CHAPTER 1

Geographical Diversity of India

To us, by its very geography, the country [India] appears to be quite distinct from other countries, and that itself gives it a certain national character.

— Sri Aurobindo

Fig. 1.1. Jog Falls in Karnataka. Notice the plateau and the waterfalls. The power of the waterfall is converted into electricity (hydroelectricity; 'hydro' means water) through special turbines.



The Big Questions

1. *What are some key geographical features of India?*
2. *How does India's geographical diversity affect our lives?*

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In 1984, Rakesh Sharma, the first Indian astronaut to go into space, spoke with the then Prime Minister of India, Indira Gandhi. When she asked him, "How does India look from space?", he replied, "*Sāre jahān se achchha*" — better than the whole world. (This is the title of a well-known poem of the early 20th century.)

LET'S EXPLORE



Look at the map of India at the end of this book. What are you able to observe? Recall your lesson on different types of landforms — mountains, plains and plateaus. Which landforms can you identify on the map? What do the different colours on the map mean? *(Hint: The legend on the map shows the heights of each area.)*

As you go through this chapter, remember to refer periodically to the physical map.

India is the seventh-largest country in the world, and a part of Asia. Along with its neighbours — Pakistan, Bangladesh, Nepal, Bhutan, Sri Lanka, and Myanmar — it forms the region known as the Indian Subcontinent (subcontinent, since it is part of the continent of Asia). Often, for the purpose of discussion, we refer to five regions — the great mountain zone, the plains of the Ganga and the Indus, the desert region, the southern peninsula, and the islands. In this chapter, we will 'fly' over these zones, providing you with a bird's-eye view of these features and offering glimpses of what things look like in close-up at some of these places. It would be difficult to go into all the details at this stage since, as you will soon see, India is large and diverse.

The Himalayan Mountain range stands as a natural barrier in the north, while the Thar Desert and the Arabian Sea mark its western limits. To the south, the Indian Ocean and to the east, the Bay of Bengal form a natural boundary. These geographical features create a separation between India and the rest of the continent and have played a crucial role in shaping India's climate, culture, and history.

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LET'S EXPLORE



- → Do you recall your lesson on latitudes and longitudes? Look at the map. Can you read, approximately, the latitude and longitude where India lies?
- → Identify the above features on India's physical map.

Let us now journey together from the Himalayas to the islands in the Indian Ocean, and onward to the east of India. The diverse colours on the map already give us a sense of the geographical diversity. Familiarise yourself with the legend on the map. The different colours indicate the altitudes.

The Himalayas

Look at the length of the Himalayan Range on the map. It is like a massive wall. From the legend, can you guess the altitude at different points of the Himalayas?

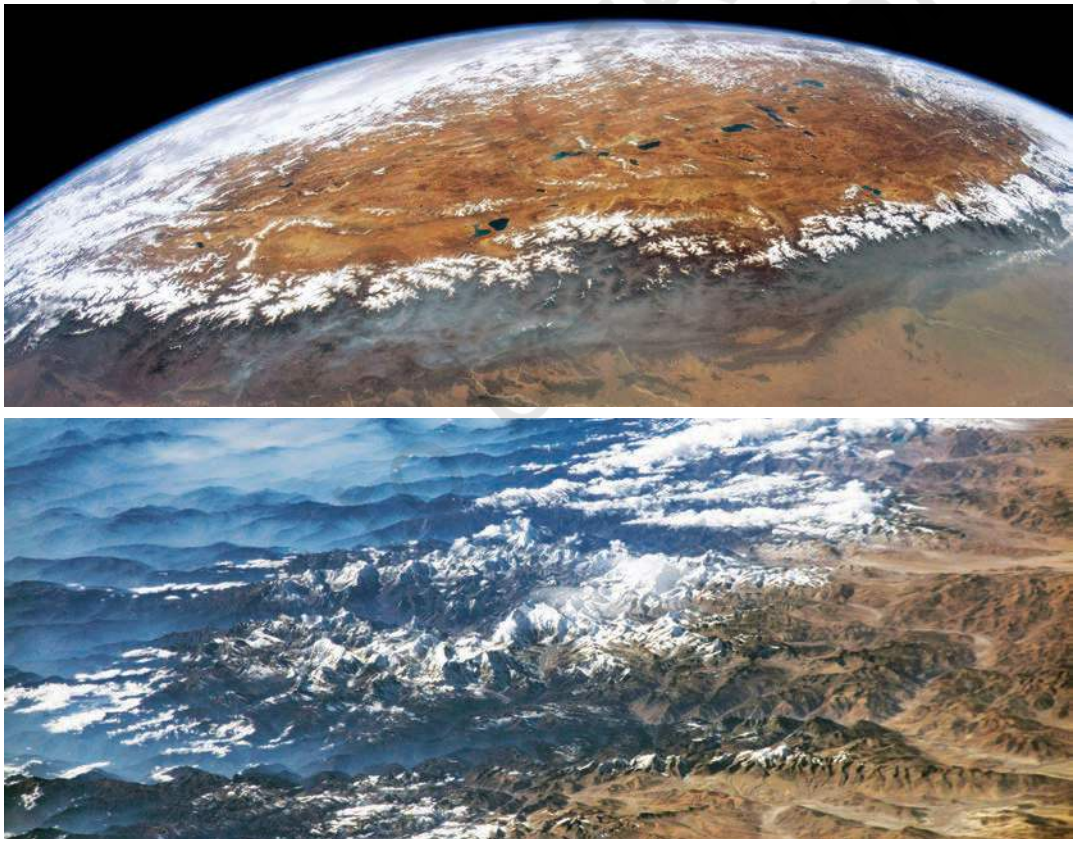


Fig. 1.2. These are satellite images of the Himalayan range. Note that the length of the range is about 2500 km.

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LET'S REMEMBER

The Himalayas seem to touch the sky. In fact, many of its peaks are over 8000 metres in height and are together called the 'Eight Thousanders'. This mountain range stretches across six countries in Asia: India, Nepal, Bhutan, China, Pakistan, and Afghanistan. Can you name the highest mountain in the world?

In the summer, the snow on the mountains melts and feeds major rivers, such as the Ganga, Indus, and Brahmaputra. These rivers and their tributaries provide water for drinking, farming, and industrial use, connecting with the lives of hundreds of millions of people. Hence, the Himalayas are sometimes called the 'Water Tower of Asia'. The Himalayas are also important to many cultures and belief systems. The mountains themselves are considered sacred, and temples and monasteries have been built within them, attracting monks and spiritual seekers from around the world who come to pray and meditate.



DON'T MISS OUT

The Bhagirathi River, a major tributary of the Ganga, originates from Gaumukh ('Cow's Mouth'), in Uttarakhand. It is the edge



Fig. 1.3. Gaumukh

of the Gangotri Glacier. This glacier is one of the largest in the Indian Himalayas. It is considered sacred and attracts many pilgrims. Gaumukh is also a popular trekking destination. Next time you see the Ganga, remember—its journey began there!

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How the Himalayas were formed ... an interesting story

A long, long time ago, India was part of a much bigger landmass called 'Gondwana', where its neighbour was Africa! At some point, it broke away and slowly started moving north. About 50 million years ago, it reached the landmass of Eurasia and collided with it. As India pushed against Eurasia, the land between them crumpled and rose up — just like how a carpet wrinkles when you push it. That's how the mighty Himalayan mountains were formed!

Amazingly, India is still pushing into Asia today, very slowly — about five centimetres each year, which is much slower than the rate at which your hair grows. This means the Himalayas are still growing taller, just a tiny bit each year — about five millimetres, but over a millennium, that adds up to five metres!

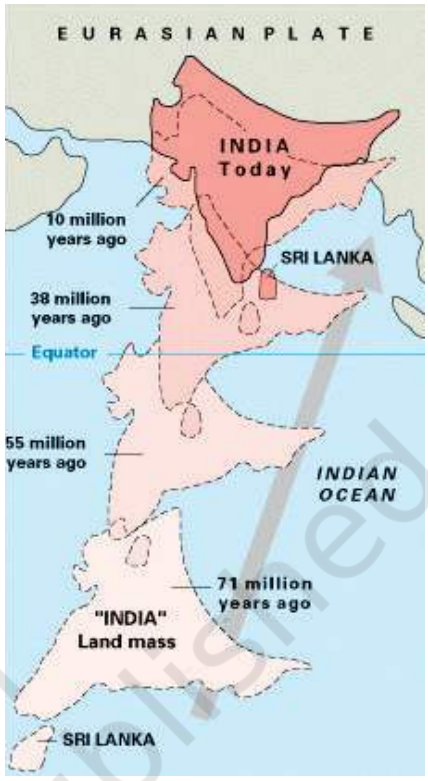


Fig. 1.4. India's journey to Eurasia



Fig. 1.5. Folded layers of Himalayan rock

DON'T MISS OUT

The word 'Himalaya' is a combination of two Sanskrit words — *hima*, meaning 'snow', and *ālaya*, meaning 'abode' or 'dwelling' — thus, 'abode of snow'.

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The Himalayas are broadly categorised into three main ranges:

- The **Himadri** (the Greater Himalayas) are the highest and most rugged part of the range, home to towering peaks like Mount Everest and Kanchenjunga. This region remains snow-covered throughout the year. Life here is tough, and there are not many human settlements.
- The **Himachal** (the Lower Himalayas) lie south of the Greater Himalayas and have a more moderate climate, allowing rich biodiversity and human habitation. Popular hill stations, such as Nainital (Uttarakhand), Darjeeling (West Bengal), Shimla (Himachal Pradesh), and Mussoorie (Uttarakhand), are located in this region.
- The **Shivalik** Hills (the Outer Himalayas) form the outermost and lowest range, consisting of rolling hills and dense forests. These foothills are rich in wildlife, serving as a transition zone between the Himalayas and the Gangetic Plains (also called the Northern Plains).



LET'S EXPLORE

Can you locate the names of the states in the different parts of the Himalayas? Take the help of both the physical and political maps for this exercise.



DON'T MISS OUT



Fig. 1.6. Kath-kuni House, Himachal Pradesh

The traditional house construction method in the western Himalayan region is known as *'kath-kuni'* or *'dhajji-dewari'* style of houses. A combination of locally available stone and wood is used, which not only keeps the house warm but also resists damage in the event of mild earthquakes.

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The Great Himalayan National Park in Himachal Pradesh has a wide diversity of flora and fauna. The park has been declared

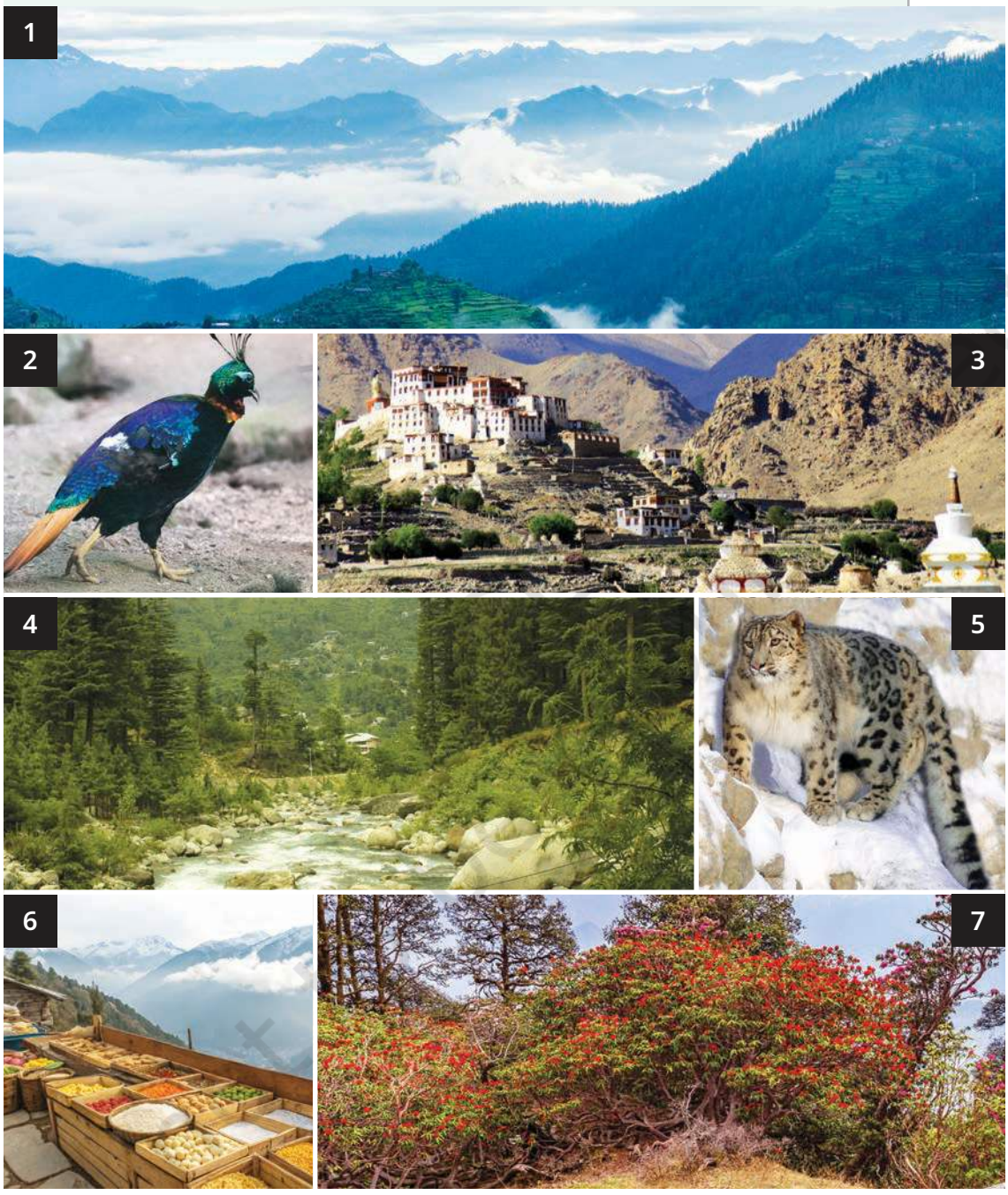


Fig. 1.7. 1.Great Himalayan National Park Conservation Area. 2. Himalayan monal (male). 3. A monastery in Ladakh. 4. The Beas river in Himachal Pradesh. 5. Snow Leopard 6. A display of produce in a local market in the Himalayas. 7. Rhododendron — a type of sherbet is made out of this flower.

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a World Heritage Site by UNESCO. The biodiversity of the park is being preserved by the government as well as the village communities that live inside the park.

The cold desert of India

The word 'desert' immediately evokes an image of a hot place. However, there are also cold deserts, and we have one in India. Ladakh is a cold desert where winter temperatures drop below –30°C. There is very little rainfall, and the landscape is rugged, with rocky terrain, deep valleys, and lakes such as Pangong Tso (tso means lake).



Fig. 1.8. Moonland, Ladakh

The terrain here resembles that of the moon; hence, it is called 'moonland'. Geologists explain the formation of this terrain, as we saw earlier, by the fact that the mountains were 'folded' when the Indian landmass collided with Eurasia. This folded portion was part of an ocean, and so the rocks in this area



Fig. 1.9. Yaks are very important for the lives of people in the Himalayas. They are reared for their milk, meat, wool and dung, and are also used for transport.

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Fig. 1.10. Pangong Tso, Ladakh. This lake has salty water, unlike most other lakes. The saltiness is a result of the minerals that dissolve from the surrounding mountain areas.

are made largely of sand and clay. Wind and rain have eroded the mountains into the shapes you see in the photograph.

Despite the harsh conditions, Ladakh is home to unique wildlife like snow leopards, ibex, and Tibetan antelopes. The Ladakhi people lead a simple life. The region is known for its ancient monasteries and colourful festivals such as Losar and the Hemis Festival.

The Gangetic Plains

As we move southwards from the Himalayas, we reach the vast and fertile Gangetic Plains. These plains have been an important part of the history and civilisation of India. These plains are nourished by mighty rivers originating from the Himalayas, providing a vital lifeline: water. The Ganga, Indus, and Brahmaputra river systems, along with their extensive network of tributaries, enrich the soil with minerals, making the region highly fertile and ideal for agriculture. The rivers bring with them minerals that enrich the soil, enabling abundant agriculture. The rivers are also a source for generating electricity. A large proportion of India's population lives in these plains.

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Fig. 1.11. Modern agricultural practices in the plains



Fig. 1.12. Aerial view of Delhi with the river Yamuna on top right



Fig. 1.13. Multi-cropping in Uttar Pradesh



Fig. 1.14. Rural women working in a paddy field in West Bengal

The flat land of the Northern Plains has allowed for the development of an elaborate transportation network. Road and railway networks facilitate the movement of people and goods over long distances. As you will see in the Tapestry of the Past chapters, the Ganga, the Brahmaputra and other rivers have been used for millennia for travel and trade.





Fig. 1.15. Modes of transport in the Gangetic plains

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Most rivers are named after goddesses—Ganga, Yamuna, Kaveri, etc. The name of Brahmaputra, however, means 'the son of Brahma'. This river gets bigger during summer instead of drying up! Can you guess why?

LET'S EXPLORE

Notice the concentration of lighting in the plains. What could be the reason for this concentration?



Fig. 1.16. Satellite image of the Gangetic plains



Fig. 1.17. The Northern plains grey langur sits on a wooden beam in Bandhavgarh National Park, Madhya Pradesh



Fig. 1.18. The majestic tiger that was on the verge of extinction. Project Tiger has supported the return of the tiger to its habitats.

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Fig. 1.19. The Indian gharial; an adult is between 2.5 and 4.5 m long. This reptile is on the verge of extinction. There are laws that prohibit harming it or hunting it.



Fig. 1.20. A peacock and peahen — the Indian peacock is our national bird

The Great Indian Desert or Thar Desert

If we move westward on the map, you will notice a yellowish area. This area is the Thar Desert. What do you see? A vast stretch of golden dunes, rugged terrain, and a wide-open sky?



Fig. 1.21. A traveller among the sand dunes of the Thar Desert.



LET'S EXPLORE

What is the shape of a sand dune? While mountains are made of rock and their shape is fixed, why do you think sand dunes also have a similar shape, even though they are made of sand?

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Fig. 1.22. Jaisalmer, the 'Golden City', located in the middle of the Thar desert in India. The Jaisalmer fort is a UNESCO World Heritage site.

Sand dunes are formed when the wind shifts and shapes the sand into hill-like formations. Sometimes these rise as high as 150 metres.

The Thar is a vast arid region. Most of it lies within India, spanning the states of Rajasthan, Gujarat, Punjab, and Haryana. The desert acts as a natural barrier due to the harsh conditions that deter human and animal movement — including very high daytime temperatures and cold nights, as well as a lack of access to water.

People living in the Thar have adapted their way of life to the place and what it offers; food habits, clothing and lifestyle are suited to these harsh conditions.



Fig. 1.23. Camel vendor at the Pushkar Mela (at the edge of the Thar Desert)

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DON'T MISS OUT





Fig. 1.24. (Left) Women fetching water from a source far away from home. (Right) Rainwater harvesting structure in a hamlet.

Water is scarce in the desert. Women often need to travel long distances every day to fetch water for their families. So, the traditional method for cleaning utensils is to scour them with sand until they are clean. A little water can be used for a light rinse. The water used for rinsing is reused for purposes like watering a plant. So, the next time you leave the tap running, remember the people of the Thar Desert. Rajasthan is also famous for its ingenious water conservation methods, including *taanka* or *kunds*. These are special water collection systems that store rainwater, often for drinking purposes.

The Aravalli Hills



LET'S EXPLORE

Let's go back to the map. Trace your path slowly from the Thar Desert towards the east. Do you see the Aravalli Hills?

The Aravallis are among the oldest mountains in the world, some 2.5 billion years old! The range has many peaks and ridges. Although its highest peak, Mount Abu, towers at over 1700 m, most of its hills are between 300 and 900 metres high. Isn't it fascinating that a drive of about 4 and a half hours can take us

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Fig. 1.25. (Left) A part of the Aravallis; just beyond this range, the Thar Desert begins. (Right) A part of the Aravallis seen from space.

from Mount Abu in the Aravallis to Jodhpur in the Thar Desert, a drive into a completely different geography?

LET'S EXPLORE



Look at the political map in the textbook and identify the states that the range spans. Did you see Delhi, Rajasthan, Haryana and Gujarat?

The Aravallis play a vital role in shaping the geography and climate of northwestern India. One of its most important functions is acting as a natural barrier, preventing the Thar Desert from expanding further eastward. You will read more about this later.

The Aravallis, rich in minerals like marble, granite, zinc, and copper, have supported mining and construction activities for centuries. In fact, evidence from its ancient mines at Zawar has shown that over eight centuries ago, Indians were the first in the world to master the delicate process of extraction of zinc. Historic forts, such as Chittorgarh, Kumbhalgarh, and Ranthambore, are located here.



Fig. 1.26. Kumbhalgarh Fort surrounded by the Aravallis; this location in the hills proved to be an excellent deterrent to the enemy.

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The Peninsular Plateau



LET'S REMEMBER

A plateau is a landform that rises up from the surrounding land and has a more or less flat surface; some of its sides are often steep slopes.

India has several plateaus; the most important one is the triangular peninsular area in the middle and south of the country.

Peninsula: A peninsula is a piece of land that is surrounded by water on three sides.

It is also a very old land formation! Since this region is a **peninsula**, surrounded by water on all three sides by the Arabian Sea, the Bay of Bengal, and the Indian Ocean, it is called a peninsular plateau.

The plateau is bordered by two mountain ranges, the Western Ghats and Eastern Ghats. The Western Ghats are taller and run along the western coast like a wall, with many beautiful waterfalls flowing down their steep sides during the monsoon season.



DON'T MISS OUT

The Western Ghats have been declared a UNESCO World Heritage Site. They are home to many rivers and have a rich biodiversity. The northern portion of the Western Ghats are also known as the Sahyadri Hills.

The Eastern Ghats are lower and broken into smaller hills along the eastern coast. Between these mountain ranges lies the Deccan Plateau, a vast area of flat highlands.

Rivers like the Godavari, Krishna, and Kaveri flow across the plateau from west to east. These rivers are important for farming and provide water to millions of people.



LET'S EXPLORE

Look at the physical map of India given at the end of the book. Notice the direction of the flow of the rivers.

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Fig. 1.27. Dense forests of Chhattisgarh, home to many tribal communities

This plateau is rich in minerals, forests, and fertile land, making it vital for India's economy. It tilts a little to the east, so a few of the rivers in this region flow towards the Bay of Bengal. East-flowing rivers like the Godavari, Krishna, and Mahanadi originate here, providing water for farming, industries, and hydroelectric power. There are west-flowing rivers (Narmada, Tapti) too, which drain into the Arabian Sea.

Dense forests on the plateau are home to tribal communities, including the Santhal, Gond, Baiga, Bhil, and Korku. These tribes have distinct languages, traditions, and ways of life closely connected to Nature.

LET'S EXPLORE



Tribal communities are largely spread over the states of Jharkhand, West Bengal, Odisha, Assam, Madhya Pradesh, Chhattisgarh, Maharashtra, Telangana, and Gujarat. Examine the physical and political maps at the end of this book to locate the states and connect them to their location on the physical map.

Plateaus are home to many beautiful waterfalls in India, as rivers flow over their uneven and rocky surfaces. These waterfalls not only attract tourists but also help in hydroelectric power generation and provide water for irrigation.

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Fig. 1.28. Powerhouse Waterfalls at Periyakanal, near Munnar, Kerala



Fig. 1.29. Lion-tailed macaque in the Western Ghats



Fig. 1.30. King cobra of the Western Ghats



Fig. 1.31. This is an insectivorous plant, meaning it feeds on insects, found in the Western Ghats. It catches small insects in sticky traps and digests them!



Fig. 1.32. Coal mines in the plateau; an important resource, especially in the production of electricity. Coal is a fossil fuel, the use of which contributes to global warming.

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Fig. 1.33. Mumbai, on the west coast, is India's financial centre

India's Amazing Coastlines

India's coastline is dotted with beautiful beaches, rocky cliffs, and lush green forests. Some beaches have golden sand while others have black rocks. Some islands have coral reefs while others are covered in thick jungles. India's coasts are full of surprises! The Indian coastline is over 7500 km long.

LET'S EXPLORE



- → Look at the physical map of India in your school atlas or wall map and find the names of five rivers that flow into the Bay of Bengal. Find out India's coastal states and discuss the difference between the western and eastern coastal plains.
- → Do you know what it is called when these rivers split into multiple streams near the coast? Discuss with your teacher in class to find out!

The West Coast of India

The West Coast of India stretches from Gujarat to Kerala, passing through Maharashtra, Goa, and Karnataka. Most rivers here originate in the Western Ghats, flow swiftly, and form estuaries. The coastline is shaped by alluvial deposits from short rivers and features coves, creeks, and estuaries, with the Narmada and Tapti estuaries being the largest.

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Fig. 1.34. An aerial view of a part of the west coast. Note how close the hills of the Western Ghats are to the Arabian Sea.

The west coast has many important ports and cities. These have been the centres of economic activity for millennia.

The East Coast

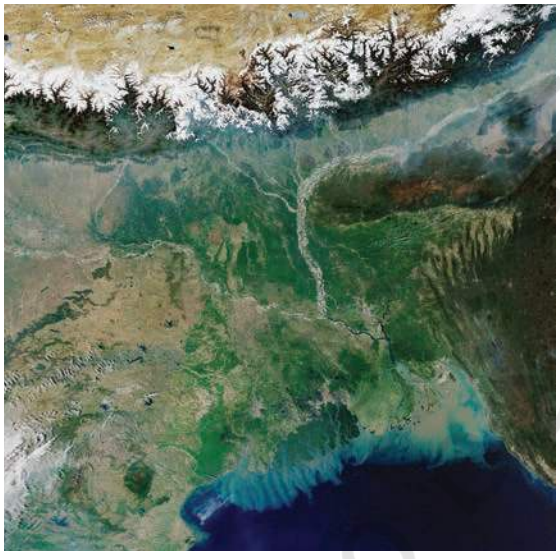


Fig. 1.35. Satellite view of the East Coast of India.

The East Coast lies between the Eastern Ghats and the Bay of Bengal, stretching from the Ganga delta to Kanyakumari. It has wide plains and major river deltas, including Mahanadi, Godavari, Krishna, and Kaveri. Important water bodies like Chilika Lake and Pulicat Lake (a lagoon, which is a body of water separated from larger bodies of water by a natural barrier) are found here.

Deltas are landforms formed at the mouth of a river when it deposits sediments into a larger body of water, such as an ocean, a lake, or another river. Over time, these sediments build up, forming a triangular or fan-shaped area. The Godavari, Krishna, Kaveri and Mahanadi rivers create fertile deltas, making the land ideal for farming.

Indian Islands

The Indian Islands refer to the group of islands scattered across the Indian Ocean, the Arabian Sea, and the Bay of Bengal, which form part of India's territory. India has two major island

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groups — Lakshadweep in the Arabian Sea and the Andaman and Nicobar Islands in the Bay of Bengal. These islands have unique wildlife, beautiful beaches, coral reefs, and volcanoes. Several ancient tribes made these islands their home tens of thousands of years ago.

Lakshadweep islands

Lakshadweep is an archipelago (a group of islands) located in the Arabian Sea, close to the Malabar coast of Kerala. It is made up of 36 islands made of coral. Not all islands are inhabited by people. India controls a vast marine area, allowing for fishing, resource exploration, and environmental protection.

Andaman and Nicobar islands

This archipelago comprises more than 500 large and small volcanic islands, divided into two distinct groups — the Andaman and the Nicobar Islands. Their location is very important.



Fig. 1.36. Coral reef in the Lakshadweep Islands



Fig. 1.37. Coral reef in the Andaman Islands



Fig. 1.38. A floating dock (a small port) of the Indian Navy near the Andaman Islands.

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Fig. 1.39. An aerial view of the active volcano on Barren Island, the only one in India

They are like the outposts of India, keeping an eye on the ocean. It is home to a variety of flora and fauna. The Andaman Islands are also significant from a historical point of view — many of our freedom fighters were jailed there under the most severe conditions in a prison complex called 'Cellular Jail'. It has been preserved to remind us of the tremendous sacrifices that our forefathers made so we could be free. We will discuss this some more in higher classes.



DON'T MISS OUT

Barren Island (Fig. 1.39 above) in the Andaman and Nicobar Islands is the only active volcano in India. It sometimes erupts, sending smoke and lava into the sky!

The Delta in West Bengal and the Sundarbans



Fig. 1.40. Mangroves of the delta in the Sundarbans of West Bengal

As we travel back from the islands towards the eastern side of the Himalayas via the Bay of Bengal, we come to the Sundarbans. This is located in the delta of the Ganga, Brahmaputra (you saw them earlier in the chapter) and their tributaries. This delta has a unique combination of the river, sea and land. About half of it is located in India, and the rest is in Bangladesh. This is also a UNESCO Heritage site. The Sundarbans are home to many species, including the Royal Bengal Tiger.

Note: Do remember to look at the map and identify where the delta is.

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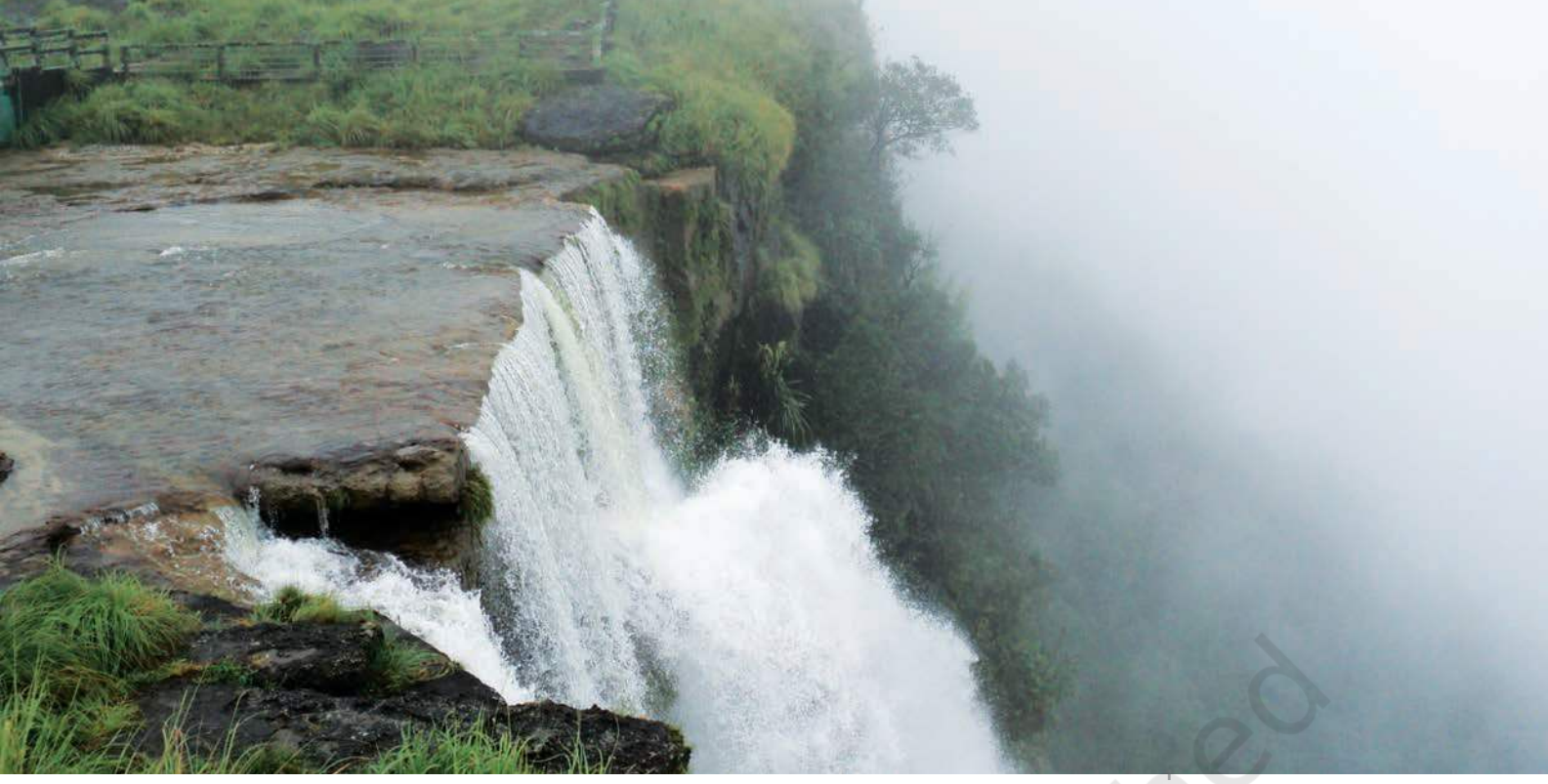






Fig. 1.41. Left to right, top to bottom: Seven Sisters Waterfalls, Meghalaya, India; The Shad Suk Mynsiem festival is celebrated by the Khasi people as a form of gratitude towards nature; Living roots bridge near Nongriat village, Cherrapunjee, Meghalaya

The hills of the Northeast

Stay on the map as we move towards the hills of the Northeast, our final destination for now. Can you see Garo, Khasi, and Jantia marked on the map? These hills, part of the Meghalaya Plateau, are known for their lush greenery, heavy rainfall, and breathtaking waterfalls. This region experiences one of the highest rainfalls in the world, making it rich in forests, unique wildlife, and fertile land.

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DON'T MISS OUT



Mawlynnong Village, situated in the East Khasi Hills of Meghalaya, is renowned as the 'cleanest village in Asia'. This picturesque village is famous for its well-maintained cleanliness, bamboo dustbins, and eco-friendly living practices. The village is also known for its living root bridges, which are created by weaving tree roots over the course of many years.

Fig. 1.42. Living root bridges showcase the craftsmanship of the tribes of the Northeast.



Before we move on ...

- India gives its name to the subcontinent it is a part of.
- It has many diverse geographical features, ranging from the snowy Himalayas to the heat of the Thar Desert. The plains are watered by a large number of rivers. There is also a peninsular plateau with the Arabian Sea on the west and the Bay of Bengal in the east.
- These diverse geographic features have created a variety of conditions with respect to soil, flora, fauna, life and economic opportunities, and honed a rich culture.
- These geographical features have played an important role in shaping our civilisation.

Questions and activities

1. What, in your opinion, are two important geographical features of India? Why do you think they are important?

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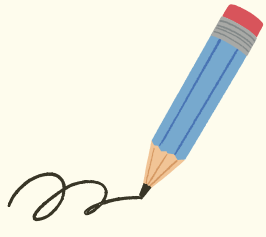
2. What do you think India might have looked like if the Himalayas did not exist? Write a short note or sketch a drawing to express your imagination.
3. India has been called a ‘mini-continent’. Based on what you’ve read, why do you think this is so?
4. Follow one of India’s big rivers from where it starts to where it meets the ocean. What are the different ways in which people might utilise this river along its journey? Discuss in groups in your class.
5. Why is the southern part of India referred to as a peninsular plateau?
6. Which UNESCO Heritage Site mentioned in this chapter did you find more interesting? Write a short paragraph to describe what about it is interesting.
7. Look at the two maps of India, physical as well as political, given at the end of this book. Identify the place you are at now. Which physical feature of India would you use to describe its location?
8. Food preservation techniques differ from place to place across India. They are adapted to local conditions. Do a class project. Gather different methods of preserving food. Hint: Drying vegetables when they are in season for use during the off-season.
9. Despite having such different regions (mountains, deserts, plains, coasts), India remains one country. How do you think our geography has helped unite people?

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Noodles

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*‘Noodles’ is our abbreviation for ‘Notes and Doodles’!



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