

# Physical Features of India

India has different land forms or physical features like mountains, plains, deserts, plateaus, islands, etc. Geologically the **Peninsular Plateau** (Central and South India) is an ancient landmass of the Earth. It is composed of **igneous**<sup>1</sup> and metamorphic rocks. This region has gentle hills (not very steep) and wide valleys. It is a stable landmass.

The Himalayas (North and North-East India) and Northern plains (formed of alluvial deposits) are most recently formed landforms. The Himalayan region has a youthful topography, high mountain peaks, deep valleys and fast flowing rivers. Geologically, Himalayas are very unstable.

## Major Physiographic Divisions

The physical features of India can be grouped under the following physiographic divisions

1. The Himalayan Mountains
2. The Northern Plains
3. The Peninsular Plateau
4. The Indian Desert
5. The Coastal Plains
6. The Islands

### 1. The Himalayan Mountains

The Himalayas are geologically young and structurally **fold mountains**<sup>2</sup>. They form the highest and the rugged mountains in the world. They stretch over the Northern borders of India. They form an arc, covering a distance about 2400 km. Their width varies from 400 km in Kashmir to 150 km in Arunachal Pradesh.

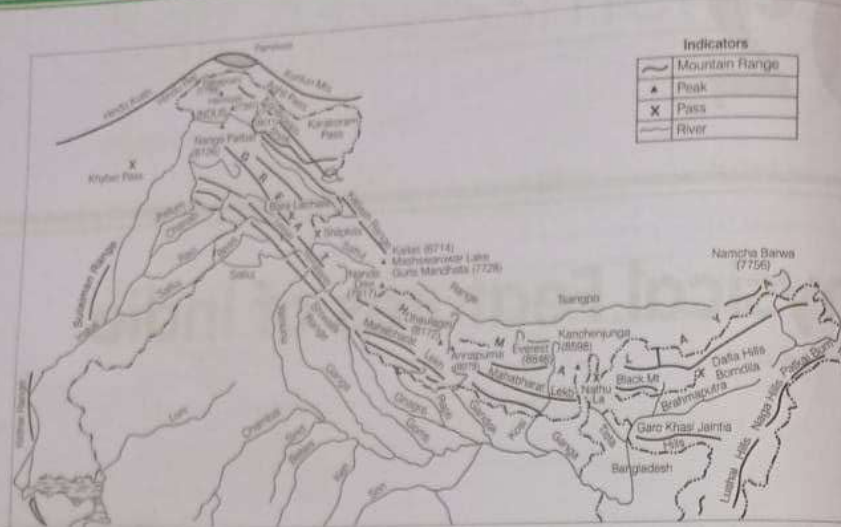
These mountain ranges run in West-East direction from the Indus to the Brahmaputra rivers. The altitudinal variations (differences in height) in Himalayas are greater in the Eastern half than those in the Western half. The Himalayas consist of three parallel ranges in its longitudinal extent. They are **Himadri**, **Himachal** and **Shiwalik** ranges. A number of valleys lie between these range.

<sup>1</sup> **Igneous rocks** Rocks formed by cooling and solidification of magma or lava.

<sup>2</sup> **Fold mountains** Mountains formed by folding of layers in the upper part of Earth's crust.

## Chapter Syllabus

- Major Physiographic Divisions
  - The Himalayan Mountains
  - The Northern Plains
  - The Peninsular Plateau
  - The Indian Desert
  - The Coastal Plains
  - The Islands



The Himalayas

### Himadri or Inner Himalayas or Great Himalayas

- The Northernmost range is known as the Great or Inner Himalayas or the Himadri.
- It is the most continuous range of the Himalayas with an average height of 6000 m.
- It contains all the prominent Himalayan peaks like Mount Everest, Kanchenjunga, Makalu, etc.
- The Great Himalayas are covered with snow all round the year.
- The core of this part is composed of granite. The fold of Great Himalayas is asymmetrical in nature.

#### Some Highest Peaks of the Himalayas

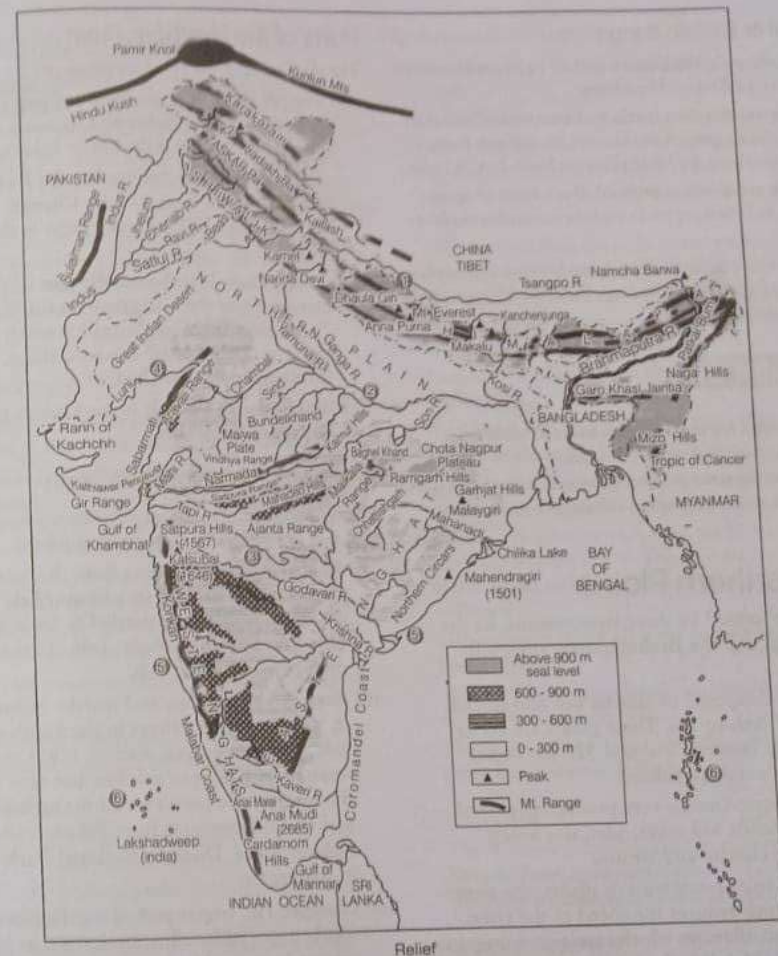
Peak	Country	Height in metres
Mount Everest	Nepal	8848
Kanchenjunga	India	8598
Makalu	Nepal	8481
Zaskaragi	Nepal	8172
Nanga Parbat	India	8126
Annapurna	Nepal	8078
Nanda Devi	India	7817
Kailash	India	7756
Namcha Barwa	India	7756
Ganga Marchaba	Nepal	7728

### Himachal or Lesser Himalayas

- This range lies to the South of the Himadri and forms the most rugged mountain system.
- It is composed of highly compressed and altered rocks with height varying from 3700 to 4500 m.
- The average width of this range is 50 km. Important ranges are Pir Panjal (longest), Dhauladhar and Mahabharat.
- Pir Panjal range consists of valleys like Kashmir, Kangra, Kullu (in Himachal Pradesh) and well known hill stations like Mussoorie, Nainital, Ranikhet, etc.

### Shivalik Range

- This is the outermost range of the Himalayas with height varying between 900 and 1100 m.
- The average width of this range is 10 to 50 km. It is composed of coarse sediments brought down by rivers from the upper Himalayan ranges.
- Valleys of this range are covered with thick gravel (very small stones) and alluvium.
- Valleys lying between the Lesser Himalayas and Shivaliks are known as Duns like Dehra Dun, Kotli Dun and Padi Dun.



Relief

### Regional Division of Himalayas

Apart from the longitudinal division, the Himalayas are also divided on the basis of regions from West to East. This division is done by rivers i.e. the Indus, Satluj, Kali, Teesta and Dihang rivers.

#### Punjab, Kumaon and Assam Himalayas

- In the West, the part of Himalayas lying between Indus and Satluj rivers has been traditionally known as Punjab Himalayas. However, from West to East, it is also known by regions like Kashmir and Himachal Himalayas.
- The part of the Himalayas lying between Satluj and Kali rivers is known as Kumaon Himalayas.
- The region between Kali and Teesta rivers is known as the Nepal Himalayas.
- The part lying between Teesta and Dihang rivers is known as Assam Himalayas.



### Purvanchal or Eastern Range

- The Himalayas in the Eastern part of India are known as Purvanchal or Eastern Himalayas.
- The Brahmaputra river marks its Easternmost boundary beyond Dihang gorge, the Eastern Himalayan range turns South along the North-Eastern boundary of India.
- These hills are mostly composed of strong sandstones which are sedimentary rocks and are covered with dense forest.
- They mostly run in parallel ranges and valleys. Purvanchal include the Patkai hills, the Naga hills, the Manipur hills and the Mizo hills.

### Check Point 01

1. The \_\_\_\_\_ region is a very stable landmass of India.
2. Which is the highest peak of the Himalayas?
3. The location of Himachal or Lesser Himalayas is South of \_\_\_\_\_.
4. The Eastern most boundary of the Himalayas is marked by the river \_\_\_\_\_.

## 2. The Northern Plains

These plains are formed by three river systems, viz the Indus, the Ganga and the Brahmaputra, along with their tributaries.

These plains are composed of alluvial soil and spread over an area of 7 lakh sq km. These plains are about 2400 km long and between 240 and 320 km broad. These plains are densely populated.

These plains are agriculturally very productive part of India due to the fertile soil cover, adequate water supply, favourable climate and terrain.

As the rivers flow from mountains to plains, the slopes become gentler which reduces the speed of the rivers. These rivers deposit alluvium which results in formation of riverine islands<sup>3</sup>. Majuli is the largest inhabited<sup>4</sup> riverine island in the world and lies in the Brahmaputra river.

The rivers split into a number of channels in their lower courses due to deposition<sup>5</sup> of silt. These channels are called distributaries.

3. Ganges: narrow valley between hills or mountains with a river running through it.
4. Inhabited: to live in a place of settled residence.
5. Deposition: is a geological process by which material is added to a landform or landmass.
6. Distributaries: are the smaller rivers or streams that branch off from a main river.

### Parts of the Northern Plain

The three parts of the Northern plains are

- (i) **Punjab Plain** It is the Western part of the plain. It is formed by the Indus and its many tributaries. The larger part of this plain lies in Pakistan. The Indus and its tributaries—the Jhelum, the Ravi, the Sutlej, the Beas and the Chenab, originate in the Himalayas. The Punjab plain is also dominated by doabs<sup>7</sup>.
- (ii) **Ganga Plain** It is the middle part of the plain. It extends from the Ghaggar river (in Haryana) to the Teesta river (in West Bengal) through the states of Haryana, Delhi, Uttar Pradesh, Bihar, partly Jharkhand and West Bengal.

- (iii) **Brahmaputra Plain** It is the Eastern part of the plain lying in Assam.

### Regions of the Northern Plain

The Northern plain is divided into four regions according to variation in relief feature which are as follows

- (i) **Bhabar** After descending from the mountains, the rivers deposit pebbles in a narrow belt of about 8 to 16 km in width lying parallel to the slopes of the Shiwaliks known as bhabar belt. All the rivers disappear in Bhabar belt.
- (ii) **Terai** A wet, swampy and marshy region created by the streams and rivers in the South of bhabar belt, is known as terai. Earlier, it was thickly forested with a lot of wildlife, but now most of the forests have been cleared for agriculture land and to settle migrants from Pakistan after independence. Dudhwa National Park is located in this region.
- (iii) **Bhangar** The largest part of the Northern plain consisting of older alluvium known as bhangar. It presents a terrace like feature and contains calcareous deposits (containing calcium) known as kankar.
- (iv) **Khadar** The newer region of the flood plain is known as khadar. The soil here is renewed whenever there is a flood (almost every year) so this area is fertile and best for intensive agriculture.

## 3. The Peninsular Plateau

This is a plateau composed of the old crystalline, igneous and metamorphic rocks. It was formed due to the breaking up and drifting of Gondwana land<sup>8</sup>.

Thus, it is a part of the oldest landmass. The plateau has broad and shallow valleys and gentle hills with rounded tops.

The Aravalli hills lie on the West and North-West margins of the Peninsular plateau. These are highly eroded and broken hills. They extend from Gujarat to Delhi in South-West to North-East direction.

This plateau consists of two broad divisions

### Central Highlands

- This is the part lying North of the Narmada river, covering most of the Malwa plateau.
- It is surrounded by Vindhyan range which is bounded by Satpura range on the South and Aravallis on the North-West. In the West, it gradually merges with the sandy and rocky desert of Rajasthan.
- The Central highland slopes from South-West to North-East, is indicated by the flow of Chambal, Sind, Betwa and Ken rivers. The highlands are wider in the West, but narrower in the East.
- Its Eastward extension are known as Bundelkhand and Baghelkhand.
- The Chota Nagpur plateau lies in the further East of this highland and is drained by the Damodar river.

### Deccan Plateau

- This triangular landmass lies to the South of the river Narmada. The broad base of the Satpura range is in North, while the Mahadeo hills, the Kaimur hills and the Maikal range are in its East.
- The Deccan plateau is higher in the West and slopes gently Eastwards.
- An extension of the plateau is also visible in the North-East, generally known as the Meghalaya Karbi Anglong plateau and North Cachar hills.
- It is separated from the Chota Nagpur plateau by a fault. Three prominent hill ranges from its West to East are the Gato, the Khasi and the Jaintia hills.

### Western and Eastern Ghats

- These ghats mark the East and West edges of the Deccan plateau.
- The Western Ghats (also called the Sahyadri range) lie parallel to the Western coast. They are higher than the Eastern Ghats.
- The average elevation of Western Ghats is 900-1600 metres, while the average elevation of Eastern Ghats is 600 metres.
- The Western Ghats are continuous ranges and can be crossed through passes like Thal, Bhor and Pal ghats.
- The Western Ghats cause orographic rain by forcing the rain-bearing moist monsoon winds to rise along its Western slopes and cause rainfall.
- The height of the Western Ghats increases from North to South.
- Anai Mudi (2695 m) and Doda Berta (2637 m) are the highest peaks in the Western Ghats.
- The famous hill stations of Udagamandalam (popularly known as Ooty) and Kodaikanal lie in the Western Ghats.
- The Eastern Ghats stretch from the Mahanadi valley to the Nilgiris in the South. These Ghats are discontinuous and irregular and dissected by rivers flowing into the Bay of Bengal.
- Mahendragiri (1501 m) is the highest peak in the Eastern Ghats.
- Shevroy hills and Javadi hills are located to the South-East of the Eastern Ghats.
- The Nilgiri hills in Tamil Nadu lies at the junction of the Eastern and Western Ghats.

### Deccan Trap

- The Western part of the Deccan plateau is known as the Deccan Trap. It contains black soil of volcanic origin due to which the rocks are igneous and denuded to form black soil.

### Check Point 02

1. What are the three parts of the Northern plains?
2. Ghaggar river flows in which state?
3. Western Ghats can be crossed through the \_\_\_\_\_ and \_\_\_\_\_ passes.
4. The slope of the Central highland is from \_\_\_\_\_ to \_\_\_\_\_.
5. Which part of the Deccan Plateau is known as Deccan Trap?

8. Gondwana Land is the Southern part of the ancient super continent Pangaea with Angara land to the northern part.



#### 4. The Indian Desert

It lies towards the Western margins of the Aravalli hills, it consists of wave like sandy plain with various types of sand dunes.

It receives less than 150 mm rainfall annually, has arid climate with low vegetation. Here streams appear only during the monsoon season. Luni is the only large river in this region.

Crescent<sup>9</sup> shaped sand dunes called Barchans cover most of this desert, but longitudinal dunes<sup>10</sup> are also seen on the Western edge of this region near the Indo-Pakistan border.

#### 5. The Coastal Plains

The Peninsular plateau is bordered by narrow coastal land running along the Arabian sea on the West and the Bay of Bengal on the East.

These coastal lands are called coastal plains. The Western coast which lies between the Western Ghats and Arabian Sea, is a narrow plain. It consists of three sections

- Northern part of the coast is called the Konkan (Mumbai-Goa).
- Central stretch is called the Kannad plain.
- Southern stretch is called the Malabar coast.

The plains, which lies along the Bay of Bengal is more wide and level.

The Northern part of these plains is known as Northern Circar and the Southern part is known as Coromandel coast.

Rivers like the Mahanadi, Godavari, Krishna and Kaveri have formed extensive deltas on this coast. Lake Chilika is the largest salt water lake on the Eastern Coast (of Odisha). It is famous as a winter home for migratory birds. It lies to the South of Mahanadi delta.

#### 6. The Islands

India has two island groups. These are the Lakshadweep Islands Group

- It lies close to the Malabar coast (Kerala).
- This is a group of small coral<sup>11</sup> islands. Earlier, they were known as Laccadive, Minicoy and Amindive.

**Crescent** A thing which has the shape of a single curve that is broad in the centre and tapers to a point at each end.  
**Longitudinal dunes** Types of linear sand ridges that extend parallel to the direction of the dominant dune-building winds.  
**Corals** Coral polyps are short-lived microscopic organisms which live in colonies. They flourish in shallow, mud free and warm waters. They secrete calcium carbonate. The reefs are mainly of three kinds: barrier reef, fringing reef and atoll.  
**submarine mountains** Mountains rising from the ocean floor that do not reach to the water's surface (sea level) and thus, are not islands.

In 1973, these were named as Lakshadweep. They cover a small area of 32 sq km.

- Kavaratti island is the administrative headquarters (capital) of Lakshadweep.
- In this group, the Pitti island has a bird sanctuary which is uninhabited.

#### The Andaman and Nicobar Islands

- They are two groups of densely forested islands. They are bigger in size and are more numerous and scattered.
- The entire group of islands is divided into two broad categories, the Andamans in the North and the Nicobars in the South.
- These islands are believed to be an elevated portion of submarine mountains<sup>12</sup>.
- India's only active volcano is found on Barren Island in the Andaman and Nicobar islands.
- There is a great diversity of flora and fauna in this group of islands. These islands lie close to the equator and experience equatorial climate with thick forest cover.

#### Conclusion

After studying the physical features of India, following things can be concluded.

- The mountains are the major sources of water and forest wealth.
- The Northern plains are the granaries of the country. Early civilisations started here.
- The plateau is a storehouse of minerals and important for industrialisation of the country.
- The coastal regions and island groups provide sites for fishing and port related activities.

Thus, the diverse physical features of India have immense future possibilities for development.

#### Check Point 03

- Which region of India is characterised by Barchans?
- Laccadive, Minicoy and Amindive named as Lakshadweep in the year ....
- Lakshadweep island is which type of coral island?
- Which islands group enjoys equatorial climatic condition?

## SUMMARY

- The major physiographic divisions of India are – the Himalayas, the Northern plains, the Peninsular plateau, the Indian desert, the coastal plains and the islands.
- The Himalayan mountains are geologically young and fold mountains. They form the highest and the rugged mountains in the world.
- The Himalaya consists of three parallel ranges in its longitudinal extent, these are Himadri, Himachal and Shiwalik ranges.
- The Northern plains are formed by three river systems, viz the Indus, the Ganga and the Brahmaputra, along with their tributaries. These plains are composed of alluvial soil. The three parts of the Northern plains are Punjab plains, Ganga plain and the Brahmaputra plain.

- The Peninsular plateau is composed of old crystalline, igneous and metamorphic rocks. It is a part of the oldest landmass of the Earth.
- The plateau consists of two broad divisions, the Central Highland and the Deccan Plateau.
- The Indian Desert lies towards the Western margins of the Aravali hills and consists of wave like sandy plain with various types of sand dunes.
- The Peninsular Plateau is bordered by narrow Coastal land running along the Arabian sea on the West and the Bay of Bengal on the East. These coastal lands are called 'Coastal plains'. (The Western Coast and Eastern Coast).
- India has two island groups such as the Lakshadweep and the Andaman and Nicobar islands. Lakshadweep is a group of small coral islands. The Andaman and Nicobar islands are believed to be an elevated portion of submarine mountains.

## NCERT FOLDER

#### Find out on page 8

- Find out the names of the glaciers and passes that lie in Great Himalayas.

Ans. Glaciers in the Great Himalayas are Siachen, Kolhai, Gangotri, Chaturangi, Satopanth, Nubra, Milam, Kamet, Kharak, Bhagirathi and Pindari.

Passes in the Great Himalayas are Aghil, Karakoram, Bara Lacha, Bum La, Shipki La, Nathula and Bomdila.

- Find out the name of the states where highest peaks are located.

Ans. States where highest peaks are located

- Jammu and Kashmir (Nanga Parbat)
- Sikkim (Kanchenjunga)
- Uttarakhand (Nanda Devi, Kamet)

- Find out the location of Mussoorie, Nainital, Ranikhet from your atlas and also name the state where they are located.

Ans. All these three towns are in the state of Uttarakhand in the range called Lesser Himalayas or Himachal.

#### Exercises on page 15

- Choose the right answer from the four alternatives given below.

- A landmass bounded by sea on three sides is referred to as  
(a) Coast (b) Island  
(c) Peninsula (d) None of these

Ans. (c) Peninsula

- Mountain ranges in the Eastern part of India forming its boundary with Myanmar are collectively called  
(a) Himachal (b) Uttarakhand  
(c) Purvanchal (d) None of these

Ans. (c) Purvanchal

- The western coastal strip, south of Goa is referred to as  
(a) Coromandel (b) Konkan  
(c) Kannad (d) Northern Circar

Ans. (c) Kannad

- The highest peak in the Eastern Ghats is  
(a) Anai Mudi (b) Kanchenjunga  
(c) Mahendragiri (d) Khasi

Ans. (c) Mahendragiri

#### 2 Answer the following questions briefly.

- What is the Bhabar?

Ans. Bhabar is a narrow belt of plain land which is about 8 to 16 km wide. It is covered with pebbles deposited by the rivers and lies parallel to the foothills of the Shiwaliks.

- Name the three major divisions of the Himalayas from North to South.

Ans. The three major divisions of the Himalayas from North to South are

- The Great or Inner Himalayas or the Himadri This is a continuous range consisting of the highest peaks.
- Himachal or Lesser Himalayas The range lying to the South of the Himadri is known as Himachal or Lesser Himalayas.
- Shiwaliks The outermost range of the Himalayas is known as the Shiwaliks. These are the foothill ranges and represent the Southern most division of the Himalayas.