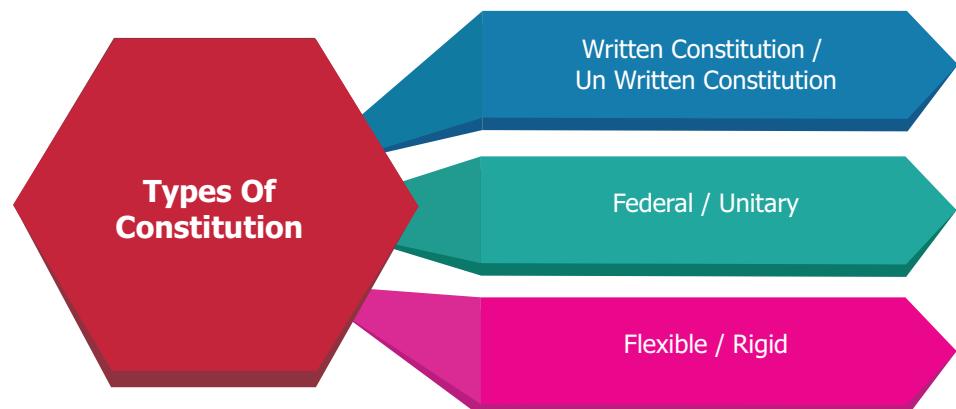
## 4.1 Meaning

'Government' refers to the executive functions of the state. It denotes a body having authority to make and enforce laws applicable to the civil, corporate, religious, academic or other groups.

### Which is the oldest form of government?

Monarchy is the oldest form of government in the United Kingdom. In a monarchy, a king or queen is Head of State. The British monarchy is known as a constitutional monarchy. This means, while The Sovereign is Head of State, the ability to make and pass legislation resides with an elected Parliament.

## 4.2 TYPES OF CONSTITUTION



### 4.2.1: Unitary Form of Government

A unitary system of government or unitary state, is a sovereign state governed as a single entity. The central government is supreme and the administrative divisions exercise only powers that the central government has delegated to them.

England, France, Japan and Sri Lanka are examples of Unitary Form of governments.

The term Government is derived from Old French 'governor', derived from Latin 'gubernare' to direct, rule, guide, govern".

In a Unitary form of government, all the authority and power is vested in a single centre, whereas in a federal form of government authority and power is distributed between centre and the constituent units. Even in a Unitary form of Government, there might be a lot of decentralisation of authority, but we cannot claim it as a federal system.

#### Merits of unitary form of government

- Suitable for small countries.
- There is no conflict of authority and responsibility.



- A unitary government will make prompt decisions and take speedy action.
- A unitary government is less expensive.
- Amendments to the constitution are easy.
- There is unity, uniformity of law, policy and administration.

#### **De-merits of unitary form of government**

- It is not suitable for big countries.
- The central government will have to tackle so many complex problems that lead to administrative delay
- The central government will not concentrate on local problems, local interest and initiative.
- The concentration of powers may pave way for the despotism of the central government.

#### **Unitary features of the Indian constitution**

- Strong Centre
- Central Government's control over state territory
- Single Constitution
- Flexibility of the Constitution
- Unequal representation of states
- Emergency Provisions
- Single Citizenship
- Single Integrated Judiciary
- All India Services
- Appointment of Governor by the central government

### **4.2.2 Federal form of government**

The classification of governments into unitary and federal is based on the nature of relations between the national and the regional governments.

A federal government is one in which powers are divided between the national government and the regional governments by the Constitution itself and both operate in their respective jurisdictions independently. U.S.A, Switzerland, Australia, Canada, Russia, Brazil, Argentina have federal form of governments.

In a federal model, the national government is known as the Federal government or the Central government or the Union government and the regional government is known as the state government or the provincial government.

#### **Merits of federal form of government**

- Reconciliation of local autonomy with national unity
- Division of power between centre and states leads to administrative efficiency
- It gives rise to big states
- Distribution of powers check the despotism of central government
- More suitable for bigger countries
- It is good for economic and cultural progress

#### **De-merits of federal form of government**

- Federal government is weaker when compared to the unitary government.
- Federal government is more expensive
- Provincial tendencies are very common
- Lack of uniformity in Administration
- Threat to national unity
- Distribution of powers between centre and states lead to conflicts
- Double Citizenship
- Rigid constitution cannot be amended easily for changing needs
- The state governments sometimes place hindrances in the foreign policy

#### **Federal features of the Indian constitution**

- Dual Government
- Written Constitution
- Division of Powers
- Supremacy of the Constitution

The Constitution is the supreme law of the land. The laws enacted by the Centre and the states must conform to its provisions.

- Rigid Constitution
- Independent Judiciary
- Bicameralism



### Difference between Unitary form and Federal form of Government

Unitary Form of Government	Federal Form of Government
Only one Level of Government or Sub units	Two Levels of Government
Mostly Single Citizenship	Dual Citizenship
Sub Units cannot operate independently	Federal Units are answerable to Central Government
No Division of Power	Division of Power
Centralisation of Power	Decentralisation of Power

### 4.2.3: Parliamentary form of government

Modern democratic governments are classified into parliamentary and presidential on the basis of the nature of relations between the executive and the legislative organs of the government.

The parliamentary system of government is the one in which the executive is responsible to the legislature for its policies and acts.

The parliamentary government is also known as cabinet government or responsible government or Westminster model of government and is prevalent in Britain, Japan, Canada and India among others.

Country	Name of Parliament
Israel	Knesset
Germany	Bundestag
Denmark	Folketing
Norway	Storting
U.S.A	Congress
Japan	Diet
Britain	Parliament

#### Features of parliamentary form of government

- Nominal and Real Executives
- Majority Party Rule
- Collective Responsibility
- Dual Membership
- Leadership of the Prime Minister

#### Merits of the parliamentary form of government

- Harmony between Legislature and Executive
- Responsible Government
- Prevents Dictatorship
- Wide Representation

#### Demerits of the parliamentary form of government

- Unstable Government
- No Continuity of Policies
- Dictatorship of the Cabinet
- Against Separation of Powers

### 4.2.4 The presidential form of government

The Presidential Form Of Government is also known as non-parliamentary or fixed executive system of government, basically built on the principle of separation of power and is prevalent in the USA, Brazil, Russia and Sri Lanka among others.

#### Features of presidential form of government

The President as the head of State, he occupies a ceremonial position.

The President is elected by an electoral college for a fixed tenure of four years.

The President governs with the help of a cabinet or a smaller body called 'Kitchen Cabinet'.

The legislative, executive and judicial powers of the government are separated and vested in three independent organs of the government.

#### Merits of the presidential system of government

- Democratic
- Effective Control by the President
- Facilitate decision-making
- State government



### Demerits of the presidential system of government

- Can degenerate into Dictatorship
- Strain relationship between executive and legislature
- Lack of Harmony between the Legislature and Executive

### Difference between the Parliamentary Form of Government and Presidential Form of Government

Presidential Form of Government	Parliamentary Form of Government
President is directly elected by the People	Prime Minister is from the majority party
President is Supreme	Central Legislature is supreme
Separation of Powers	Absence of Separation Powers Centralisation
Independent branches	Independent branches with Overlapping functions
President - Head of the State	President - Head of the State
President - Head of the Government	Prime Minister - Head of the Government
Individual Leadership	Collective leadership
President is not accountable to Congress	Collective and Individual Responsibility

### The relationship between the Centre and the State in India

India is a union of States where the power is shared between the centre and the states, as per the procedures mentioned in the Constitution of India. Though the powers are shared between the Central and State Governments, the final decision is by the Central government in all matters. The relationship between the centre and the states are

1. Legislative relations (Articles 245-255)
2. Administrative relations (Articles 256-263)
3. Financial relations(Articles 268-293)

Both the Central and State governments have the power to make laws, but the matters differ. The centre can make laws applicable to the whole nation on certain matters called as the union list. The States have the powers to make laws in some matters only, applicable to their own state, called as the State list. The concurrent list includes the subjects on which both Central and State government have the power to make laws.

**Union List:** Union list has 100 subjects. These include Foreign affairs, Defence, Armed forces, Posts and Telegraphs, inter-state trade and commerce and so on.

**State List:** The state list consists of 61 subjects, which include Public order in the state, police, prisons, Local Governments, agriculture and so on.

**Concurrent List:** The Concurrent list has 52 subjects which include Criminal and Civil procedures, marriage and divorce, economic and special planning, newspapers, books and printing presses, population control and so on.



## Gross National Happiness (GNH):

Gross National Happiness is a developing philosophy as well as an 'index' which is used to measure the collective happiness in any specific nation. The concept was first mentioned in the constitution of Bhutan, which was enacted on 18 July 2008.

The term 'Gross National Happiness' was coined by the fourth king of Bhutan, Jigme Singye Wangchuck, in the 1970s. The GNH's central tenets are: "Sustainable and equitable socio-economic development; environmental conservation; preservation and promotion of culture; and good governance".

GNH is distinguishable by valuing collective happiness as the goal of governance and by emphasising harmony with nature and traditional values.

### Recap

- Government refers to the executive function of the state.
- Legislature, Executive, Judiciary are the three organs of government.
- The four important forms of Governments are Unitary, Federal, Parliamentary and Presidential forms.
- India practises a Parliamentary form of Government.
- Governance is the process of decision making and the process by which they are implemented.



### Exercise

#### I. Fill in the blanks

1. \_\_\_\_\_, \_\_\_\_\_ are a few examples for unitary form of government.
2. The Parliamentary government is also known as \_\_\_\_\_.
3. In the parliamentary form of government \_\_\_\_\_ is the leader of the majority party.



#### II. Fill in the blanks

Country	Name of the Parliament
1. USA	_____
2. Norway	_____
3. _____	Folketing

#### III. Distinguish Between

1. Unitary and federal forms of government.
2. Parliamentary and presidential forms of government.

#### IV. Give short note on

1. Unitary form of government

#### V. Answer the following

1. List out the types of constitution.
2. What are the merits of a federal government?
3. Write down the differences between unitary form of government and federal form of government.

#### VI. Answer in detail

1. Write about the merits of unitary form of government.
2. Write about the presidential form of government and what is the difference between presidential and parliamentary forms of government.



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## UNIT 5

# Local Self Government



### Learning Objectives

- To study and understand the development of local self government before and after Indian independence
- To learn about the rural and urban local governments
- To learn about the nature and working of Panchayat Raj system in India
- To understand the 73rd and 74th Constitutional Amendment Acts, 1992
- To know about the historical origin and development in local self governments in Tamil Nadu



### 5.1 Meaning of Local Self Government

Local Self-Governments are institutions that look after the administration of an area or a small community such as a village, a town or a city. Local Self-Government operates at the lowest level of society. It works at the grassroot level, close to the people, touching their everyday life. Local Self-Government is the management

of local affairs by such local bodies which have been elected by the local people. These local bodies provide services to the local community as well as act as an instrument of democratic self-government.

### 5.2 Historical Background

The idea of local self government is a very old concept in India. It was at its peak under the later Cholas or the Imperial Cholas of Tanjore.



There are historical records of references to local self government under Mauryan administration. Local self government existed throughout the country with its own diverse characteristics of ancient India. During the medieval period, local self governments had somewhat declined due to the onslaught of feudalism. It was revived during the British period in the last quarter of the 19th century, with Western orientation of training in democracy with Lord Ripon's Resolution in 1882. Lord Ripon was known as the 'Father of Local Government' for laying the foundations of local self governments in modern times.

Under the Government of India Act, 1935 provincial autonomy was introduced. This Act came into force in 1937. In the provinces where the Congress formed its Government, rural development received special attention. It was an essential part of Gandhi's programme that Panchayat Raj institutions would be built from villages to the highest level.

After Independence, the Gandhian ideal of Grama Swaraj (Village Republic) greatly influenced the constitution makers. India being the land of villages, the creation of village panchayats became a social movement. Restoration of panchayats has become an article of faith during our freedom struggle.

### Lord Ripon

Lord Ripon was the one who gave Indians the first taste of freedom by introducing the Local Self Government in 1882.

Ripon took some steps towards liberalizing the administration in India. He formulated the local self government and made it clear that he was advocating for the decentralization of administration.

He tried to remove obstacles in the sphere of Local Self government by his resolution of 1882. He led a series of enactments



**Lord Ripon**

in which larger powers of the local self-government were given to the rural and urban bodies and the elected people received wider rights.

## 5.3 Local Self Governments since Independence

The conceptualisation of the system of local self-government in India took place through the formation and effort of four important committees from the year 1957 to 1986. The Community Development Programme (1952) and National Extension Service (1953) became a basis for 'The Great Charter on Panchayat Raj' in 1957. The panchayat raj system was inaugurated on October 2, in Nugaun district of Rajasthan by the then Prime Minister Jawaharlal Nehru.

### Salient Features of the 73rd and 74th Constitution Amendment Acts (1992)

- Panchayats and Municipalities will be 'institutions of self-government'.
- Grama Sabhas (Villages) and Ward Committees (Municipalities) comprising .
- Three-tier system of panchayats at village, taluk and district levels.
- Seats at all levels filled by direct elections.
- Seats reserved for chairpersons of the Panchayats at all levels also shall



be reserved in proportion to their population.

- One-third of the total number of seats reserved for women.
- Uniform five year term.

## Committees and Recommendations



**Balwant Rai Mehta Committee (1957)**

Three-tier Panchayati Raj system – gram panchayat at village level (direct election), panchayat Samiti at the block level and Zila Parishad at the district level (indirect election).



**Ashok Mehta Committee (1977-1978)**

Two-tier system and political parties should participate at all levels in the elections.



**G V K Rao Committee (1985)**

Appointed by the Planning Commission, the committee concluded that the developmental procedures were gradually being taken away from the local self-government institutions, resulting in a system comparable to 'grass without roots'.



**L M Singhvi Committee (1986)**

73rd and 74th Constitutional Amendment Acts, 1992.

directly elected by the people. (Those who have attained the age above 18 to contest in the election one must have attained the age of 21 years) and their term of office is five years. District Collector act as the Inspector of Village Panchayat. Village Panchayats are constituted in each and every village wherever the population is above 500.

## Functions of the Village Panchayat

- Supply of drinking water
- Maintenance of street lights
- Maintenance of roads
- Maintenance of village libraries
- Maintenance of small bridges
- Granting permission to the housing plots
- Maintenance of drainage
- Construction of group houses
- Cleaning of streets
- Maintenance of burial grounds
- Maintenance of common lavatory facilities

## Salient Features of the Tamil Nadu Panchayat Raj Act, 1994

The New Panchayati Raj System came into being in Tamil Nadu after the enactment of a new law for local body institutions in the year 1994. The salient features of the new Act are as follows: (a) A three-tier system (b) Gram Sabha (c) Establishment of Election Commission (d) Constitution of Finance Commission (e) Reservation of seats for SC/ST's proportionate to their population One third reservation of seats for women and (g) Constitution of District Planning Committees.

### 5.4 Village Panchayat

Local governments which are function in villages are called Village Panchayats. The President and ward members are

## Voluntary Functions.

According to the Tamil Nadu Local Government Act passed in 1994, the following functions to be performed as voluntary functions by the local governments.

- Maintenance of street lights in the villages
- Maintenance of markets and fairs
- Implantation of trees
- Maintenance of play grounds
- Maintenance of parking vehicles, slaughter houses and cattle sheds
- Control over places of exhibition

## Revenue

Village Panchayat was the only local government which was empowered to levy taxes in the three-tier system of Village Panchayat.

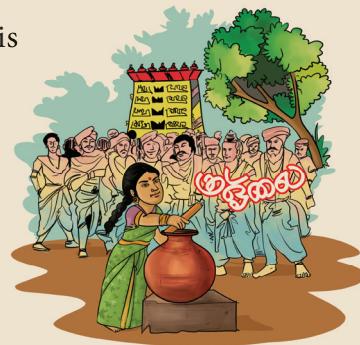


## Historical Origin and Development of Local Self Government in Tamil Nadu

Tamil Nadu has a long history of local self-governance as is evident from the Uthiramerur stone inscriptions of Paranthaka Chola I, in Kanchipuram District. Village republics, reached its peak during the reign of Cholas. These Village Councils had effective links with the Chola rulers. "Kuda Olai Murai" was the name of the secret ballot method exercised to elect members to the Village Councils. With the downfall of Cholas, the state experienced a decline of the village autonomy and rise of the centralized feudal administrative system. This continued till



British rules introduced local self-governance primarily as an administrative convenience for the colonial British Government.



In the post independence era, the first enactment in democratic decentralization in the state was the Madras Village Panchayats Act, 1950. Pursuant to the White Paper on the 'Reform of Local Administration' in 1957, the Madras Panchayats Act, 1958 and Madras District Development Council Act were enacted with the following salient features.



### Taxes

- Property Tax
- Professional Tax
- House Tax
- Taxes for connection of drinking water
- Land Tax
- Taxes levied on shops

Go to the local government office in your village and know about the levying of taxes.

meeting of the Grama Sabha, the income and expenditure and the beneficiary of the schemes in the village are discussed.



Gram Sabha

### Meeting of Gram Sabha

In each and every village, the people living within its jurisdiction will be the members of Panchayat. The President of the Panchayat will preside over its meetings. In the

Meetings of the Grama Sabha are conducted four times a year

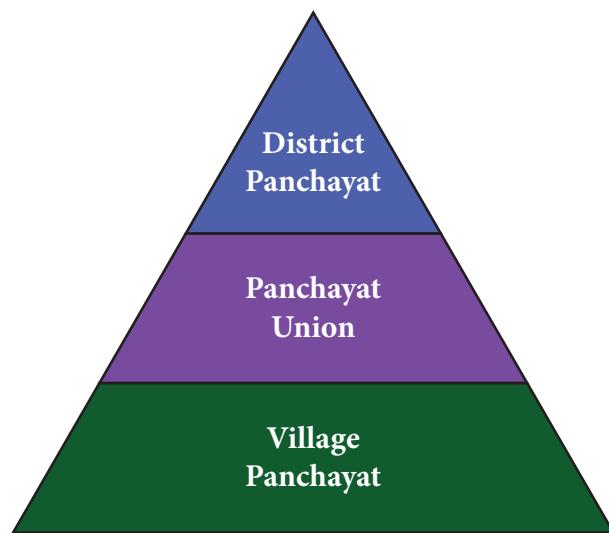
1. January 26 - Republic Day
2. May 1 - Labourer Day



3. August 15 - Independent Day
4. October 2 - Gandhi Jayanthi

### Panchayat Union

Panchayat Union is formed by grouping of villages. Members of the Panchayat Union are directly elected by the people. The Chairman of the Panchayat Union is chosen from among the members.



### Functions of the Panchayat Union

- Supply of drinking water
- Maintenance of Village Health Centres
- Maintenance of roads
- Establishment of Maternity Homes
- Establishment of Public fairs
- Establishment of Veterinary hospitals
- Maintenance of Social forests
- Repairing of Primary School buildings

Where will you report if street lights are not functioning and drinking water is not available in the tap in your village?

The district collector, Planning officer, concerned Block Development Officer are empowered to supervise the developmental functions of the Panchayat Union.

### District Panchayat

A District Panchayat is constituted in each district. One district Panchayat is constituted for every 50,000 people and the ward members are directly elected by the people. The Chairman is elected from one among its members and their term is 5 years.

### Functions of District Panchayat

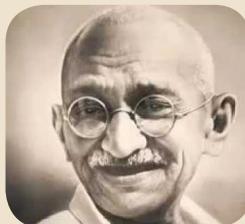
- Advising the government about the developmental schemes of the Village Panchayat and Panchayat Union.
- Supervising the functions of District Planning Commission.

### Urban Local Government

- Town Panchayat
- Municipality
- Corporation

### Gandhi's Concept of Gram Swaraj

Gandhi really wanted 'Swaraj', the self rule by the people of India who represent the rural mass. He observed 'India's soul lives in the village'. He dreamt of village republics in terms of Panchayat in free India.



Mahatma Gandhi advocated Panchayat Raj, a decentralized form of government, where each village is responsible for its own affairs, as the foundation of India's political system.

In simpler words, Gandhi's ideal village should be basically self-reliant, making provision for all necessities of life-food, clothing, clean water, sanitation, housing, education, and other requirements, including government and self-defense.



## Town Panchayat

The area where more than 10,000 people live is called a Town Panchayat. Members and President of the town Panchayat are directly elected by the people. There is an Executive Officer to look after the administration of the Town Panchayat and their term of office is 5 years and he is appointed by the government.

## Municipality

The area where more than 1,00,000 people live is called a Municipality. The Members and the Chairman of the Municipalities are directly elected by the people and their term of office is five years. A Municipal Commissioner is appointed by the government to administer the Municipality.

## Corporation

Municipal corporations are established in big cities where the city has many lakhs of population. The Municipal Commissioner is the Administrative Officer. The Mayor is the Chairman of the corporation. The term of office of the Mayor and other members is five years.

In Tamil Nadu, there are 12 Corporations. They are in Chennai, Kovai, Madurai, Trichy, Tirunelveli, Salem, Erode, Vellore, Tuticorin, Tirupur, Tanjore, Dindigul.

The Municipal Commissioner will be a person from the Indian Administrative Service (IAS). All the decisions of the Corporation Council will be implemented by him. He will be assisted by the office of the corporation.

Name the British Viceroy after whom the building of Chennai Corporation is named.



Corporation of Chennai

## Important functions of the Mayor

- He acts as a bridge between the members of the corporation and the government
- He presides over the meetings of the Corporation Council
- He receives the dignitaries from foreign countries

## Types of other Urban Panchayats

- Notified Area Committee
- Town Area Committee
- Cantonment Board
- Township
- Port Trust
- Special Purpose Agency

## Elections to the local government in Tamil Nadu

The State Election Commission conducts the elections to the local government like general elections. The electoral roll is prepared ward wise. Seats are reserved for the SC & ST and also for the women in proportion to the population by rotation basis.

## Problems and Challenges facing the Local Self Governments

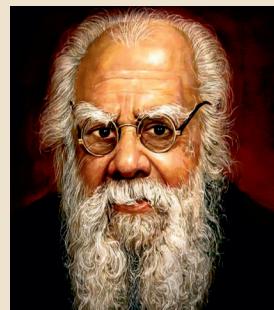
Local self governments are the crucial basis for our democracy. The Constitutional status of local self governments adds more significance to their functioning. There are, however, a few critical concerns in the working of local self governments in India. Major problems and challenges may be mentioned as below:

- Lack of clear demarcation of powers and functions of local bodies
- Allocation of funds and needs assessment are not matched
- Role of caste, class and religion in decision-making at the local self governments
- Poor accountability of elected members and officials at the grassroot levels of democracy



### Periyar as chairman of Municipality:-

Periyar E. V. Ramasamy became the Chairman of Erode Municipality in 1917. During his tenure in Erode Municipality, Periyar worked effectively for Providing piped drinking water supply and health facilities to the people. Piped water supply scheme was implemented in 1919 by Periyar. This scheme was said to be first of kind in the history of Indian Municipal administration.



### Exercise

#### I Choose the correct answer.



1. Which committee was appointed by the planning commission in 1985.  
a) Balwant Rai Mehta    b) Ashok Mehta  
c) G V K Rao                d) L M Singhvi
2. The Uthiramerur stone inscription show evidences of prevalent local self government during the \_\_\_\_\_ period in Tamil Nadu.  
a) Chola                      b) Chera  
c) Pandiya                    d) Pallava
3. The 73rd and 74th constitutional Amendment Acts, was enacted during the year in \_\_\_\_\_.  
a) 1992                        b) 1995  
c) 1997                        d) 1990

4. \_\_\_\_\_ act as the inspector of Village Panchayat.  
a) Commissioner    b) District Collector  
c) Councillors        d) Mayor

#### II Fill in the blanks.

1. \_\_\_\_\_ is known as the 'Father of Local Governments'.
2. Restoration of \_\_\_\_\_ has become an article of faith during our freedom struggle.
3. \_\_\_\_\_ was the name of the secret ballot method exercised to elect members to the village councils during the Chola period.
4. Local Government which function in villages are called \_\_\_\_\_.
5. \_\_\_\_\_ will look after the administration of the Town Panchayat.



### III. Match the following:

- |                    |                      |
|--------------------|----------------------|
| 1. Zilla Parishad  | - Villages           |
| 2. Gram Sabhas     | - Mayor              |
| 3. Ward Committees | - Chairman           |
| 4. Panchayat Union | - District Collector |
| 5. Corporation     | - Municipalities     |

### IV. Find out the correct statement

- Panchayat Union is formed by grouping of Districts.
- District Panchayat is constituted in each village.
- The Municipal Commissioner will be a person from the Indian Administration Service (IAS).
- In Village Panchayat, the President and ward members are elected by the people.

### V. Give short note.

- Name the taxes levied by the Village Panchayat.

- List out the salient features of Tamil Nadu Panchayat Raj Act 1994.
- Mention the important functions of the Village Panchayat.
- Which are the voluntary functions of the local governments?
- Name the Urban local governments.

### VI. Answer in detail.

- Write in details about the salient features of the 73<sup>rd</sup> & 74<sup>th</sup> Constitutional Amendment Act (1992).
- Describe the major problems & challenges faced by the local self governments.

### VII. Activity

Meet your Panchayat President / Municipal Chairman and discuss with him how the local self government is being administered.



### ICT CORNER

## LOCAL SELF GOVERNMENT

Official Website of the Rural Development and Panchayat Raj Department of Tamil Nadu help to learn about Government Act, Schemes, Database Map and Administration.



### Procedure

- Step – 1 Open the Browser and type the URL given below (or) Scan the QR Code.
- Step – 2 Click on Map and Select “Blocks” in Dropdown menu
- Step – 3 Click your district name to know about the number of blocks in the database map (ex. Tiruchirappalli)



### URL:

<https://www.tnrd.gov.in/index.html> (or) scan the QR Code

\*Pictures are indicatives only.



## UNIT 6

# Road safety



## Learning Objectives

- To understand the increase of road accidents in our country
- To know the causes of road accidents
- To follow the road safety rules



## Introduction

In this lesson, We will learn about a road accident refers to any accident involving at least a vehicle, occurring on a road open to public transport, and in which at least one person is injured or killed. Intentional acts (murder, suicide) and natural disasters are excluded from road accidents.

Road accidents are the leading cause of death by injury and the tenth-leading cause of all deaths globally. An estimated 1.2 million people are killed in road crashes each year, and as many as 50 million people are injured.



With over 1,30,000 deaths annually India has the worst road accident rate worldwide.

## Major Reasons of Road Accidents



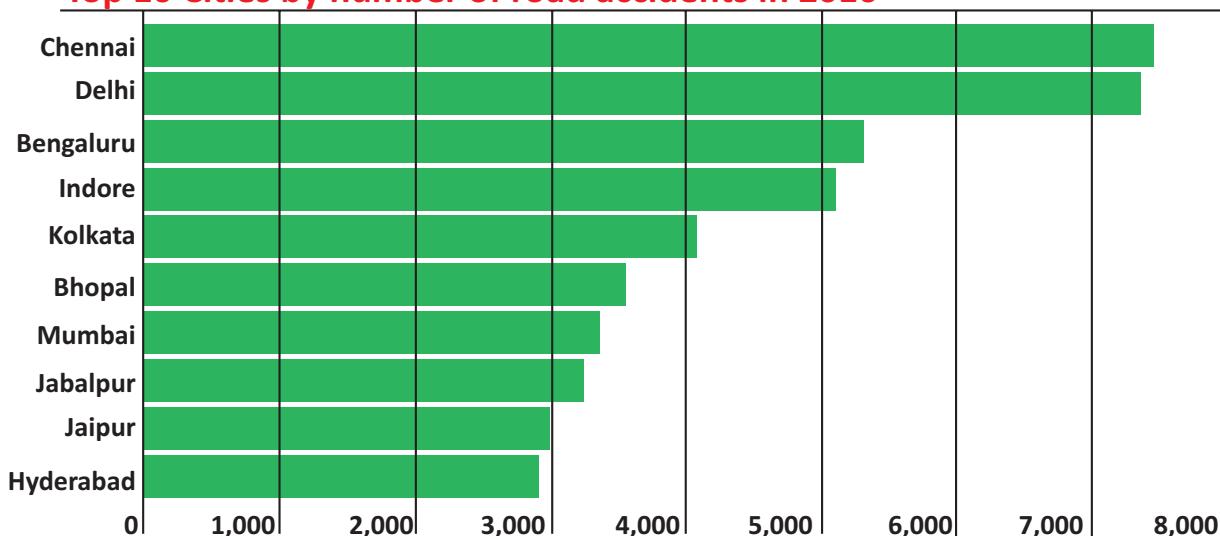


Every three minutes a child is killed in an accident in the world.

The main causes of death by road accidents include

1. Drunk and drive (40%), speeding (24%), car boom in India (16%), inefficient law enforcement (15%) and less use of helmets and seat belts (5%)
2. Distractions to Driver
3. Red Light Jumping
4. Overtaking in a wrong manner

### Top 10 Cities by number of road accidents in 2016



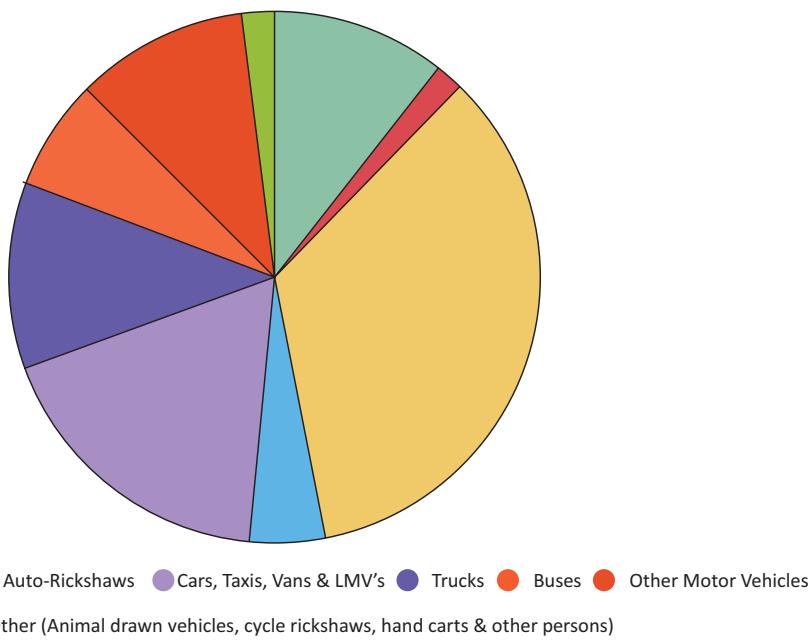
Source: Accidents India 2016 report

### DIFFERENT FACTORS TO ROAD ACCIDENTS:

- Drivers:** Over-speeding, rash driving, violation of rules, failure to understand signs, fatigue, alcohol
- Pedestrians:** Carelessness, illiteracy, crossing at wrong places, jaywalkers
- Passengers:** Projecting their body parts outside vehicles, talking to drivers, alighting and boarding vehicles from the wrong side, travelling on footboards, catching a running bus etc.
- Vehicles:** Failure of brakes or steering, tyre burst, insufficient headlights, overloading
- Road Conditions:** Potholes, damaged roads, eroded roads merging of rural roads with highways and illegal speed breakers
- Weather conditions:** Fog, snow, heavy rainfall, wind storms, hail storms.



## Break-up of persons killed by road use category in 2016



Source: Accidents India 2016 report

**Look at the diagram given above and answer the following.**

- Which road use category causes the highest number of deaths? Could you give any three possible reasons? What would you suggest as the related safety rules?
- How could pedestrians save themselves from road accidents?

### **Direct Consequences of Accidents:**

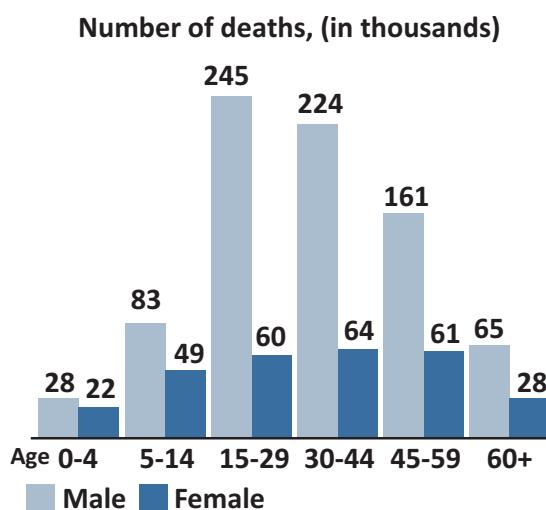
- 1 Fatality (Death)
2. Injury
3. Damage to Property

### **Preventive measures for accidents:**

1. Education and awareness about road safety
2. Strict enforcement of law
3. Engineering:
  - (a) Vehicle design
  - (b) Road infrastructure

**DO YOU KNOW?** The chances of death by accident can be decreased by 51% with the proper use of seat belt and helmet.

## Road Traffic Deaths Worldwide by Sex and Age Group, 2002



Source: WHO Global Burden of Disease Project, Version 1 (2002).

Look at the above diagram carefully and answer the following.

1. Which age group tops the number of road traffic deaths worldwide? Why?
2. Give some inference on the striking difference between the number of road accident deaths of males and females.



## Rules to Ensure Road Safety for children

It is important for children to know about road safety rules and regulations. Here are a few basic road safety rules for children:

1. Know Your Signals
2. Stop, Look and Cross
3. Pay Attention – Listen
4. Don't Run On Roads
5. Always Use Sidewalks
6. Never Stick Hands outside the Vehicle
7. Never Cross Road at Bends
8. Don't Rush
9. Keep left
10. Crossing at zebra line.



### Exercise

#### I Answer the following:

1. What are the benefits of wearing helmet while driving?
2. List out the factors of road accidents.
3. Which colour in the signal means 'stop'?
4. List out any three road safety rules:

#### II Answer in detail.

1. Explain the factors involved in road accidents.
2. Explain in detail: The road safety rules.



## III. Activities

### Road Safety Games & Activities

Play is one of the best ways to make children learn important things. A few road safety tips will help the children learn about road safety.

1. **Crosswords** are excellent learning tools for older students. You can find road safety education crosswords for online.
2. **Play guessing games** play noises or sounds that they are likely to hear on the street and ask them what it is.
3. **Red Light, Green Light** Have the children run around and someone yells out, 'red light' and the children have to stop what they are doing until they hear 'green light'.



### REFERENCES

1. Dinesh Mohan, 'Road Safety in Less-Motorized Environments: Future Concerns', *International Journal of Epidemiology* 31, No. 3 (2002)
2. Christopher J.L. Murray and Alan D. Lopez, eds., *The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries and Risk Factors in 1990 and Projected in 2020* (Boston: Harvard School of Public Health, 1996).
3. Courtesy:- *Ministry of Road Transport & Highways*, Government of India



### GLOSSARY

<b>Abandoned</b>	Left
<b>Allocation</b>	An amount of a resource assigned to a particular recipient
<b>Amendment</b>	Changes made to an existing law
<b>Autonomy</b>	Self governing
<b>Cantonment</b>	A military garrison or camp
<b>Clusters</b>	A group of similar things or people
<b>Conceptualisation</b>	The action of forming a concept
<b>Compensation</b>	Amount awarded to someone for injury or loss
<b>Community</b>	A group of people living in the same place of having particular characteristics in common.



<b>Consensus</b>	General agreement on an issue
<b>Constituency</b>	A group of voters in a specified area who elect a representative to a legislative body.
<b>Decentralisation</b>	The transfer of authority from central to local government
<b>Democratic</b>	The government is elected by its citizens.
<b>Despotism</b>	Exercise of absolute power
<b>Dignitaries</b>	Persons considered to be of high rank or office
<b>Dissolution</b>	Formally ending or dismissing an assembly
<b>Executive</b>	Having to do with carrying out laws
<b>Ethnicity</b>	Belonging to a particular social group
<b>Fundamental</b>	Basic
<b>Government</b>	The group of people with the authority to govern a country or state; a particular ministry in office.
<b>Grass root level</b>	The most basic level
<b>Intervene</b>	Get involved
<b>Judicial</b>	Relating to the administration of justice
<b>Judiciary</b>	The judges of a court considered as a group
<b>Legislature</b>	Law making body
<b>Monarchy</b>	A form of government in which a single person is the hereditary head of the state
<b>NOTA</b>	The people in a democratic country are not willing to elect any candidate; they can vote for the option called NOTA (None Of The Above).
<b>Onslaught</b>	A fierce attack
<b>Pressure groups</b>	A group of people who are organised actively for promoting and defending their common interest.
<b>Pursuant</b>	Following
<b>Representatives</b>	A person chosen or appointed to act or speak for another or others.
<b>Republic</b>	The head of the state is elected directly or indirectly.
<b>Racial</b>	Related to a race of people
<b>Rejuvenated</b>	Restore
<b>Remedy</b>	Solution to an issue /problem
<b>Revitalisation</b>	To give new life
<b>Revived</b>	Re-establish
<b>Rigid</b>	Hard to change
<b>Secular</b>	Freedom to practice any religion or reject all.
<b>Self-Government</b>	A system in which the citizens rule themselves
<b>Slaughter</b>	Killing of animals for food
<b>Sovereign</b>	Free from the interference or control of any foreign power.
<b>Socialist</b>	Providing social and economic equality to all citizens.
<b>Tier</b>	A series of levels of a structure placed one above the other
<b>Trafficking</b>	Carry forcefully from a place to another.
<b>Victim</b>	A person who gets harmed
<b>Voluntary</b>	Done of one's own free will



# **STANDARD NINE**

# **ECONOMICS**



## UNIT

1

# Understanding Development: Perspectives, Measurement and Sustainability



## Learning Objectives

- To know the meaning of development from different perspectives
- To know the indicators of economic development
- Understand the meaning of economic development
- To know the policies for sustainable development



J3ZH5C

### Introduction

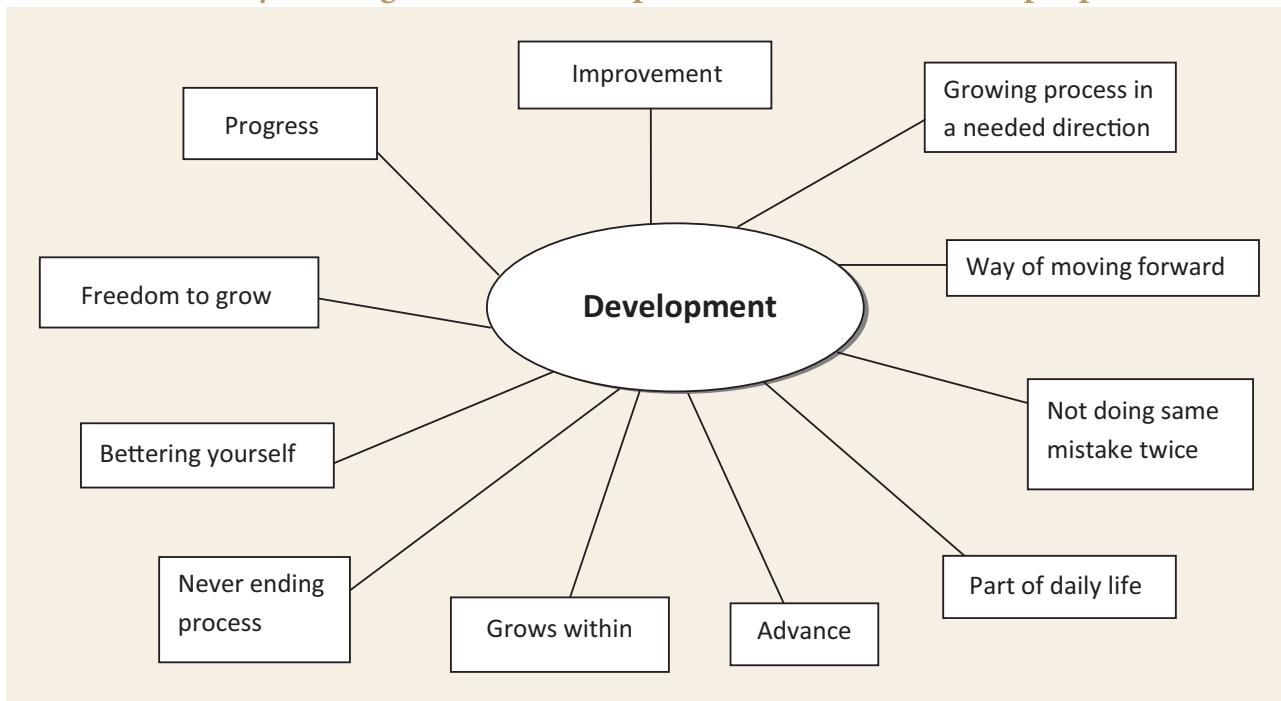
The word 'development' is used widely. It refers to the progress of a particular field or a particular person. Similarly, the economic progress of a country is known as 'economic development'. However, the interpretation of the concept development keeps on changing from time to time, from person to person and its meaning gets extended further.

#### 1.1

### Different Perspectives About Development

Every human being has an ambition or desire of his or her own to achieve progress in life. Similarly, we have ideas about how a country should progress. If our thinking turns towards progress and about the ways to achieve the many goals for progress, it leads to development.

Let us try to imagine what development means to different people.





From the above diagram, you will notice that other than income, people seek freedom to grow on their own. Thus, development refers to the improvement in quality of life such as higher income, better education, better health and nutrition, less poverty and more equal opportunity.

The term 'economic development' refers to the overall growth of all sectors of the economy by adoption of new technologies. Economic development improves the living standards of the people as well as the status of the country.

## 1.2 Indicators of Economic Development

The major indicators to measure the level of economic development are Net National Product (NNP), Per Capita Income (PCI), Purchasing Power Parity (PPP) and Human Development Index (HDI).



Final money value of total goods and services produced within the geographic boundaries of a country during a specified period of time, normally a year is known as Gross Domestic Product (GDP).

### Net National Product

The Net National Product (NNP) is considered as a true measure of national output. It is also known as national income. A rise in per capita income means an increase in aggregate real output. Hence, this is a better indicator than national income for measuring development.

For measuring a country's development, its income is considered to be one of the most important factors. Countries with higher income are considered to be more developed than those with lesser income. So, income itself is considered to be one of the indicators of economic development.

### Per Capita Income

However, for comparing the development of various countries, total income is not satisfactory measure. Since countries have different populations, comparing total income will not be suggestive of what an average person is likely to earn, as people in one country are better off than others in a different country? The average income is calculated by dividing the country's total income by its total population. The average income is also called per capita income. Calculations on the per capita income of all countries are calculated only in the US dollar in order to compare International level.

#### Per Capita Income



According to the World Bank report, new income measurements of countries are classified as below (2017–18)

S. No.	Types of Countries	Per Capita Income (US Dollar)
1	Low Income	< 1005
2	Lower Middle Income	1006–3955
3	Upper Middle Income	3956–12,235
4	High Income	> 12,235

Source: [www.worldbank.org](http://www.worldbank.org)

### Purchasing Power Parity

Purchasing power parity is defined as the number of units of a country's currency required to buy the same amount of goods and services in the domestic market as one dollar would buy in the US.

The technique of purchasing power parity allows us to estimate what exchange between two currencies is needed to express the accurate purchasing power of the two currencies in the respective countries. Recently, India became the third largest



economy in terms of PPP. China became the largest defeating the US to the second position.

## Human Development

Human resource is necessary for the progress of any country. The term 'human resources' refers to the collective abilities of people, which can be utilised in the production sector.

Human resource development means the development of a person's physical and mental abilities through education, health care and training. Therefore, investment in education and health of people can result in a high rate of returns in the future for a country. For example, if a child is invested with good education and health, he or she may turn to be very productive in future in the form of higher earnings and greater contribution to the society. Human Development Index (HDI) Which indicates all round development of the people in the society.

In the past, economists believed that the rate of economic growth of nations could be increased only by increasing investment in physical capital. But they have realised over time that investment in human capital is as important as investment in physical capital.



J5G5RB

## 1. 3 Sustainability of Development

Sustainable economic development is taken to mean development without damaging the environment and not compromising with the needs of the future generation.



The consequences of environmental degradation do not respect to national or state boundaries. Sustainability of development is comparatively a new area of knowledge in which scientists, economists, philosophers and other social scientists are working together.

Natural resources can be divided into renewable resources and non-renewable resources.

Renewable resources are replenishable. eg. Solar energy

Non renewable resources are non replenishable eg. Coal, Petroleum.

Groundwater is an example of a renewable resource. The question arises as to how sustainable development is possible if the resources are over-used rather than getting replenished. Non-renewable resources get exhausted after certain number of years of extracting and using them and they cannot be replenished.



The Ministry of Human Resource Development is responsible for the development of human resources in India. Its headquarters is situated at Shastri Bhavan in New Delhi.t



Literacy rate of Tamil Nadu is the second highest among the southern states. Tamil Nadu's literacy rate is higher than the national average.

The enrolment for higher education in Tamil Nadu is the highest in India.

### What is HDI?



Life  
Expectancy  
at Birth



Average  
Education  
Levels  
+  
Adult Literacy  
Rates



Standard of  
Living  
(GNI/capita  
PPP)

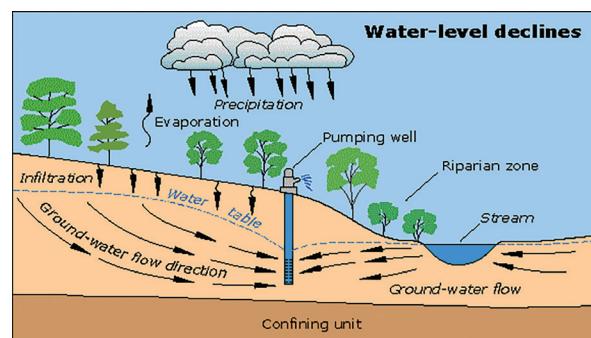
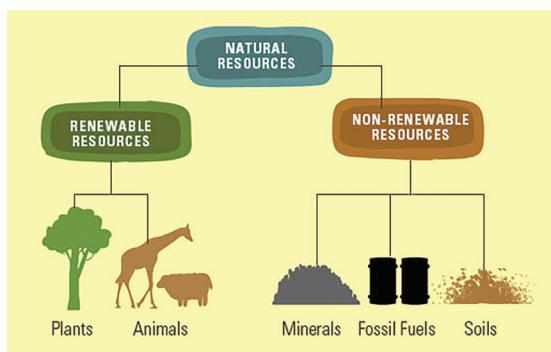
To achieve real sustainability, we need to balance economic, social and environmental sustainability in equal harmony.

In general, the question of development or progress is continuous. At all times, as a member of society and as individuals, we need to ask where we want to go, what we wish to become and what our goals are.



S. No	Parameter	States						Tamil Nadu	India
		Andhra Pradesh	Karnataka	Kerala	Gujarat	Uttar Pradesh			
1	Literacy Rate % (2011)	67.02	75.36	94	78.03	69.72	<b>80.09</b>	<b>74.04</b>	
2	Sex Ratio (Females per 1000 Males) (2011)	993	973	1084	919	912	<b>996</b>	<b>943</b>	
3	Enrolment in Higher Education% (2015–16)	30.8	26.1	30.8	20.7	24.5	<b>44.3</b>	<b>24.5</b>	

Source: Niti Aayog



### Renewable resources

Renewable resources are replenishable resources are pollution free and environment friendly. These resources take a short time for renewal. Example: Solar energy, wind energy, water, wood, paper.

### Non-renewable resources

Non-renewable resources are non-replenishable resources pollute and damage the environment. Million of years are needed for the formation of these resources. Example: Metals, glass, fossil fuels (coal, petroleum, natural gas, diesel)

## 1.4 Policies for Sustainable Development

### Use of Non-conventional Sources of Energy

India depends on thermal and hydro power plants to meet its power needs. Both

these sources have an adverse environmental impact. Thermal power plants emit large quantities of carbon dioxide, which pollute the environment.





## Solar Power in India

Solar power is the conversion of energy from sunlight into electricity either directly using photovoltaic cells or indirectly using concentrated solar power. Solar panels absorb the sunlight as a source of energy to generate electricity. A solar electric system can reliably produce electricity for our home and offices. These distributed solar systems are often installed by home and business owners to reduce their electricity costs. Solar power in India is a fast-developing industry.

Tamil Nadu is the state with highest installed solar capacity in India. Tamil Nadu is one of the leading solar power producing states in India. As on 31 July 2017, the total installed capacity in Tamil Nadu is 1,697 MW.



## 1.5 Environmental Policies in India

Environmental policies in India have been evolved considerably over the past three decades. These policies have covered a wide range of issues such as air, water pollution, waste management and biodiversity conservation.

India faces challenges in economic development, which has to be achieved with limited resources, minimum externalities and in the presence of an uncertain climate. One of the approaches to overcome this challenge is through the path of sustainable development.

The Supreme Court of India has interpreted and introduced new changes in environmental protection through a series of directions and judgements.

Article 51A(g) of the Constitution states that "it shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures."

Development increases the quality of life. This means that people will have higher incomes, better education, better health and nutrition, less poverty and more equality of opportunity.

### List of Environmental Acts in India

S. No	Act	Action
1	National Green Tribunal Act, 2010	Environmental protection and conservation of forests and other natural resources
2	Biological Diversity Act, 2002	To provide for conservation of biological diversity
3	The Environment (Protection) Act, 1986	Providing for the protection and improvement of the environment.
4	Forest (Conservation) Act, 1980	Check deforestation and encourage afforestation of non-forest areas.
5	Water (Prevention and control of pollution) Act, 1974	Provides maintenance and restoration and quality of all types of surface and groundwater.
6	Wildlife Protection Act, 1972	Providing protection to wild animals and birds.



## The Growth Story of Tamil Nadu

Tamil Nadu is one of the states having achieved rapid progress with a relatively short period, despite it started from appalling levels of poverty, deprivation and inequality.

During the short period, Tamil Nadu much to the consternation of many economists, initiated bold social programmes such as universal midday meals in primary schools and started putting in place an extensive social infrastructure – schools, health centres, roads, public transport, water supply, electricity connections, and much more. Today, Tamil Nadu has some of the best public services among all Indian states, and many of them are accessible to all on a non-discriminatory basis.



Last but not least, there is no evidence that the cultivation of human capability has been at the cost of conventional economic success, such as fast economic growth. Tamil Nadu have some of the highest per capita incomes and lowest poverty rates among all Indian states. Economic growth, in turn, has enabled these states to sustain and consolidate active social policies. This is an important example of the complementarity between economic growth and public support.

**Source:** *An Uncertain Glory* by Nobel laureate **Prof. Amartya Sen**.

### Recap

- Development refers to the progress of a particular field or a particular person.
- Economic development means overall growth of all sectors of the economy.
- The major indicators of economic development are Per Capita Income, Net National Product, Purchasing Power Parity and Human Development Index.
- Human resource is necessary for the progress of any country.
- Sustainable development means development should take place without damaging the environment and preserve it for the future.
- The Wildlife Protection Act 1972 is aimed at protection to wild animals and birds.
- Thermal power plants emit large quantity of carbon dioxide, which is harmful to the environment



### EXERCISE

#### I. Choose the correct answer:



##### 1. Assertion(A):

Development increases the quality of life.

**Reason(R):** People will have higher incomes, better education, better health and nutrition, less poverty.

- a. Both (A) and (R) are true and (R) explains (A)
- b. Both (A) and (R) are true and (R) does not explain (A)
- c. (A) is correct and (R) is false
- d. (A) is false and (R) is true



- 2.** The term 'Human resources' refers to
- investment on poor people
  - expenditure on agriculture
  - investment on assets
  - collective abilities of people
- 3.** For comparing development between countries, their \_\_\_\_\_ is considered to be one of the most important attributes.
- growth
  - income
  - expenditure
  - savings
- 4.** \_\_\_\_\_ is considered a true measure of national income.
- GNP
  - GDP
  - NNP
  - NDP
- 5.** The \_\_\_\_\_ income is also called per capita income.
- average
  - total
  - people
  - monthly
- 6.** Which one of the following country is not a G-8 country
- Japan
  - Canada
  - Russia
  - India
- 7.** Which one of the following country is not a member of SAARC
- India
  - Pakistan
  - China
  - Bhutan
- 8.** **Assertion (A):** The Net National Product (NNP) is considered as a true measure of national output.  
**Reason (R):** It is also known as national income.
- Both (A) and (R) are true and (R) explains (A)
  - Both (A) and (R) are true and (R) does not explain (A)
  - (A) is correct and (R) is false
  - (A) is false and (R) is true
- 9.** **Assertion (A):** Human resource is necessary for the progress of any country.  
**Reason (R):** Investment in education and health of people can result in a high rate of returns in the future for a country.
- Both (A) and (R) are true and (R) explains (A)
  - Both (A) and (R) are true and (R) does not explain (A)
  - (A) is correct and (R) is false
  - (A) is false and (R) is true
- 10.** The Human Development Index (HDI) does not take into account the following dimension in its calculation
- Gender
  - Health
  - Education
  - Income
- 11.** Among the following states which state have the literacy rate (2011) higher than national average
- Andhra Pradesh
  - Uttar Pradesh
  - Tamil Nadu
  - None of these
- 12.** Sex-ratio means
- the ratio between adult-male and adult female in a population
  - the ratio between female and male in a population
  - the relationship between male of female
  - the number of females per thousand males
- 13.** Inter-generational equality is ensured under the process of
- Industrial progress
  - Economic development
  - Sustainable development
  - Economic growth



**14.** Find the odd one

- a. Solar energy      b. Wind energy
- c. Paper                d. Natural gas

**15.** \_\_\_\_\_ is the state with highest installed solar capacity in India.

- a. Tamil Nadu      b. West Bengal
- c. Kerala              d. Andhra Pradesh

**16.** \_\_\_\_\_ resources are those which will get exhausted after years of use.

- a. Natural              b. Renewable
- c. Non-Renewable      d. New

**17.** Thermal plant emits large quantity of \_\_\_\_\_, which pollutes the environment.

- a. Oxygen      b. Nitrogen
- c. Carbon        d. Carbon dioxide

## **II. Fill in the blanks:**

- 1.** Economic progress of any country is known as \_\_\_\_\_
- 2.** The head quarters of HRD Ministry is in \_\_\_\_\_
- 3.** The state having the highest literacy rate in India is \_\_\_\_\_
- 4.** Human Development Report of the world prepared and released by \_\_\_\_\_
- 5.** Groundwater is an example of \_\_\_\_\_ resource.
- 6.** The book *An Uncertain Glory* was written by \_\_\_\_\_

## **III. Match the following:**

1. Development - Wild life Protection Act
2. Human - Renewable resources resource
3. Solar energy - Part of daily life
4. 1972 - Education

## **IV. Give Short answers:**

- 1.** What do you mean by development?
- 2.** What are the indicators of development?
- 3.** Why NNP is not considered as an useful measure to compare a country's development with other countries?
- 4.** Why human resources is considered as the foremost resource of any country?
- 5.** Expand the following: 1. PPP 2. HDI
- 6.** Expand the following: 1. NNP 2. PCI
- 7.** What is 'Solar Power'?

## **V. Answer in detail:**

- 1.** Discuss the policies for sustainable development.
- 2.** Describe in detail about environmental policies in India.
- 3.** Differentiate between renewable and non-renewable resources.
- 4.** Mention any five environmental acts and their action.

## **VI. Projects and Activities**

List the various ways in which the problems of garbage and emissions are being dealt with around the world.

## **VII. HOTS**

Write in detail what kind of environmental problems you face in your locality.

## **VIII. Life Skill**

How is the Per Capita income calculated?



## UNIT 2

# Employment in India and Tamil Nadu



## Learning Objectives

- To know the employment structure in India
- Understand the organised and unorganised sector
- Understand the distinction between public sector and private sector
- Understand the changing employment pattern
- To appreciate the case study format



## Introduction

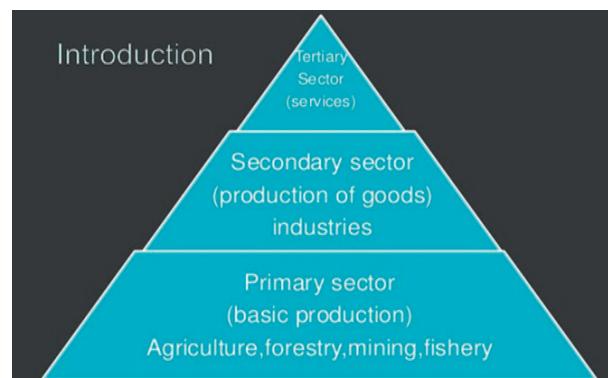
You know the basic needs of every human being are food, clothes and shelter. In the present world, one more essential need has to be added in this list. That is employment. To survive in the world, we all need employment to earn money. Those who are engaged in economic activities, in whatever capacity—high or low – are called employees. People who employ these workers and pay rewards for their work are called the employers.

Labour force of the economy is the number of people in the country who work and also capable of working. We take the age group of 15–60 years for the computation of workforce. Persons who are less than 15 years are considered as children, and person who have crossed 60 years of age are excluded as they are not physically fit to undertake productive occupation. If larger percentage of population is accounted by children and old-age persons, then the progress of the country would be very slow as the working force is very small. Besides, the small working force will have to maintain larger non-working force for feeding out of the small national product.

### 2.1 Employment Structure in India

The nature of employment in India is multi-dimensional. Some get employment throughout the year; some others get employed for only a few months in a year.

The economy is classified into three sectors: primary or agriculture sector, secondary or industrial sector and tertiary or service sector.



Employment Structure

The structure of employment denotes the number of workers engaged in different sectors of the economy. Though the occupational pattern varies from one country to another, one



can find in developing countries like India that a large work force will be engaged in primary sector, while a small proportion in secondary and tertiary sectors. Whereas, in well-developed countries, the proportion of workforce engaged in agriculture will be very small and a majority of labour force will be in the industrial and tertiary sectors.

Employment has always featured as an important element of development policy in India.

Employment growth has increased at an average rate of 2% during the past four decades since 1972–73.



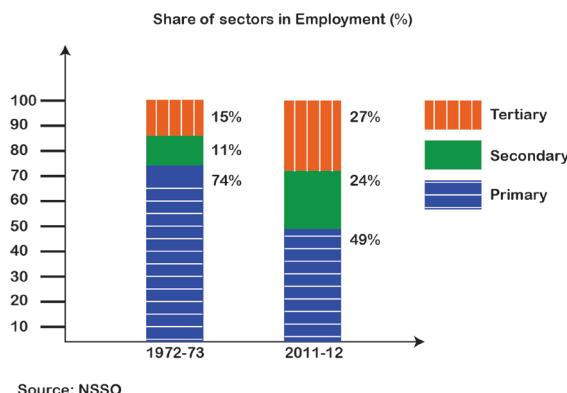
In the medieval period, Feroz Shah Thuglaq, the Sultan of Delhi, had set up an 'Employment Bureau' to solve the unemployment problem.

## 2.2 Types of Employment: Organised and Unorganised Sectors

### Organised Sector

The organised sector is one that is incorporated with the appropriate authority or government and follows appropriate rules and regulations. In short organised sectors are those which are deliberately planned, designed and duly sanctioned by competent authority. They are formal by nature. In India employees of central and state governments, banks, railways, insurance, industry and so on can be called as organised sector. This sector works according to certain rules and regulations given in the law. Organised sector has some formal processes and procedures. The employees in this sector are provided with job security and receive higher wages than those of the unorganised sectors.

Organised sector gives good salary, fixed working hours, paid holidays and provides medical allowance and insurance also.



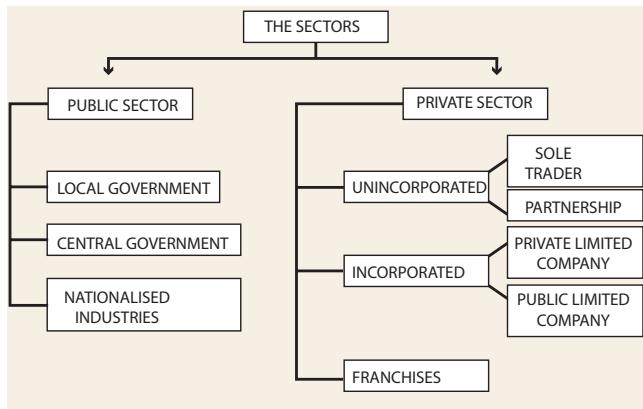
### Unorganised Sector

The unorganised sector of the economy characterised by the household manufacturing activity and small-scale industry. Jobs here are low paid and often not regular. Mostly, they do not have paid leave, holiday, leave due to sickness and so on. Employment is not secure. When there is no work, people are asked to leave the job. This sector includes a large number of people who are employed on their own doing small jobs such as selling on the street, doing repair work and so on.

In the unorganised sector, the employment terms are not fixed and regular. They do not enjoy any special benefits or job security. These enterprises are not registered with the government.

### Public Sector vs Private Sector

Economic activities are classified into public and private sector based on who owns assets and is responsible for the delivery of services.





## Differences between the Public Sector and Private Sector

S. No.	Public Sector	Private Sector
1	Service motive	Profit motive
2	Government owns the assets	Private individuals own the assets
3	Wages are paid by the government	Wages are paid by the owner of private enterprises.

## Examples

Public Sector	Private Sector
NLC	TVS Motors
SAIL	Ashok Leyland
BSNL	TATA Steel

## 2.3 Employment Pattern

In recent years, there has been a change in the employment pattern and this has helped the employers to develop more flexible working patterns among their employees. The trends are (a) increasing self-employment (b) firms using fewer full-time employees and tending to offer more short-term contracts (c) there has been a growth in part-time employment. This may be due to lifestyle of the people.

### Employment Trends in Tamil Nadu

Agriculture, despite a sharp decline in gross domestic product, continues to be the largest employer in Tamil Nadu. This is because the non-agriculture sectors are yet to generate enough employment to affect a shift of labour force. Most of the employment growth in Tamil Nadu has been contributed by the unorganised and informal sectors.

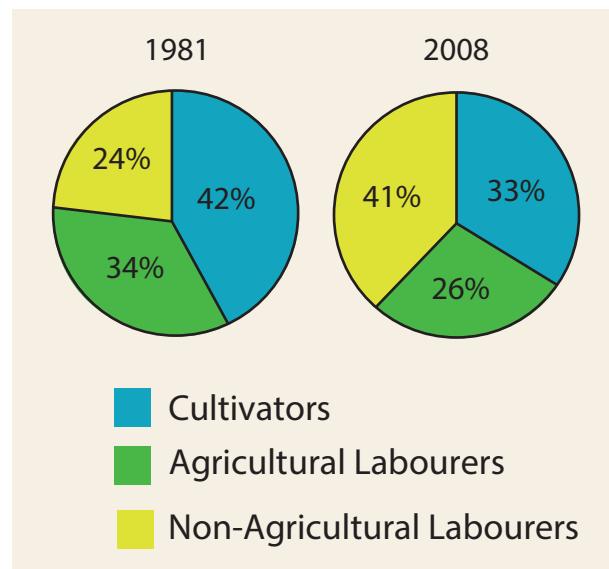
## Employment in Iruvelpattu: A case study

What is happening in the employment scenario can be understood not only from national or state level, but also from the study of the village economy. Iruvelpattu is one such village in Villupuram district in Tamil Nadu. This village has been studied for more than 100 years by many scholars. This village is also called Slater village as Gilbert Slater was the first scholar working in the University of Madras to go with his students to study this village in 1916. Over the years, many scholars surveyed the occupation of villagers and collected many more details of each person in the village.

It was clearly observed that the government brought social security awareness among the people of the village through primary health care, provision of schools and maintenance of public distribution system. Though this village underwent many changes, it is still dependent on agriculture as the main occupation. Look at the following table or chart. You will notice that during 1981, out of 100 families, 24% were engaged in non-agricultural labours. In 2008, the member of families engaged in such employment increased to 41%. During 1981–2008, the proportion of families engaged in agriculture has declined from 34% to 26% – both as agriculture labourers and as cultivators.

### Employment details of households in Iruvelpattu (in%)

Occupation	% of Households	
	1981	2008
Cultivators	42	33
Agricultural labourers	34	26
Non-agricultural labourers	24	41
All households	100	100



## Activity

1. Why did people shift from agriculture to non-agriculture jobs in Iruvelpattu? What could have been the reasons?
2. Do you think it is easy to move from agriculture to non-agriculture jobs? Talk to your teachers and parents and discuss in the class.
3. Collect details of main occupations of 20 families in your locality. Prepare a table or chart as given above and discuss in the class.

## Recap

- Labour force is the number of people in the country who work and also capable of working.
- Structure of employment denotes number of workers engaged in different sectors of the economy.
- The employment growth rate of India increased at an average rate of 2% during past four decades from 1972-73.
- Organised sector provides job security and other benefits like insurance to its employees.
- Public sector means government undertakings.
- Employment pattern changes due to lifestyle of the people.



## EXERCISE

### I. Choose the correct answer:

1. We take age group \_\_\_\_\_ years for computation of the workforce.  
a. 12–60      b. 15–60  
c. 21–65      d. 5–14
2. Which is the correct sequence of various sectors in GDP of India in the descending order?  
a. Primary sector, Secondary sector, Tertiary sector  
b. Primary sector, Tertiary sector, Secondary sector  
c. Tertiary sector, Secondary sector, Primary sector  
d. Secondary sector, Tertiary sector, Primary sector
3. Which one of the following sectors is the largest employer in India.  
a. Primary Sector  
b. Secondary Sector  
c. Tertiary Sector    d. Public sector
4. Which one of the following is not in Primary Sector  
a. Agriculture    b. Manufacturing  
c. Mining          d. Fishery
5. Which one of the following is not in the Secondary Sector?  
a. Construction    b. Manufacturing  
c. Small Scale Industry  
d. Forestry
6. Tertiary Sector include/s  
a. Transport        b. Insurance  
c. Banking          d. All of these
7. Which sector is not included in the occupational pattern?  
a. Primary sector  
b. Secondary sector  
c. Tertiary sector  
d. Private sector





- 8.** Match the List I with List II using the codes given below:

I	II
a. Agriculture, Forestry, Fishery and Mining	1. Unorganised sector
b. Manufacturing, Electricity Gas and Water Supply	2. Service Sector
c. Trade, Transport and Communication	3. Secondary sector
d. Unincorporated Enterprises and Household industries	4. Primary Sector

(A)	(B)	(C)	(D)
a. 1	2	3	4
b. 4	3	2	1
c. 2	3	1	4
d. 3	2	4	1

- 9.** Which Delhi Sultan of medieval India formed 'Employment Bureau' to solve the unemployment problem.

- a. Muhamad Bin Tugluq
- b. Allauddin Khilji
- c. Feroz Shah Tugluq
- d. Balban

- 10.** \_\_\_\_\_ sector is registered and follows government rules.

- a. Agriculture
- b. Organised
- c. Unorganised
- d. Private

- 11.** \_\_\_\_\_ sector provides job security and higher wages

- a. Public sector
- b. Organised sector
- c. Unorganised sector
- d. Private sector

- 12.** Find the odd one

- a. Banking
- b. Railways
- c. Insurance
- d. Small Scale Industry

- 13.** The sectors are classified into Public and Private sectors on the basis of

- a. number of workers employed
- b. nature of economic activity
- c. ownership of enterprises
- d. employment conditions

- 14.** **Assertion (A) :** The unorganised sector of the economy characterised by the household manufacturing activity and small-scale industry.

**Reason (R) :** Jobs here are low paid and often not regular

- a. Both (A) and (R) are true and (R) explains (A)
- b. Both (A) and (R) are true and (R) does not explain (A)
- c. (A) is correct and (R) is false
- d. (A) is false and (R) is true

- 15.** People who employ workers and pay rewards for their work is termed as \_\_\_\_\_.

- a. employee
- b. employer
- c. labour
- d. caretaker

- 16.** \_\_\_\_\_ continues to be the largest employer in Tamil Nadu.

- a. Agriculture
- b. Manufacturing
- c. Banking
- d. Small Scale Industry

## II. Fill in the blanks:

**1.** In \_\_\_\_\_ sector, the employment terms are not fixed and regular.

**2.** Economic activities are classified into \_\_\_\_\_ and \_\_\_\_\_ sectors.

**3.** \_\_\_\_\_ has always featured as an important element of development policy in India.

**4.** Employment pattern changes due to \_\_\_\_\_.

**5.** The nature of employment in India is \_\_\_\_\_.

**6.** \_\_\_\_\_ of the economy is the number of people in the country, who work and also capable of working.

**7.** Publicsector means \_\_\_\_\_



### III. Match the following:

1. Public sector — a. Banking
2. Private sector — b. Poultry
3. Primary sector — c. Profit motive
4. Tertiary sector — d. Service motive

### IV. Give Short answers:

1. What is labour force of the economy?
2. Why are children and old age (above 60 years) are not considered for computation of workforce?
3. What are the three sectors of an economy?

4. Agriculture, despite a sharp decline in Gross Domestic Product, continues to be the largest employer in Tamil Nadu. Give reason.

### V. Answer in detail:

1. Explain: (a) primary sector; (b) secondary sector; (c) tertiary sector.
2. Explain the employment structure of India.
3. Compare the employment conditions prevailing in the organised and unorganised sectors.
4. Distinguish between the Public sector and the Private sector.

### VI. Projects and Activities

1. Make a long list of all kinds of work that you find adults around you. In what way can you classify them?
2. A research scholar looked at the working people in the city of Chennai and found the following:
3. Classify the following list of occupations under primary, secondary and tertiary sectors.

Milk vendor, tailor, teacher, doctor, farmer, postman, engineer, potter, fisherman, artisans, policeman, banker, driver, carpenter.

Primary	Secondary	Tertiary

Place of work	Nature of employment	Percentage of working people
In offices and factories registered with the government	Organised	15
Own shops, office, clinics in marketplaces with formal license		20
People working on the street, construction workers, domestic workers		25
Working in small workshops usually not registered with the government		

### VII. HOTS

Tertiary sector is in top position in the world now. Justify

### VIII. Life Skill

Discuss the sectors of your village economy.



## ICT CORNER

### Employment in India and Tamil Nadu

Explore TNSDC  
to know opportunities  
for various skills



#### Steps:

- Type the URL given (or) Scan the QR Code. Tamilnadu skill development corporation webpage will open.
- Click on the 'List of Training Courses'. Select accordingly in the corresponding boxes. A list of training will appear.
- Click **New Registration** and select 'TNSDC LOGIN' and type your username and password.
- Click '**Downloads**' to get important G.O.'s about skill developments. Click the '**Important Links**' to get other important links.

The screenshot shows a search interface for training courses. It includes dropdown menus for Sector (Select Sector), Available Trade (Select Trade), and District (Select District). Below these are search filters for Show (Select), Duration (Select), Sector (Select), Duration (Select), Training Provider Name & Address, Contact Person & Name, and Apply. A table lists three courses:

S.No	Course Name	Sector	Duration(Day(s))	Training Provider Name & Address	Contact Person & Name	Action
1	Geofence course in GST	IT /ITES	45	ELECTRONIC CORPORATION OF INDIA ECT South Zone Office Pengal Building,5/2 Jeyam Road, Madurai - 625009.	Mr. S. Venkatesan 9440594719	Register & Apply
2	Certification Course in Embedded Systems	IT /ITES	45	ELECTRONIC CORPORATION OF INDIA ECT South Zone Office Pengal Building,5/2 Jeyam Road, Madurai - 625009.	Mr. S. Venkatesan 9440594719	Register & Apply
3	Fruit Cultivation	AGRICULTURE	30	Vijayalakshmi Jayaram Puram Sri Saranya Adyar, Thiruvannamalai, Tamil Nadu - 606002.	D Srivaran 9796931122	Register & Apply

Step1

The screenshot shows a login window titled 'LOG IN'. It has fields for 'Username' and 'Password', a 'Captcha' field containing '06g3', and a 'Login' button. Below the fields is a link 'Forgot your password?'.

Step2

The screenshot shows the TNSDC homepage. It features a banner with the text 'TAMIL NADU SKILL DEVELOPMENT CORPORATION' and 'SKILL FOR PROSPERITY'. The main content area includes sections for 'WELCOME', 'VISION', 'MISSION', 'NOTES & EVENTS', and 'G.O. NOTIFICATION'. A sidebar on the left lists 'CANDIDATES/TRAINEES', 'TRAINING PROVIDERS', and 'PRIVATE EMPLOYERS'.

Step3

#### Timeline Project's URL:

<https://www.tnskill.tn.gov.in/>





## UNIT 3

# Money and Credit



## Learning Objectives

- To know about the Barter system
- To understand about money and various transaction of money
- To know about the role of RBI
- To understand about the various types of credits and beneficiaries



## Introduction

This chapter deals with the evolution of money over the years and its functions. It also elucidates on the role of the Reserve Bank of India. It throws light on Foreign Exchange, monetary aggregates and forms of credit. It further explains how technological advancements have made banking easy and swift in today's world.

Almost all things used by man have a monetary value. In addition to that, the pay given for labour, wages and services are all fixed on the basis of money. The taxes and duties are also paid in the form of money. We would have seen our parents planning the expenses at our home every month. The monthly income, pending expenditure, savings, payment of interest etc., are all measured in terms of money.

Not only at homes, but also the budgets of a country or states are also framed on the basis of money. The Government, as well as, private institutions and industries calculate their financial status through money. Thus, money

plays a predominant and inseparable role in all our lives.

### 3.1 Barter System

If there arises a question, "Has man always used money?", the answer would be 'no'. How? when did money enter into the lives of men? In this lesson, let us learn about the evolution of money over the years.

Ancient man hunted and gathered food. He lived in caves and forests. In later stages, he invented weapons for hunting and gathering food. Later, he invented fire and learnt to practise agriculture. He used mud to build houses and settle down in a place. and also to make earthenware.

When the agricultural yield was high, they made handicrafts. When there was surplus in agricultural produce and other articles like earthenware, they exchanged it with people who needed them. For example, if a community had excess food stuff, they would exchange that with



those who had excess pots. Likewise, when a particular grain grew in abundance in a region, it was exchanged for a different crop in another region. These articles which were exchanged through barter system can be termed as the first form of trade.

## 3.2 Coins

The barter system flourished wherever civilizations thrived. This system was active not only within a civilization, but also among civilizations. This was the initial form of international trade.

During archaeological excavations in Egypt and Iraq (Mesopotamia), articles used during the Indus valley civilization were excavated.



As years went by, there were issues found in barter system. For example there were problems in the exchanging needed goods. A person who had paddy was in need of earthenware for instance. But, the person who had pots and other utensils was not in need of paddy. Thus, the needs of many people were not fulfilled. Measuring the quantity and value of the goods exchanged were found very difficult.

To solve these issues, they fixed a common item with a standard value, for the effective exchange of goods. It was usually in the form of some metal. Metals were rare to find and could be maintained for a long time and never lost their value. Hence, the metals can be termed as the first form of money.



During his rule(1540-1546) Sher Shah Suri set up a new civic and military administration and issued a coin of silver weighing 178 grams, which was termed the Rupiya. The silver coin remained in use during the Mughal period, the Maratha era and in British India as well.

These may be the reasons why metals were chosen. Gold, silver and copper were the metals used first. They were called ancient currency. Leather, beads, shells, tobacco, salt, corn and even slaves were exchanged as barter, says economists.

The later Cholas allowed the traders to have their own army. Historical evidences state that during this period, small traders and producers gave credit to the Tamil traders to support their export needs.

## 3.3 Natural Money

The metals such as silver and gold gained importance gradually all over the world. So, these metals were used as standard value in the exchange of goods. This was called as natural money.

## 3.4 Paper Money

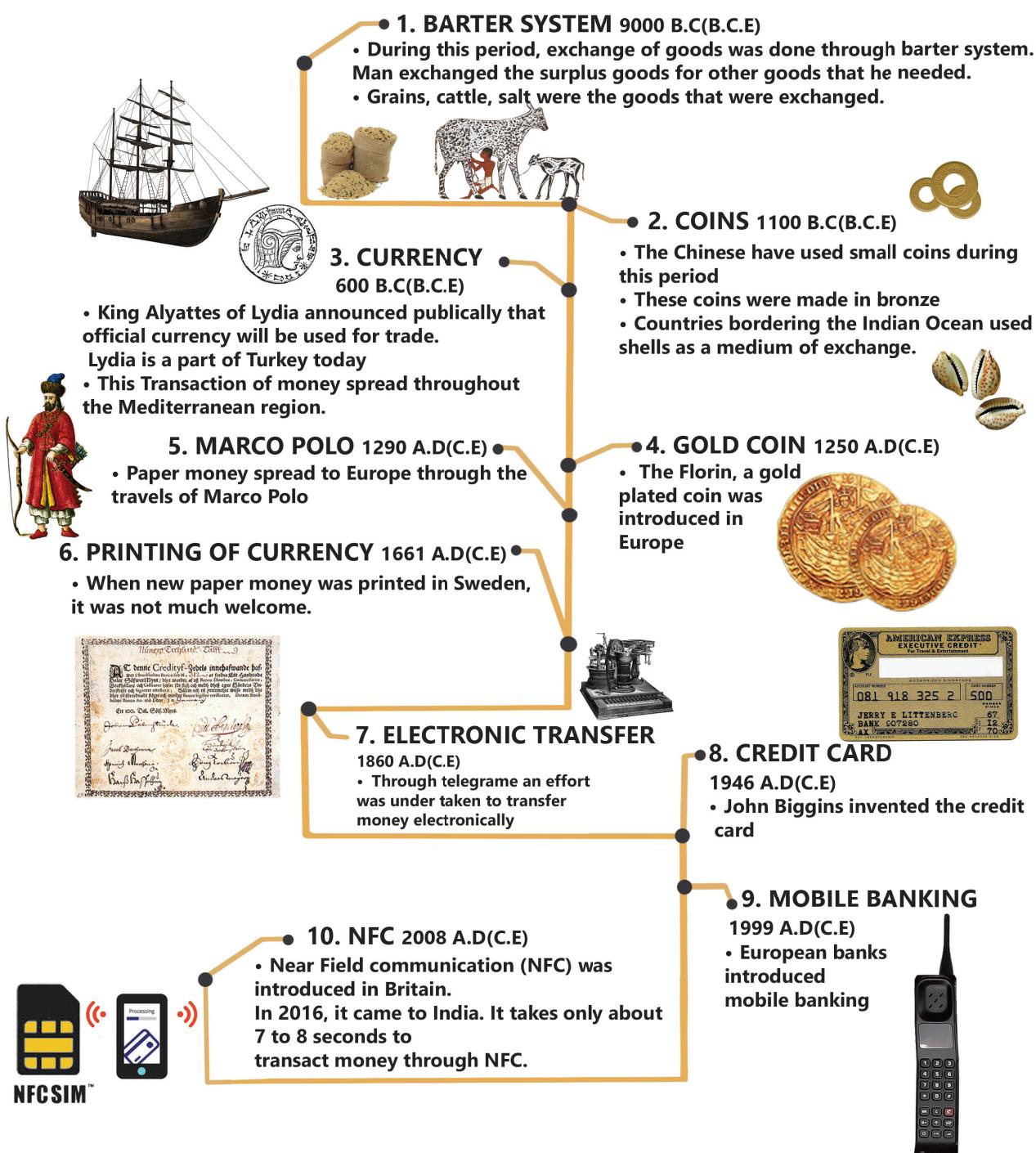
As days went by, issues arose because while trade prospered, there were insufficient reserves of gold and silver. Mines also had a limited reserve of these metals. An alternative was found and coins were made using metals with lesser value. These were used to buy and sell goods of lesser value. It was used as the money of the poor people.

Hence these coins were printed in large numbers. Paper money came into being as the next stage. This money was without form and people started saving in banks. The Great Economic Depression was also prompted the saving habit of the people.

Money has become an inseparable part of everyone's life today. It has changed its form in the economic front. Money transactions are done through many ways in the electronic world



# HISTORY OF MONEY





### 3.5 Electronic Transactions

One has to visit the bank and fill in a challan or produce a cheque to withdraw money from his account.

Now this practice is gradually vanishing. Instead, one can easily withdraw the necessary amount from an Automated Teller Machine (ATM), with the help of an ATM debit card. One can easily withdraw the money needed at any time at ATMs located everywhere. A person can deposit money in their account without visiting the branch.

- Similarly, credit cards are also available, through which things are bought on credit and the amount can be paid later.
- Nowadays, instead of using cheques or Demand Drafts (DDs), online transactions through net banking are carried out. Through this, money is transacted to anyone who lives anywhere across the globe.
- Technology has advanced so much that even mobile banking is widely used nowadays.



### 3.6 Role of the Reserve Bank of India

A government has the responsibility to regulate money supply and oversee the monetary policy. Hoarding of money must be avoided at all costs in a country's economy. Only then money can be saved in banks.

A major portion of the savings in banks are used for the development of industries, economic growth and various development schemes for the welfare of the poor.



All the major and important banks were nationalised (1969) in India. The Reserve Bank of India (RBI) regulates the circulation of currency in India.

The Reserve Bank of India started its operations on 1st April 1935. It was permanently moved to Mumbai from the year 1937. RBI was nationalised in 1949. 85% of the printed currency is let for circulation. According to the statistics available as on August 2018, currency worth of 19 lakh crore are in circulation. (source - Reserve Bank of India)

**DO YOU KNOW?**

Dr. B.R. Ambedkar's Ph.D. thesis on 'The Problem of the Rupee - Its origin and solution' was the reference tool and provided guidelines for the Reserve Bank of India Act of 1934.



## 3.7 Relationship between Money and Prices

There is a close relationship between volume of circulation money and the price of things. 90% of the products are manufactured with the main aim of sales or meant for services. Growing crops and production are done on a commercial basis, rather than on a subsistence level. This phenomenon also increased the importance of the market and money.

The relationship between money and price is connected with the Monetary policy.

There is a close relationship between the growth of money supply and inflation. Price controls play a very important role in a country's economic stability. This role is played by the Central Bank of our country, RBI in India.

Currency is the medium of exchange in a country. The Indian currency is called the Indian Rupee (INR). In a country the foreign currency is called foreign exchange.

Purchasing capacity of all currencies in the world are compared using the US dollar as the standard currency. This value differs from country to country. Most of the international trade transactions are carried out in US dollar.



### Activity

#### Bank

- Set up your classroom like a bank.
- With the help of your teacher, act as a Cashier, Branch Manager, Assistant Manager, customers etc.
- Prepare dummy challans for deposition of money, cheques, Demand Draft etc.
- Do the banking activities

## 3.8 Functions of Money

When money replaced the barter system, a lot of practical issues were solved. Money acts a medium of exchange, a unit of measurement, a

store of value and a standard of deferred payments. It plays an important role in transactions.

Country	Currency
India	Rupee
England	Pound
European Union	Euro
Canada	Dollar
Japan	Yen
China	Yuan
Saudi Arabia	Riyal
Australia	Dollar
Malaysia	Ringgit
Pakistan	Rupee
SriLanka	Rupee

### Activity

#### Foreign Exchange

Let the teacher bring copies of Indian rupees and foreign currencies. Distribute the foreign currencies to pairs / groups. Let the students convert it into Indian rupees and collect the equivalent amount of rupees from the teacher. When all groups complete, the foreign currency can be given to another group in the next round.

#### Medium of Exchange

Money should be accepted liberally in exchange of goods and services in a country.

#### Unit of Account

Money should be the common, standard unit of calculating a country's total consumer goods, products, services etc. For example, if a book costs ₹ 50, it means that the price of the book is equal to 50 units of money. Money is used to measure and record financial transactions in a country.

#### A Store of Value

Money is used as a store of purchasing power. It can be used to finance future payments.

### Hots

How important is foreign exchange to one's country?



## 3.9 Credit

Farmers avail credit during monsoons for buying seeds, agricultural input and other expenses. Traders and small entrepreneurs need credit for their needs. Even large industries receive credit to take up their new projects.

### Credit is available from:

- Formal financial institutions like nationalised and private banks and co-operative banks
- Informal financial institutions
- Micro credit is received through Self Help Groups (SHG)

As far as nationalised banks and co-operative banks are concerned the interest to credit is comparatively lesser and there is guarantee for the pledged, goods.

### Informal Financial Institutions

Informal financial institutions are easily approachable to the customers with flexible procedures. But there are issues like the safety of items pledged high rates of interest and modes of recovery.

People who live in a particular place or those who are involved in a certain work join together as a group and start saving. These are called as Self Help Groups. The nationalised banks provide help to these groups through micro-credit. Credit given through Self Help Groups for street vendors, fishermen, especially women and the poor really make a difference in their life.

In Tamil Nadu, all the banks have 10,612 branches, across the state. They carry on a total transaction of around 15 lakh crore rupees during the financial year (2017-2018).



### How is currency printed in India?

One rupee and two rupee notes were first printed in India in the year 1917. The Reserve Bank of India is empowered to issue the Government of India notes since 1935. 500 rupee note currency was introduced later. In 1940, one Rupee notes were issued again. Till 1947, the currency notes with the image of King George VI were in circulation. After Independence, the Government of India issued currency notes.

In 1925, the British government established a government press at Nasik in Maharashtra. Currencies were printed three years later. In 1974, a press was started in Dewas, Madhya Pradesh. (Security Printing and Minting Corporation of India Ltd.) In the 1990s, two more presses were started in Mysuru, Karnataka and Salboni in West Bengal to print bank notes.

The Reserve Bank of India has the authority to decide the value of currency to be printed and how the amount should reach its destination safely.

Though the RBI has the power to print up to ten thousand rupee notes, at present a maximum of upto rupees two thousand is printed.

### Recap

- Barter system flourished where civilizations thrived.
- Gold, silver and copper were called ancient money.
- Pepper and spices took a major share of exports.
- Paper money was introduced because metal supply was limited.
- Mobile banking is widely used nowadays.
- A government has the responsibility to regulate the money supply and oversea circulation.
- All the major and important banks are nationalised in India.
- There is a close relationship between money and price.



## Exercise



### I Choose the correct answer

1. Certain metals like \_\_\_\_\_ (gold / iron) were used as a medium of exchange in ancient times.
2. The Head Quarters of the RBI is at \_\_\_\_\_ (Chennai / Mumbai).
3. International trade is carried on in terms of \_\_\_\_\_ (US Dollars / Pounds).
4. The currency of Japan is \_\_\_\_\_ (Yen/ Yuan)

### II Fill in the blanks

1. \_\_\_\_\_ System can be considered as the first form of trade.
2. Money supply is divided into \_\_\_\_\_.
3. The first printing press of the RBI was started at \_\_\_\_\_.
4. \_\_\_\_\_ act as a regulator of the circulation of money.
5. The thesis about money by B.R. Ambedkar is \_\_\_\_\_.

### III Match the following

- |                            |                                 |
|----------------------------|---------------------------------|
| 1. US Dollar               | - Automatic Teller Machine      |
| 2. Currency in circulation | - Substitute of money           |
| 3. ATM                     | - Universally accepted currency |
| 4. Salt                    | - Saudi Arabia                  |
| 5. Riyal                   | - 85%                           |

### IV Give short answers

1. Why was money invented?
2. What is ancient money?
3. What were the items used as barter during olden days?
4. What is spice route? Why was it called so?
5. What is natural money?

6. Why were coins of low value printed in large quantities?

7. What is meant by foreign exchange?

### V Answer in detail

1. Explain how money is transacted in the digital world.
2. Explain in detail about the role of RBI in the country.
3. Write in detail about the various functions of money.

### VI Write the correct statement.

- (a) 1. The barter system flourished wherever civilizations thrived.  
2. This was the initial form of trade.  
i) 1 is correct; 2 is wrong  
ii) Both 1 and 2 are correct  
iii) Both 1 and 2 are wrong  
iv) 1 is wrong; 2 is correct
- (b) 1. Most of the international trade transactions are carried out in US dollars.  
2. No other country except the US carries out trade in the world.  
i) Both the statements are correct.  
ii) Both the statements are wrong.  
iii) 1 is correct; 2 is wrong  
iv) 1 is wrong; 2 is correct

### VII Project and activity

1. Visit a local museum and collect information about the coins displayed there.
2. Imagine you are going abroad for a Post Graduation course in architecture. Write a letter to the Branch Manager regarding an education loan.

### VIII Life skills

1. Observe a 20 rupee note. What is written on it?
2. Prepare a family budget for a month.



## UNIT 4

# Agriculture in Tamil Nadu



### Learning Objectives

- To know about the agricultural activity in Tamil Nadu
- To know the extent of land under cultivation in Tamil Nadu
- To understand the importance of water and irrigation in agriculture
- To know about various crops grown in Tamil Nadu
- To analyse the crop productivity in Tamil Nadu



### Introduction

Most of the people of Tamil Nadu depended on agriculture at the time of independence and even after 40 years of independence. That situation is being changed in the recent years. It has been noticed that the number of farmers in Tamil Nadu has got reduced during the last 10 years according to the 2011 census data. Similarly the number of agricultural workers also reduced during the same period. According to the 2001 census, 49.3% out of the total population of workers were involved in agriculture. The percentage has reduced to 42.1 in the next 10 years. In 2011 there were three crore 29 lakh workers in Tamil Nadu of which 96 lakh were agricultural workers.

In 2011, nearly 55% of the women were involved in agriculture whereas nearly one third (35.3%) of the male population was involved in agriculture during the same year.

### 4.1 Sectors of people involved in agricultural activities

A major portion of the workers involved in agricultural activities are landless labourers. All the land holders do not have the same amount of land. Many have very little land and very few people hold large areas of land.

During 2015-16, there were 79,38,000 cultivators in Tamil Nadu. But five years earlier there were 81,18,000 cultivators. There was a reduction of 1,80,000 cultivators in these five years. Similarly, the area under cultivation also reduced from 64.88 lakh hectares to 59.71 lakh hectares during the same period. That is, the state of Tamil Nadu had lost nearly 1,03,400 hectares on an average during these five years.

Most of the cultivators in Tamil Nadu are micro farmers who cultivate in an area less than



1 hectare. Micro farmers account to around 78% of the total cultivators, while the area cultivated by these micro farmers is just 36%. Small farmers cultivating 1-2 hectares of land cover 14%, while the land cultivated by them is 26%.

Cultivators of schedule caste farmers are only one percent in Tamil nadu. 96% of this one percent are small, micro farmers.

The total land area under agriculture is shrinking fast not only in Tamil nadu, but also throughout India. The number of marginal farmers has increased in India. In contrast, the number of marginal farmers is decreasing in Tamil Nadu. This shows that the farmers are doing other occupations.

## 4.2 Types of land usage

The total geographical area of Tamil Nadu is one crore 30 lakhs and 33 thousand hectares. Out of this only one third of land is used for agriculture (45,44,000 hectare). 17% of the land is used for non agricultural use. Nearly the same size ( 2125 thousand hectares) of land are forests. About 4% of the total land is unusable. One tenth of the land is barren. Other fallow lands are 13 percent. So nearly one-fourth of the land is barren and we have to be concerned of the increasing size of the barren land. Grazing land and cash crops occupy slightly more than 5% of the total land area.

The size of the total cropping land in Tamil Nadu is 4,544 thousand hectare and this keeps on changing every year. Sufficient rains at the proper period will increase this extent of land. Failure or shortage in rainfall leads to the reduction of land usage for cultivation. A small part of this area gives a chance to crop more than once in a year. The extent of this area also

changes every year. This land extent was 9 lakh hectare in next year but was reduced to 6 lakh hectare, due to lack of rainfall. This area will be more or less stable only when there is a stable and reliable water source.

In 2012-13, out of the total cultivated land, nearly 72 percent is used for food crops and the remaining for non-food crops.

## 4.3 Water Resource for Agriculture

There are no perennial rivers in Tamil Nadu. Tamil Nadu receives the required water from the Northeast and Southwest monsoons. When the South West monsoon rains are high in the catchment areas of the Cauvery River in Karnataka dams get filled and in turn the Cauvery river in Tamil Nadu gets water.

The area under irrigation is about 57 percent of the total area under cultivation.

Northeast monsoon (Oct-Dec) is a major source of water for Tamil Nadu. The Northeast monsoon rains are stored in reservoirs, lakes, pond and wells for cultivation. Conventional water bodies like lakes, ponds and canals provide water for agriculture in Tamil Nadu. 2,239 canals run through Tamil Nadu covering a length of 9,750 km. There are 7,985 small lakes, 33,142 large lakes, 15 lakh open wells and there are 3,54,000 borewells in the state where agriculture is carried out with the help of these water resources.

The area of land that is irrigated using water from lakes is very low. Nearly 3.68 lakh hectares of land obtain water from lakes. The canals provide water to 6.68 lakh hectares. Borewells irrigate 4.93 lakh hectares and open wells provide water to 11.91 lakh hectares of land.

Agriculture in Tamil Nadu is dependent mostly on groundwater. Use of ground water for agriculture creates many hardships too. There would be no sufferings if the amount



of water taken from the underground and the amount of water that goes into the underground during the rainy season are equal. On the contrary, as the amount of water taken increases, the ground water goes down resulting in complete dryness or change into unusable water.

The Union Ground Water Board is constantly monitoring the level and nature of ground water.

From this, we come to know that:

1. Tamil Nadu agriculture is dependent on groundwater.
2. It is very urgent and necessary to regulate the usage of underground water.
3. This is very important for sustainable farming.

### Virtual water

The term 'virtual water' was introduced by Tony Allen in 1990.

The water consumed in the production process of an agricultural or industrial product is called 'virtual water'.

It is the hidden flow of water when food or other commodities are traded from one place to another. For instance, it takes 1340 cubic metres of water (based on the world average) to produce one metric ton of wheat. That is, if one metric ton of wheat is exported to another country, it means that 1340 cubic metres of water used to cultivate this amount of wheat is also being exported.

India is the largest global freshwater user. India has been the fifth largest exporter of virtual water in the world



One Drop is equivalent to 50 liters of virtual water

## 4.4 Irrigation and Crop types

### Crops in Tamil Nadu

All cultivated crops can be classified as food crops and non-food crops. 57 percentage of the total land under food grain cultivation is irrigated. In 2014-15, 59 percentage of food crops and 50 percentage of non food crops were irrigated in Tamil Nadu.

The total area of land cultivated in Tamil Nadu was 59 lakh and 94 thousand hectares in 2014-2015. Out of this non-food crops were 76%.

Paddy cultivation is carried out at a large scale of 30 percent cultivated land area and other food crops in 12 percent area. Millets

### Micro irrigation

Micro irrigation technology is a very good remedial measure to tackle shortage in irrigational water. This irrigation technology helps to have a higher yield when compared to the traditional irrigation methods. As only required amount of water is supplied at regular intervals, it increases the ability of water usage and productivity of the crop resulting in reduction of labour expenses and weed growth in the field. As the fertilizer is distributed through water, it increases the usage of fertilizer and the yield. As Tamil Nadu gets insufficient rainfall, the government has taken many measures to implement micro irrigation for proper distribution of water to crops that require more water.





## Different water sources for irrigation

Irrigated area



Wells - 62%



Canals - 24%



Lakes - 14%

are cultivated in a very low percentage of area. Sorghum(Cholam) cultivation in 7 per cent land area, cumbu in one percent and ragi in 1.7 per cent. Other millets occupy 6 per cent in the year 2014 - 2015.

The area cultivatable land changes every year as a result of many factors such as rainfall, availability of water, weather and market prices.



- River Cauvery is the 3rd largest river in South India. Its length is 765 km.
- The dams constructed across Cauvery in Tamil Nadu are Mettur Dam, Kallanai

### 4.5 Decadal growth in agricultural production

The total quantity of foodgrains produced in Tamil Nadu in the year 2014 - 2015 was one crore 27 lakh 35 thousand tonnes. Paddy alone accounted to 80 lakhs tonnes. The contribution of paddy to the total amount of food production is 62%. Maize production was 20%, corn 7%, ragi 3% and another 3% occupied by black gram, while other food crops contributed a very meager amount to the total food production in Tamil Nadu.

The amount of production varies depending on the amount of land being cultivated.

### 4.6 The yield of productive crops

The amount of production depends not only on the area but also on the productivity of crops.

Production capacity of paddy in Tamil Nadu was 4,429 kg per hectare in 2014-2015. This capacity was 3,039 kilograms in 2010-2011 revealing the increase in productivity.

Next to paddy, maize stands second in the production (8,824 kg/hectare).

2,093 kg/hectare corn, 3,077 kgs of rye (cumbu) and 3348 kgs of ragi were produced during the same period.

Black gram, one of the largest cultivated pulses, produced 645 kg per hectare. Production of sugarcane and ground nut (Manila) were 107 tons and 2,753 kg per hectare respectively.

The productivity of crops continues to increase. For example the productivity of paddy in 1965 - 66 was 1,409 kg. It increased to 2,029 kg in 1975-76 and 2,372 kg in 1985-86. It increased to 2,712 kg after a decade. The production was 4,429 kg in the year 2014-15. In the past fifty years, the





productivity of paddy has increased more than three times.

The food grain production capacity, has increased about 3.5 times between 1965-66 and 2014-15.

We find that both the productivity and food production in Tamil Nadu continue to increase. However, the area under food grain cultivation has reduced in the same period. Though there was a reduction in the area of production, the total amount of production has been maintained and there is an increase of productivity.

### Recap

- The number of people involved in agriculture and the land under cultivation is declining in Tamil Nadu.
- While the number of marginal farmers is increasing in India, it is decreasing steadily in Tamil Nadu.
- Out of the total geographical land area, only one percent is under cultivation and one fourth is left fallow.
- Areas with good water facilities can be cultivated upto three times a year.
- South West and North East monsoons are the main sources of water for agriculture in Tamil Nadu. So Tamil Nadu's agriculture is dependent on ground water.
- Crops are divided into food and non-food crops.
- Major food crops of Tamil Nadu are paddy, maize and ragi. Coconut stands first in non-food crops.
- Recent researches show that the productivity of crops is steadily increasing.



### Exercise

#### I. Choose the correct answer



1. Irrigated land surface out of cultivable land is.  
a) 27%      b) 57%      c) 28%      d) 49%
2. Out of the following, which is not a food crop  
a) Bajra      b) Ragi  
c) Maize      d) Coconut
3. The productivity of paddy during the year 2014-2015  
a) 3,039 kg      b) 4,429 kg  
c) 2,775 kg      d) 3,519 kg
4. Both agricultural productivity and food productivity has  
a) decreased      b) not stable  
c) remained stable      d) increased
5. The North-East monsoon period in Tamil Nadu  
a) August – October  
b) September – November  
c) October – December  
d) November – January

#### II. Fill in the blanks

1. The major occupation of people in Tamil Nadu is \_\_\_\_\_
2. Tamil Nadu receives rainfall all from the \_\_\_\_\_ monsoon.
3. The total geographical area of Tamil Nadu is \_\_\_\_\_ hectares.



### III. Match the following

1. Non-food crops - 79,38,000
2. Dhal - less than 1 hectare of cultivable land
3. North east monsoon - October – December
4. Small farmers - Urad Dal, Toor Dal, Green grams
5. No. of farmers in 2015-2016 - Coconut, Channa

### IV. Give short Answers

1. Give two examples for each food crop and non-food crops
2. What are the factors responsible for the changes in cropping area?
3. Who monitors the quantity and quality of ground water?

4. On what factors does crop cultivation depend? List out the factors on which crop cultivation depend.

5. Differentiate between small and marginal farmers.

### V. Answer in Detail

1. Give a note on the water resources of Tamil Nadu
2. What are the problems faced by using ground water for agriculture?
3. Discuss about the source of irrigation for agriculture.

### VI. Activity

1. Analyse the cultivation of food crops and non-food crops of your village / area.
2. Thanjavur is famous for which crop? Why is it so? Research.
3. Collect statistical data, where paddy is being cultivated at Thanjavur District, which is called the Nerkalanjum of Tamil Nadu.



### ICT CORNER

## AGRICULTURE IN TAMIL NADU

Through this activity you will know about agriculture process of Tamil Nadu people



### Procedure

- Step – 1 Open the Browser and type the given URL (or) Scan the QR Code.
- Step – 2 “Vivasayam” page will appear on the screen.
- Step – 3 Click Search Options to know any information agriculture news, Government Loan etc.,
- Step – 4 Click “Velanmai” to know about history of Tamil Nadu agriculture.

### URL:

<https://play.google.com/store/apps/details?id=nithra.tamil.vivasayam.agriculture.market&hl=en> (or) scan the QR Code

\*Pictures are indicatives only.



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## UNIT 5

# Migration



### Learning Objectives

- To understand the concept of migration
- To learn about the extent of migration in India and Tamil Nadu
- To analyse the factors underlying migration



## Introduction

### Concept of Migration

In any settlement—village or town—change in population occurs due to birth, death and migration. Of these three components of population change, birth and death is clearly identifiable events while migration poses the maximum amount of problem with regards to its definition and measurement. As almost everyone keeps moving most of the time, it is not easy to define which of these moves have to be classified as migratory moves.

**In the Census of India, migration is enumerated on two bases**

- (i) **Place of birth:** If the place of birth is different from the place of enumeration (known as life-time migrant).
- (ii) **Place of residence:** If the place of last residence is different from the place of enumeration (known as migrant, by place of last residence).

### 5.1 Extent of migration in India and Tamil Nadu

In India, the Census of 2011 enumerated a total population of 121 crores, of which 45 crore people were reported as migrants, according to the definition of the place of last residence. Similarly, in Tamil Nadu out of 7.2 crore people, 3.13 crore people were counted as migrants, in 2011. That is, the percentage of migrants was 37 percent in the country, while it was at a much higher rate in Tamil Nadu at 43 percent.

Generally, one tends to associate migration with urban areas. However, we find that in India as well as Tamil Nadu, the extent of migration is much higher in rural areas compared to urban areas. In 2011, 37 percent of the population are counted as migrants in rural areas while the corresponding percentage in urban India is 27 percent. In Tamil Nadu, migrants account for 41 percent in rural areas



and 35 percent in urban areas, in 2011. That is, the mobility of population in rural areas is greater than that in urban areas.

Further, one usually associates mobility with males rather than females. However, an examination of data clearly indicates that a larger proportion of females are reported to be migrants compared to males. In the country as a whole, 53 percent are female migrants while 23 percent are male migrants, in 2011. In Tamil Nadu, the picture is very similar, with more than half the females (52%) reporting their status as migrants, by place of last residence, and 35 percent are male migrants.

Now, why is there such a large percentage of migration among women? 70 percent in India and 51 percent in Tamil Nadu report marriage as the reason for migration of females in 2011. That is, marriage and the movement associated with marriage appear to be a major factor responsible for women's mobility in India and Tamil Nadu. Movement related to work and employment appears to be the driving force for migration, among men. Of all the male migrants in India, 28 percent report 'work' as the major reason for their migration, in 2011. The corresponding percentage in Tamil Nadu is 26 percent.

To sum up, in Tamil Nadu, two out of every five persons is reported to be a migrant in the year 2011. Incidence of migrants is higher in rural areas and larger among women. Tamil Nadu has a history of migration and people have moved for various reasons such as trade, business, employment etc, to various countries. During the colonial period, labourers had moved to other colonies seeking work and wages. In the more recent period workers from Tamil Nadu have been moving to countries in the Gulf, United States of America and Australia. In 2015, an independent research study was conducted to understand the level, nature and pattern of migration in Tamil Nadu . This study has

made some interesting findings, as discussed below:

- Of the total migrants in Tamil Nadu, 65 percent have migrated or moved abroad while 35 percent have moved within the country.
- Chennai district has recorded the maximum number of emigrants followed by Coimbatore, Ramanathapuram and Tiruchirapalli districts.
- Cuddalore, Karur, Thiruvannamalai, Vellore, Namakkal, Salem, Dindigul, Krishnagiri, Nilgiris and Dharmapuri districts record low number of emigrants.

This study also provides information about the sex and destination of migrants Tamil Nadu.

- Of the total migrants who go to foreign countries, nearly 20% have chosen to go to Singapore, while 18% to the United Arab Emirates, 16% to Saudi Arabia, 13 % to the United States of America; and Malaysia, Kuwait, Oman, Qatar, Australia and England are also referred as important destinations for migrants from Tamil Nadu in the year 2015.
- Of the international migrants, 15 percent are women, while 85 percent are men.

On the question of educational qualifications of migrants from Tamil Nadu, the study reveals that in 2015 about 7 % were illiterates; 30 % have completed Class X; 10 % have completed Class XII; 15 % had undergone vocational training; 11 % were graduates; 12% were professionally qualified and 11 % had Post Graduate degrees.

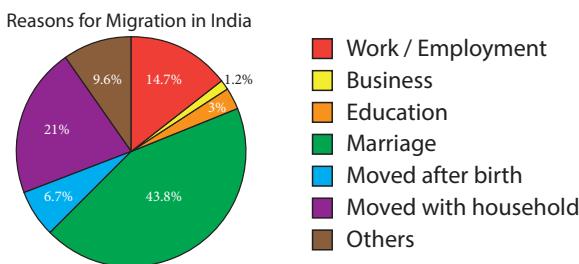
The study clearly reveals various occupations undertaken by the migrants: highly skilled professions on one hand and low skilled occupations on the other, along with a large number of semi-skilled occupations.



## 5.2 Factors underlying migration

The extent and nature of migration in any society is basically determined by the nature of the development process experienced by that society. That is, the type and scale of development achieved by the agricultural and industrial sectors in an economy would determine the migratory patterns.

In India and Tamil Nadu, though the agricultural and industrial sectors have grown over the years, inequalities still exist in asset and income distribution. Endemic poverty continues to be a major problem.



The growth processes have also created spatial inequalities, by leading to enclaves of growth. The migration patterns observed in a developing society such as ours correspond to these inequalities (economic, social, spatial etc) created by the development processes.

Therefore, any migrant stream would consist of heterogeneous sub-streams. For example, if we consider the rural-urban migrant stream, it would comprise of rural rich and the rural poor, each with its own reasons and motivation for migration, the mode of migration,



- The largest migration corridor in the world in 2010 was Mexico – U.S.A.
- The Arctic tern has the longest migration distance of any bird in the world.

the outcome or consequence of migration etc. Poorer sections of the population migrate as a survival strategy, in response to distressing conditions in rural areas. Migrants from better-off sections migrate to improve their living standards.

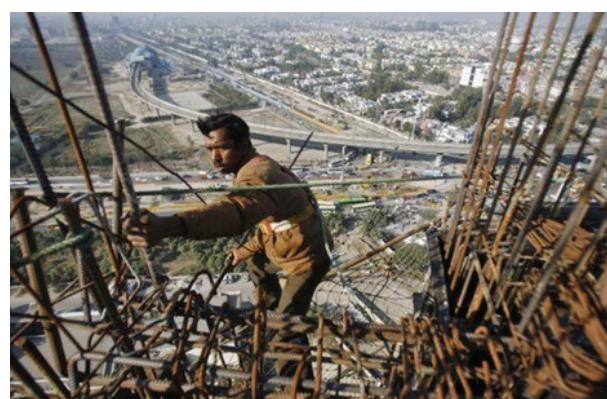
Further, spatially, there would be a tendency for migrants to converge on enclaves of growth—either in urban areas or in rural areas.

The pattern of migration is very complex, comprising of a number of streams:

- rural to rural; rural to urban; urban to rural; urban to urban
- short, medium and long distance migration streams
- long-term stable migration and short-term circulatory types of movements

Each of these streams would consist of different types of migrants, (from different social classes) each with its own reason for migration. The extent and nature of these migrant streams would essentially depend on.

- pressures and aspirations experienced by people at the origin of migration
- constraints imposed on mobility at the origin of migration
- opportunities at the destination and availability of information regarding these opportunities and
- the cost of migration



### Migration for survival



## 5.3 Migration Policies

Policies to address the problem of migration in developing countries like India essentially aim at the following:

- To reduce the volume of migration: As a large part of migration is a reflection of poverty and insecurity faced by large sections of the rural people, the focus of intervention has to be in rural areas. Rural development policies to reduce poverty and insecurity would be essential to reduce the rate of migration.
- To redirect the migrant streams: Redirection of migrant streams, away from big metropolitan cities is a desirable policy option. This policy can help in reducing spatial inequalities by suitable strategies, such as developing a more dispersed pattern of urbanisation.

### Recap

- Change in population occurs due to births, deaths and migration.
- The mobility of population in rural areas is greater than that of the urban areas.
- Marriage is the major factor responsible for women's mobility in India and in Tamil Nadu.
- Occupation is the major factor responsible for male migrants in India.
- The extent and nature of migration in any society is basically determined by the nature of the development process experienced by that society.
- The poorer sections of the people migrate for survival, but migrants from better-off sections migrate to improve their living standards.



### Exercise



#### I. Choose the correct answer.

- According to the 2011 census, the total population of India was \_\_\_\_\_.  
a) 121 crore      b) 221 crore  
c) 102 crore      d) 100 crore
- \_\_\_\_\_ has recorded the maximum number of emigrants.  
a) Ramanathapuram      b) Coimbatore  
c) Chennai      d) Vellore
- During 2015, \_\_\_\_\_ of illiterates were migrants from Tamil Nadu.  
a) 7%      b) 175%      c) 23%      d) 9%
- The poorer sections of the population migrate \_\_\_\_\_.  
a) as a survival strategy  
b) to improve their living standards  
c) as a service  
d) to get experience

#### II. Fill in the blanks.

- Migration is enumerated on \_\_\_\_\_ and \_\_\_\_\_ bases.
- The mobility of population in rural areas is \_\_\_\_\_ than urban areas.
- In rural India, as per census 2011, \_\_\_\_\_ percent of the population are counted as migrants.
- \_\_\_\_\_ is the major reason for female migration.
- Any migrant stream would consist of \_\_\_\_\_ sub streams.



### III. Match the following.

- |                        |                                     |
|------------------------|-------------------------------------|
| 1. Migration policy    | - Work                              |
| 2. Female migrants     | - low incidence of immigration      |
| 3. Chennai             | - maximum number of emigration      |
| 4. Better off migrants | - marriage                          |
| 5. Salem               | - to reduce the volume of migration |
| 6. Male migrants       | - to improve the living standards   |

### IV. Give short Answers.

1. Enlist the reasons for migration.
2. What are the major factors responsible for female migrants in India?
3. Name four districts in Tamil Nadu which record low number of immigration.
4. What are the factors responsible for the poorer sections and better-off sections to migrate.
5. List the four destinations and the percentage of migrants from Tamil Nadu.
6. What does the study reveal about the occupation undertaken by migrants?

### V. Answer in detail.

1. State the aims of migration policies.
2. Discuss the patterns of migration.
3. Elucidate about some of the interesting findings on migration in Tamil Nadu.

4. Analyse the educational qualification of migrants from Tamil Nadu in 2015.

### VI. Write the correct statement

1. In recent times workers from Tamil Nadu are moving to Africa.
2. In Tamil Nadu, the extent of migration is much higher in urban areas compared to rural areas.
3. Any migrant stream would consist of homogenous sub-streams.
4. Two out of every 10 persons is reported to be a migrant.

### VII. Project & Activity

1. Prepare statistical data by interacting with your class mates and school mates and find out how many families have migrated.
2. Prepare an album of pictures on Rural to Rural, Rural to Urban, Urban to Rural and Urban to Urban migration.

### VIII. Life Skills

1. Collect data on various languages spoken in your class and represent through a pie chart.



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### A-Z GLOSSARY

**Catchment areas** The area from which rainfall flows into a river, lake or reservoir.

**Census** To count the number of people living in a country

**Colonial Period** A period in a country's history when it was administered by a colonial power

**Commercial** Buying and selling on a large scale

**Conserve** Protect

**Cultivator** Peasant



<b>Deferred</b>	Put off to a later time; postpone
<b>Depletion</b>	Exhaustion; using up.
<b>Embodied</b>	Within
<b>Entrepreneur</b>	A person who sets up a business
<b>Fallow</b>	Uncultivated
<b>Heterogeneous</b>	Consisting of things that are very different from each other
<b>Inequality</b>	It is the difference in social status, wealth or opportunity between people or groups
<b>Micro credit</b>	Lending small amounts of money at low interest to new businesses
<b>Migration</b>	Process of moving from one place to another
<b>Migrants</b>	A person who moves from one place to another in order to find work or better living conditions
<b>Monetary</b>	Relating to money or currency
<b>Occupation</b>	Job or profession
<b>Perennial</b>	Flowing throughout the year
<b>Perspective</b>	Outlook
<b>Pledged</b>	Give as security on a loan
<b>Population</b>	The total number of persons inhabiting a country, city, district (or) area.
<b>Primary sector</b>	Raw materials
<b>Productivity</b>	Ability to produce
<b>Replenish</b>	Restore
<b>Reserve</b>	Retain for future use
<b>Rural</b>	Area located outside a city or town
<b>Secondary sector</b>	Manufacturing
<b>Semi-Skilled</b>	Having only a small amount of training
<b>Skilled</b>	Having the ability needed to do a job well
<b>Standard</b>	Something used as a measure
<b>Subsistence</b>	Self sufficient
<b>Sustainability</b>	Avoidance of depletion
<b>Tertiary sector</b>	Services
<b>Thrive</b>	Flourish or grow vigorously
<b>Transaction</b>	Buying or selling something
<b>Urban</b>	Relating to city or town
<b>Yield</b>	Produce or product



# Social Science – Class IX

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