

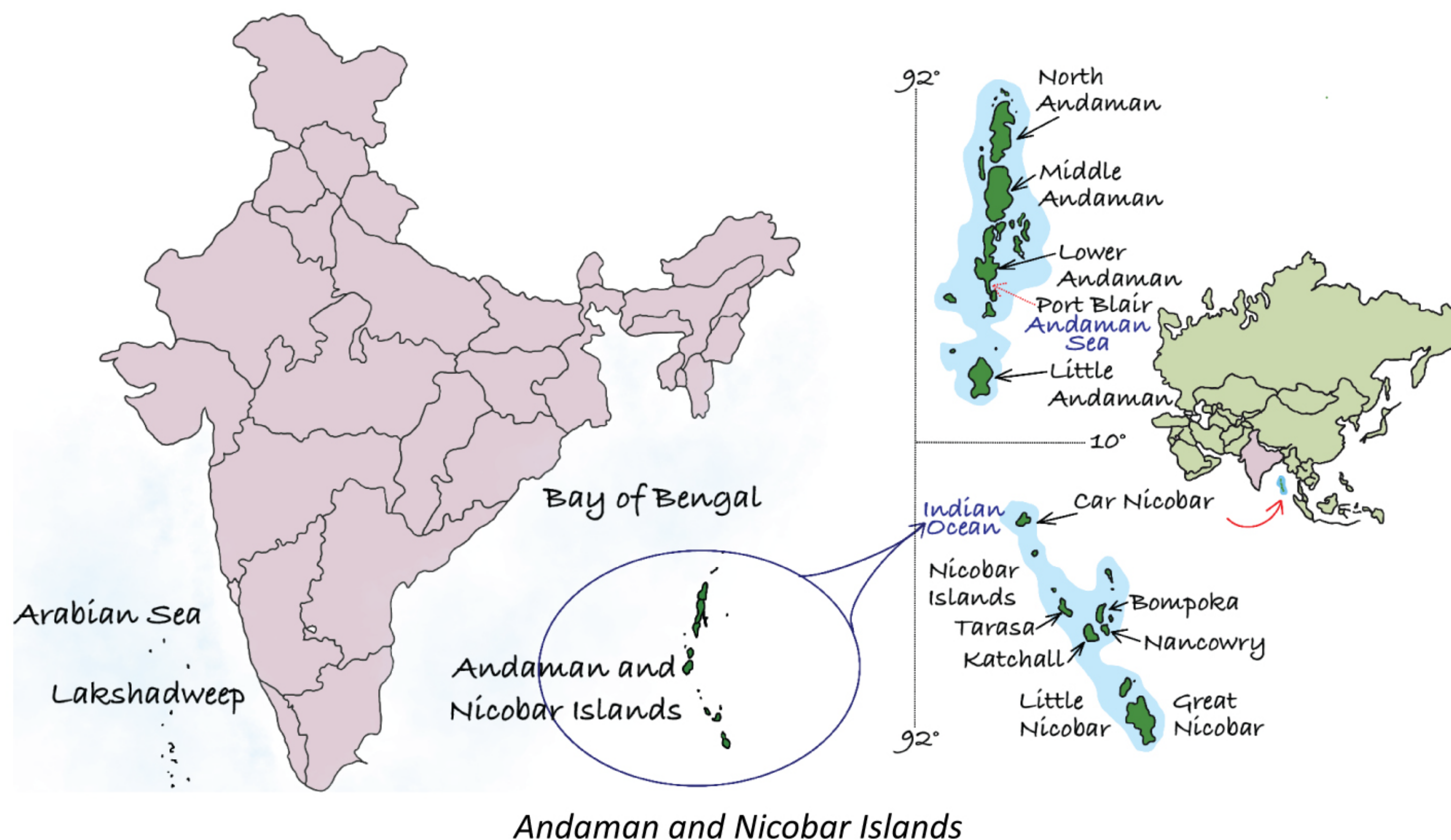
1st
Edition

Principles of
**INDIAN
GEOGRAPHY**

For UPSC CSE & State PCS

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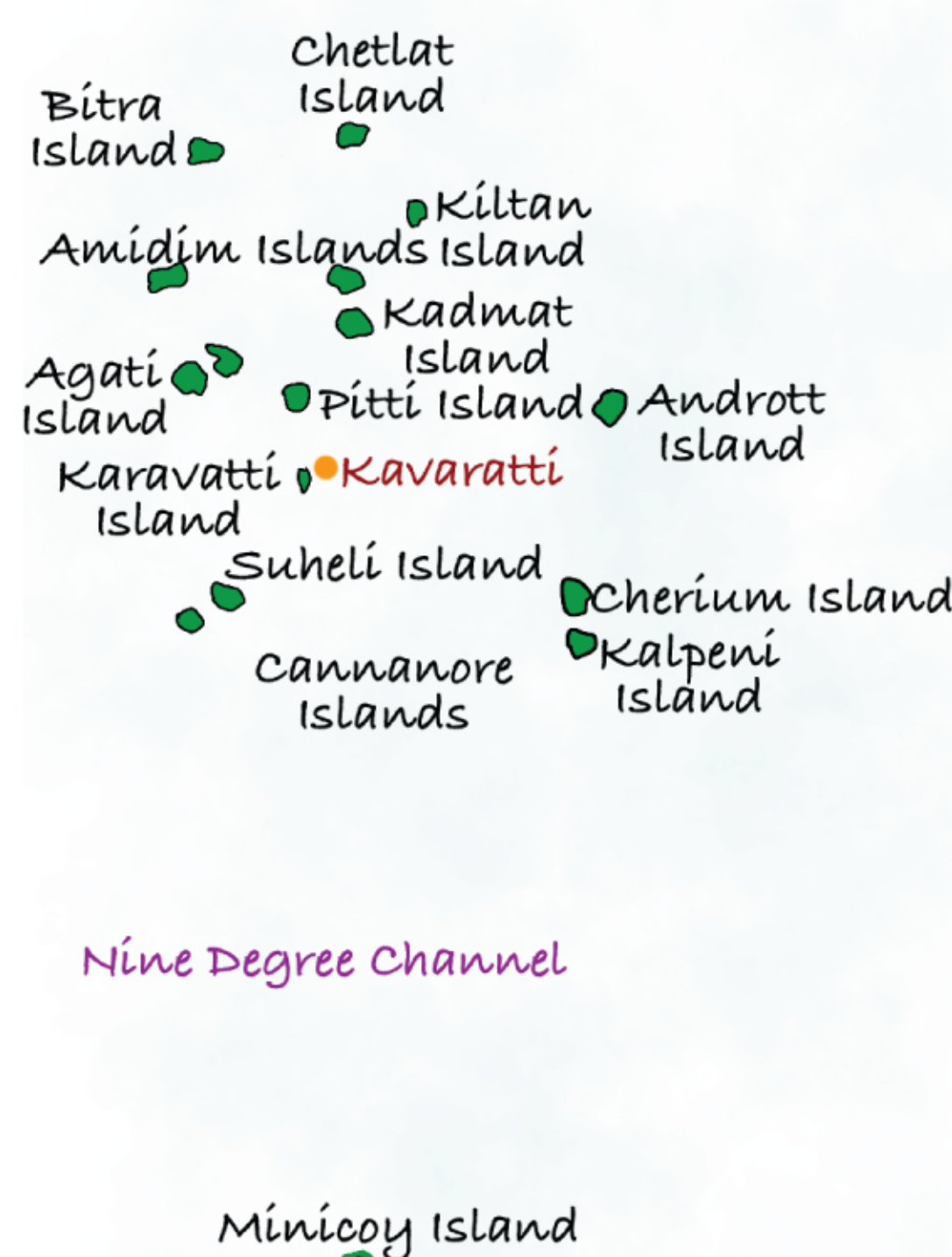
- The coasts of the islands have beautiful beaches and coral deposits. The islands receive a good amount of convectional rainfall while having an equatorial type of vegetation.
- **Saddle Peak** is the highest peak on the island. It is located in North Andaman. The Great Nicobar island is the largest island in the Nicobar group. It is also the southernmost island. Nicobar Island is 147 kilometers away from the Sumatra Island of Indonesia.

Lakshadweep Islands:

The Lakshadweep Islands were earlier known as the Amindivi, Minicoy, and Laccadive Islands. The Islands are scattered forming an archipelago in the Arabian Sea and located within 8°N-12°N and 71°E -74°E longitude. The islands are located at a distance of 280-480 kilometers away from the Kerala coast.

Features of the Lakshadweep Islands:

- The entire island is made up of coral deposits and comprises around 36 islands out of which 11 are inhabited. The largest island among the island group is Minicoy Island which lies to the south of the nine-degree channel. The Cannanore and Amindivi islands lie in the north.
- The islands, while lying in a north-south direction, are not more than five metres above the mean sea level.



- The island is covered with vegetation of palm trees. The island group makes the smallest union territory of India.

DO YOU KNOW?

8 Degree Channel: The maritime boundary between the Maldives and India runs through the Eight Degree Channel.

9 Degree Channel: The Nine Degree Channel separates the island of Minicoy from the main Lakshadweep archipelago.

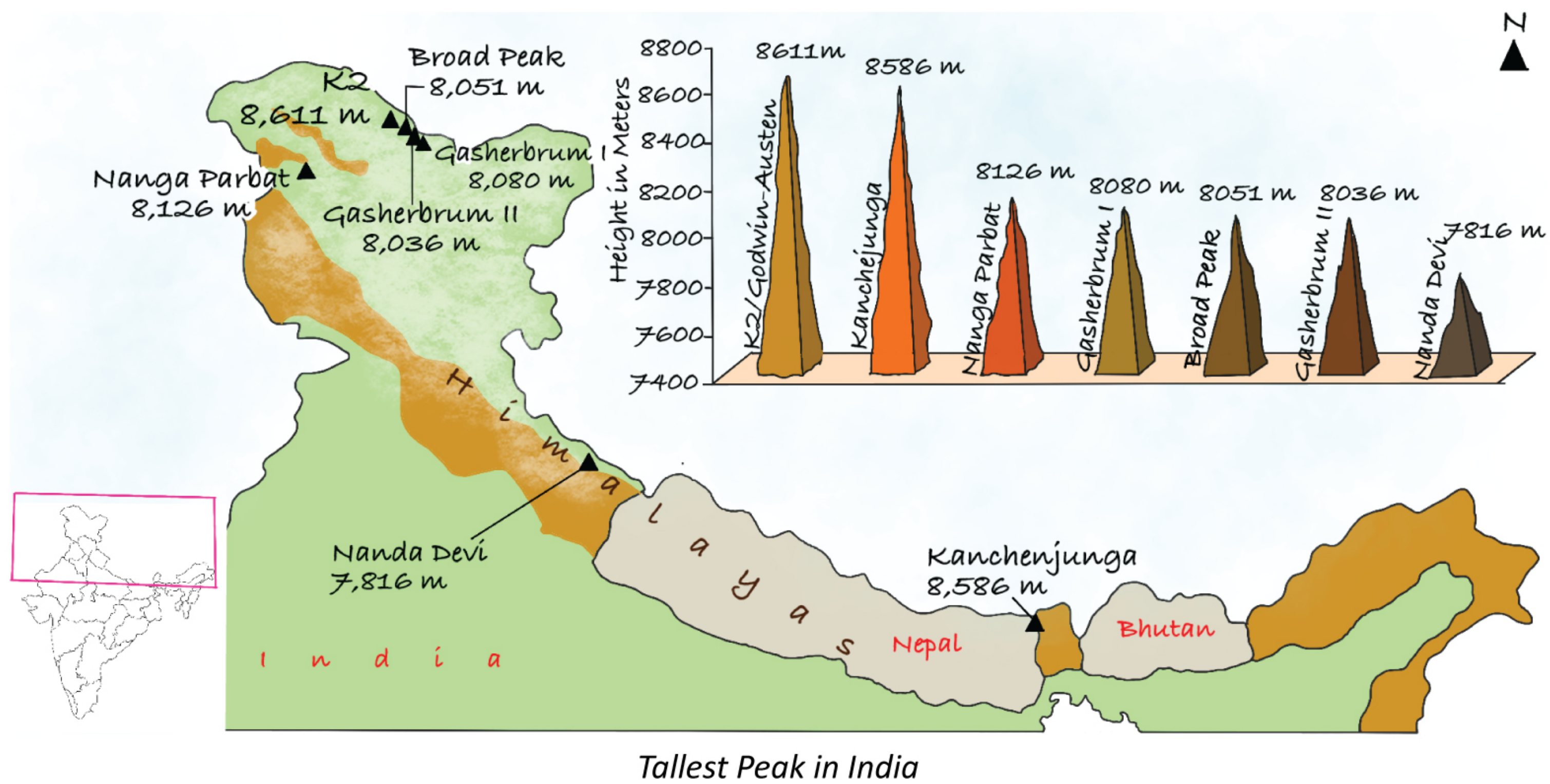
10 Degree Channel: The Ten Degree Channel separates the Andaman Islands and the Nicobar Islands from each other in the Bay of Bengal.



Mountain Peaks in of Himalayas

Peak	Range	State	Height	Important Features
K2 (Godwin Austen)	Karakoram		8611 metres	It is the highest peak in the Indian subcontinent. It is located between Baltistan and Xinjiang. It is Karakoram's highest peak. Because of the difficulty of ascent, it is known as the Savage Mountain, and it has the second highest fatality rate after the Annapurna. It is never possible to climb it in the winter.
Kangchenjunga	Eastern Himalaya	Sikkim	8586 metres	It is the world's third highest peak. Also known as the "five snow treasures." It is located in the Himalayan Mountain Range.
Nanda Devi	Garhwal Himalaya	Uttarakhand	7816 metres	Nanda Devi is Uttarakhand's highest peak, located between the Milam Glacier and the Pindar Glacier. It is located within the Nanda Devi National Park. It is second highest peak (excluding PoK). The Nanda Devi National Park contains the best high-altitude flora and fauna. This is the highest point entirely within India.
Kamet	Garhwal district	Uttarakhand	7756 metres	It is Uttarakhand's second highest peak, located north of the Gangotri Glacier, near the Tibetan border. It is located in the Chamoli district. It is a Great Himalayan peak near the Mana Pass.
Saltoro Kangri	Karakoram range		7742 metres	It is located near the Siachen Region. The Saltoro Kangri is the world's 31st highest independent peak. It belongs to the Saltoro family (a part of the Karakoram Mountain range)
Saser Kangri	Saser Muztagh range	Ladakh	7672 metres	It is found in Ladakh. This mountain peak is the world's 35th highest mountain peak. It is located in the ccc (an easternmost subrange of Karakoram Range.)
Mamostong Kangri/ Mamostang Kangri	Rimo Muztagh range		7516 metres	It is close to the Siachen Glacier. It is India's 48th independent peak. It is the Rimo Muztagh range's highest peak (a subrange of the Karakoram range)
Rimo I			7385 metres	It is a part of Rimo Muztagh, a subrange of Great Karakoram range.
Hardeol	Kumaon Himalaya		7151 metres	This peak is also referred to as the 'Temple of God.' It is one of the Kumaon Himalaya's oldest peaks.
Chaukhamba I	Garhwal district		7138 metres	It is situated in Uttarakhand's Garhwal district.
Trisul I	Kumaon Himalaya		7120 metres	It is one of three mountain peaks in Uttarakhand's Kumaon Himalaya.
Satopanth	Garhwal range of Himalayas		7075 metres	It is located in the Garhwal Himalayas' Gangotri region (Uttarakhand). It is situated within the Gangotri National Park. This peak is the source of the Alaknanda River.
Kangto	Eastern Himalaya	Arunachal Pradesh	7060 m	Kangto, mountain in the eastern Himalayas in western Arunachal Pradesh state, northern India, on the border with the Tibet Autonomous Region of China. It is also known as Kanggardo Rize. It is the source of the Pachuk river which is a tributary of the River Kameng.

Peak	Range	State	Height	Important Features
Reo Purguil	Western Himalaya	Himachal Pradesh	6816 m	Reo Purguil, sometimes known as Leo Pargial and Leo Pargil is a mountain peak at the southern end of the Zaskar Range in the Western Himalaya area of the Himalayas. It is located on the Himachal Pradesh and Tibetan border in the Kinnaur district of Himachal Pradesh, India.
Mount Saramati	Naga Hills	Nagaland	3826 m	Saramati is the highest peak in the state of Nagaland and occupies a place of pride in the heart of its residents. This peak is located on the Nagaland-Myanmar border
Sandakphu	Eastern Himalaya	West Bengal	3636 m	Sandakphu is the highest peak in the state of West Bengal, India. It is the highest point of the Singalila Ridge in Darjeeling district on the West Bengal-Nepal border. The peak is located at the edge of the Singalila National Park
Mount Iso	Senapati District	Border of Manipur and Nagaland	2994 m	



Mountain Peaks of Peninsular India

Peak	Range	State	Height	Important Points
Anamudi	Western Ghats	Kerala	2695 m	Anamudi, the 2,695-m high mountain which stands tall in the Eravikulam National Park is the pride of Kerala. It is the highest point in India outside the Himalayan Mountain Ranges. Anamudi, together with the Eravikulam Park, is home to one of the largest surviving populations of Asian elephants, Gaurs and the Nilgiri Tahrs.
Doddabetta	Nilgiri Hills	Tamil Nadu	2637 m	It is the highest peak of the Nilgiri Hills in the Nilgiri district of Tamil Nadu. Shola forests over its slopes
Phawngpui	Saiha District	Mizoram	2157 m	Phawngpui also known as Blue Mountain, is the highest mountain peak in the Mizo Hills (Lushai Hills) and in the state of Mizoram, India, with an elevation of 2157 m. It is in Lawngtlai district, in the southeastern region of Mizoram near the Myanmar border.

The Sutlej River System

River Name	Sutlej
Origin	Mansarovar-Rakas Lake near Darma Pass in Tibet
Length	1450 Km (1050 Km in India)
Discharge	Joins Chenab and together they form Panjnad and discharge into the Indus.
Major Cities	Kapurthala district of Punjab
Right Bank Tributaries	Spiti, Beas, Chenab
Left Bank Tributaries	Baspa
Major Dams	Bhakra-Nangal Dam

The Sutlej is the longest of the five rivers (Jhelum, Chenab, Ravi, Beas, and Sutlej) that flow through the Punjab region in northern India and Pakistan. The river originates from **Mansarovar-Rakas Lake** near Darma Pass in Tibet. The river is known as Langchen Khamban in Tibet. The river flows almost parallel to the Indus River for 400 kilometers before entering India through **Shipkila Pass**. The main tributary of the Sutlej River is the **Spiti River**. The Spiti River joins Sutlej at Namgia. It feeds the Bhakra Nangal canal system. After entering the plains at Rupar, the river turns westward and joins Beas at Harike. From Ferozpur, it forms the boundary between India and Pakistan for 120 Kilometres.

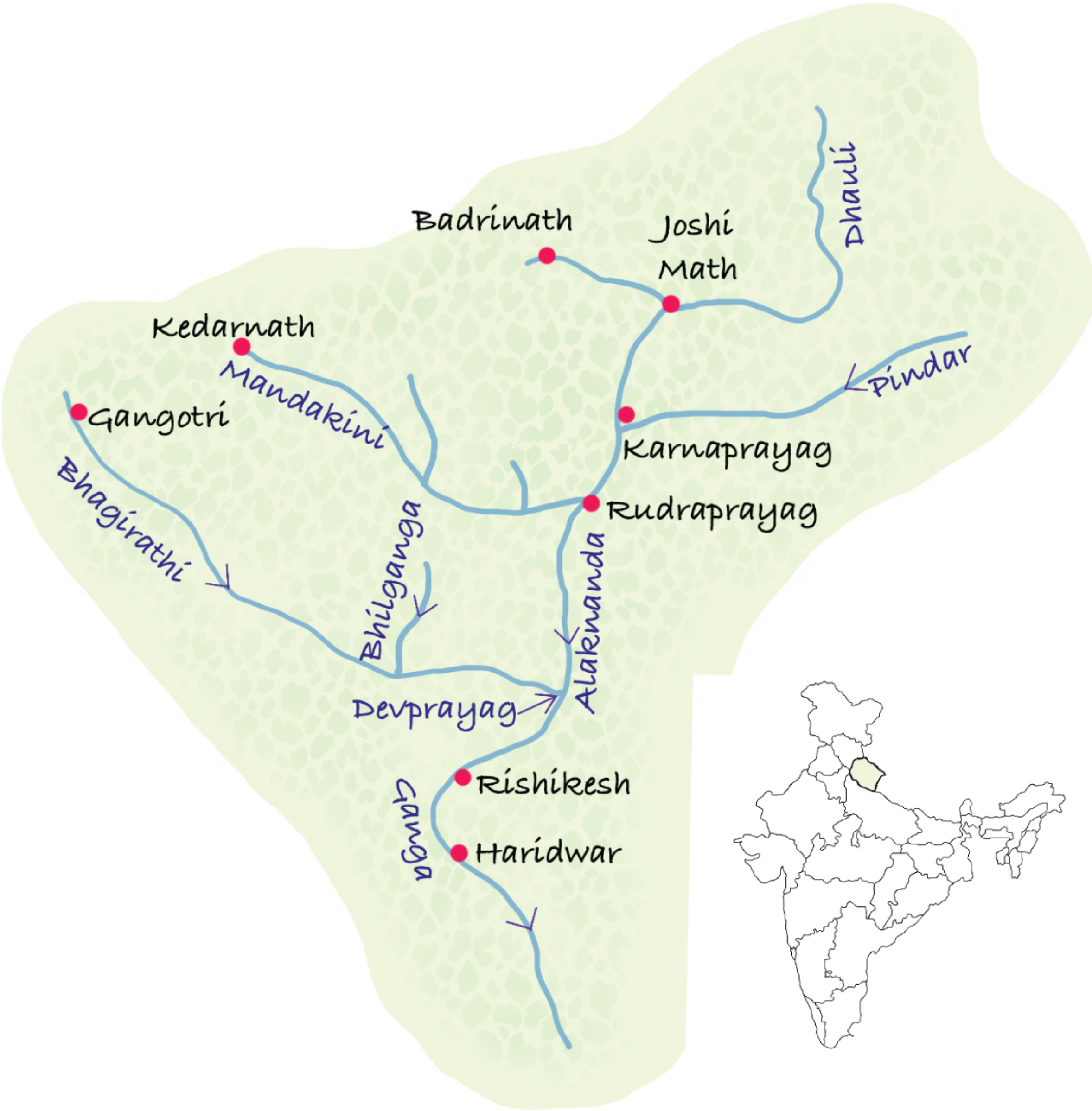
The Ganga River System

The Ganga River is a lifeline to millions of people and India’s longest river. It has a historical and mythological significance. Many imperial capitals like Pataliputra, Kannauj, and Munger have flourished on the banks of the river Ganga. Apart from cultural and geographical significance, it has an environmental significance. The deteriorating condition of the Ganga River system has raised concerns in India.

The Ganga rises as **Bhagirathi** from the **Gangotri glacier at Gaumukh** at 7,010 meters above the mean sea level. **Alaknanda**, another head-stream of river Ganga,

originates from the **Satopanth glacier near Badrinath**. Alakananda River flows to meet the Dhauliganga River at **Vishnuprayag**, the Pindar River at **Karnaprayag**, the Mandakini or Kali Ganga at **Rudraprayag** and finally the Bhagirathi at **Devprayag**. At Devprayag, the river gets its name **“Ganga.”**

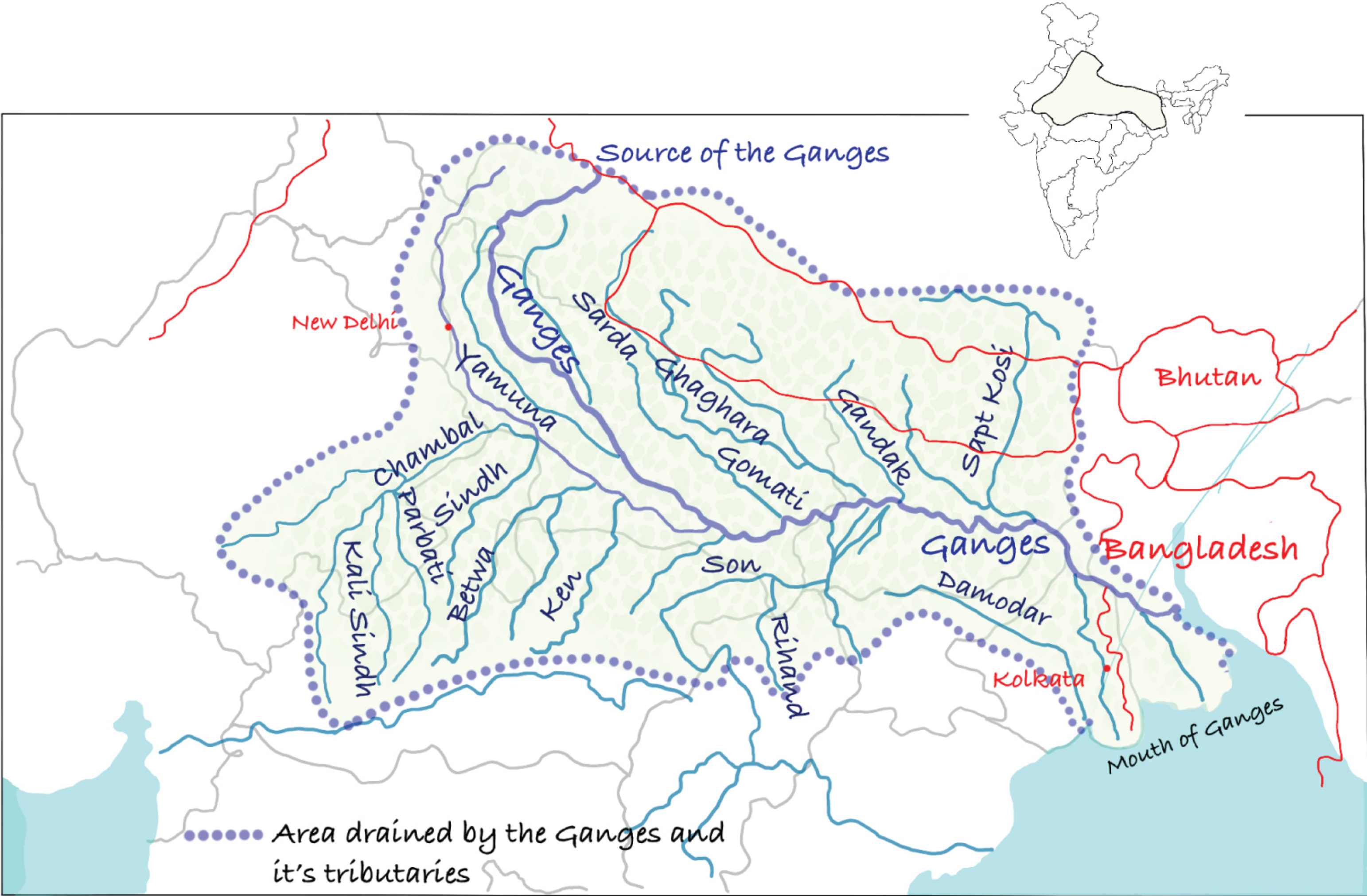
After flowing 280 kilometers from its source southwest, Ganga touches the Gangetic Plains at **Haridwar**. Haridwar is considered one of the major holy pilgrimages for Hindus. From this point, the Ganga River starts flowing south-east direction through the plains of northern India. The river takes a curved path while passing through the city of Kanpur before being joined by the **River Yamuna** from the southwest direction at **Allahabad**. The river passes some major towns like



The Ganga and its Tributaries in the Area of Origin

Varanasi, Buxar, Patna, and Bhagalpur. The Ganga River is joined by numerous rivers such as **Kosi, Son, Gandak, and Ghaghra** before changing its course in the south direction.

At Pakur, the river begins to branch its distributaries. The first distributary, the **Bhagirathi-Hoogly**, forms the **Hooghly River**. Near the border of Bangladesh, the



Ganga Drainage System

Farakka Barrage was built to control the Ganges’ flow by diverting water to the Hoogly River and keeping it relatively silt free.

Do You Know?

Panch Prayag is an expression that is used to connote the five sacred river confluences forming in the Himalayas in the state of Uttarakhand. “Panch Prayag” refers to five river confluences that descend from the Garhwal Himalayas to join the main head stream **Alakananda**. Alakananda descends from the **Satopanth Glacier** and joins

- 1. **Dhauliganga** to form the confluence at **Vishnuprayag**.
- 2. **Nandakini** to form the confluence at **Nandprayag**.
- 3. **Pindar Ganga** to form the confluence at **Karnaprayag**.
- 4. **Mandakini** to form the confluence at **Rudraprayag**.
- 5. **Bhagirathi** to form the confluence at **Devaprayag**.

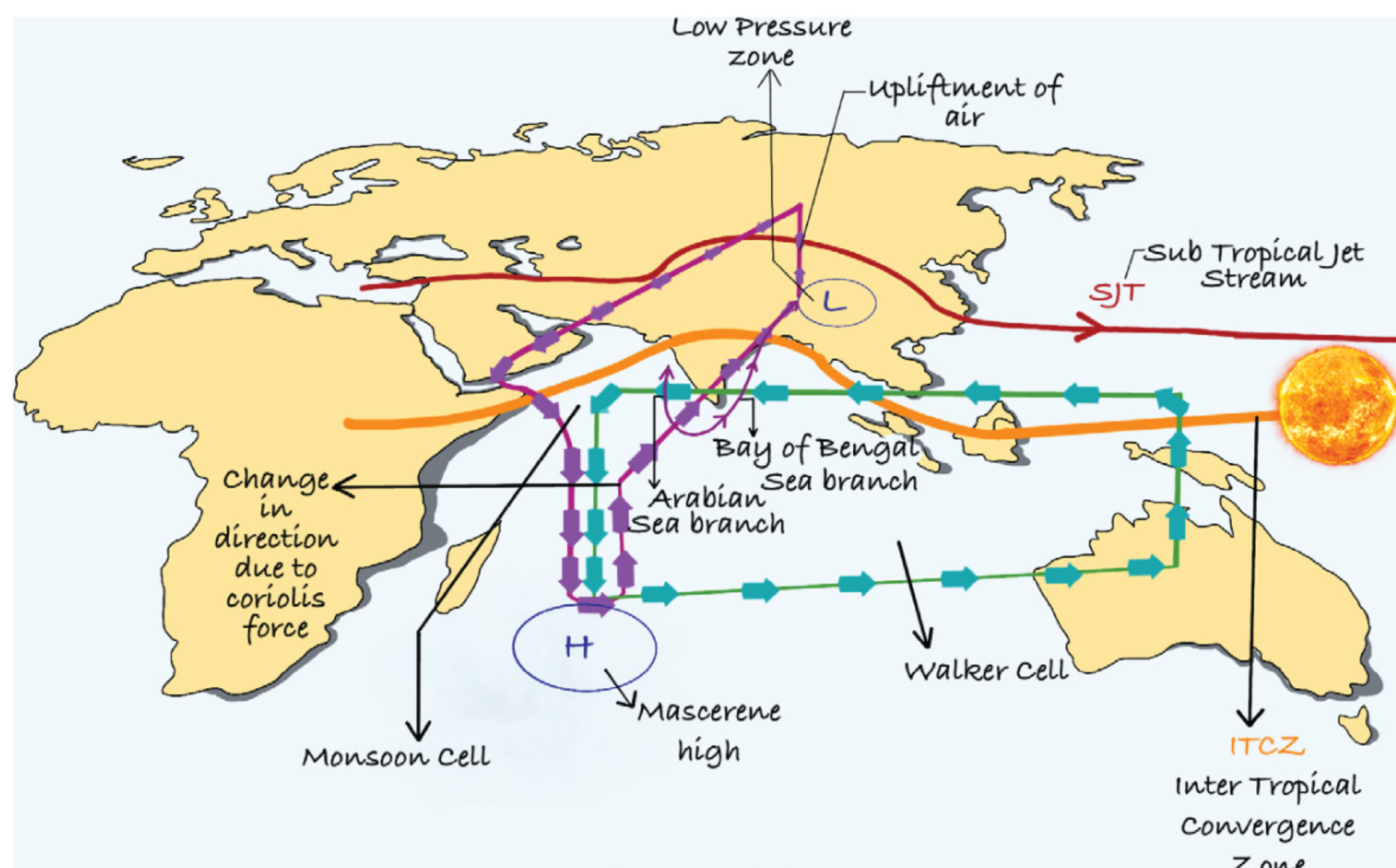
At Devaprayag, two headstreams **Bhagirathi** and **Alakananda** combine to form the river **Ganga**, and then it flows south to drain into the Bay of Bengal.

After entering Bangladesh, the main branch of the Ganga is named the **Padma** until it joins **Jamuna (the largest tributary of the Brahmaputra River)**. Flowing downstream, the Padma River is fed by another river

named **Meghna, the second largest tributary of the Brahmaputra River**. Both Padma and Meghna merge and are called Meghna. The Meghna River falls into the Bay of Bengal, forming an estuary near Sagar Island.

The total length traversed by the river Ganga is **2525 kilometers**. River Ganga passes through Uttarakhand, Uttar Pradesh, Bihar, and West Bengal. **Yamuna and Son** are the major right-bank tributaries. The principal left bank tributaries are the **Ramganga, the Gandak, the Ghaghara, the Gomati, the Kosi, and the Mahananda** from west to east.

River Name	Ganga
Origin	Bhagirathi from the Gangotri glacier at Gaumukh
Length	2525 Km
Discharge	Bay of Bengal
Major Cities	Varanasi, Kanpur, Rishikesh, Haridwar, Buxar, Patna, Bhagalpur, Munger
Right Bank Tributaries	Yamuna, Son, Damodar
Left Bank Tributaries	Ramganga, Gandak, Ghaghara, Gomati, Kosi, Mahananda
Major Dams	Lav-Kush Barrage in kanpur



Development of South West Monsoon

As the sun shifts northwards toward the tropic of cancer, there is intense heating of the Indian subcontinent. This heating results in the formation of the low-pressure zone over the subcontinent. This low-pressure zone doesn't immediately attract the monsoonal winds because of two reasons:

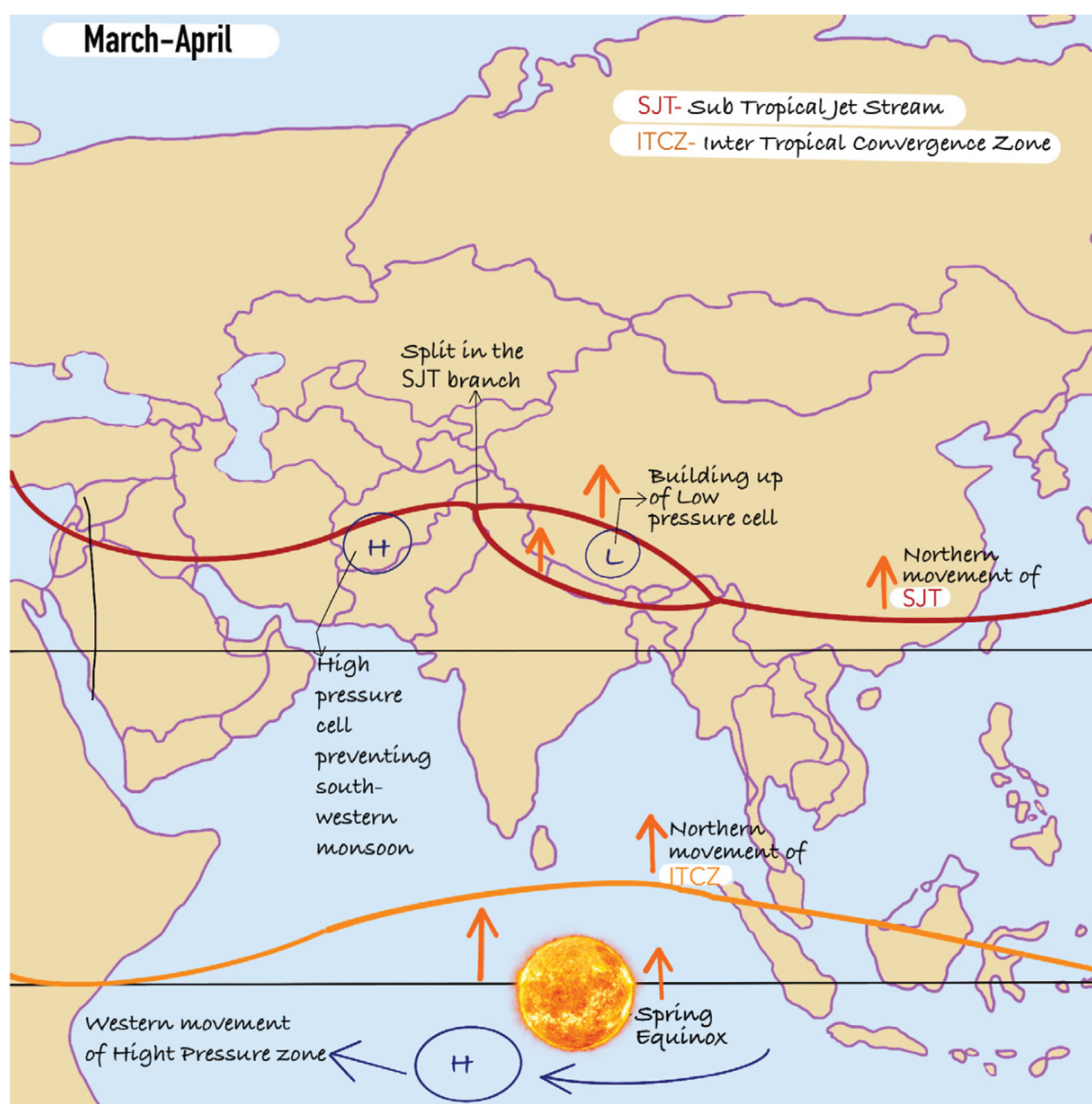
1. The presence of the subtropical jet streams blows to the south of the Himalayas.
2. The presence of a subtropical high-pressure belt over the northern plains.

By the end of March and the beginning of April, we notice the northward movement of the subtropical jetstreams (STJ) and the ITCZ. During April, we also notice the splitting up of the STJ into two branches, the northern branch and the southern branch. The northern branch moves **over the Himalayan mountain ranges** and the southern **below the Himalayas**. The movement of the ITCZ over the Indian subcontinent also results in occasional thunderstorms in the regions where the ITCZ moves.

The onset of Southwest Monsoon:

While there is no specific date for the onset of the monsoon, the onset is marked by the movement of ITCZ

to 20-25 °N latitude and the STJ moves completely over the Himalayas. The northern and southern branches of the jet stream reunite as a single branch and flow to the north of the Himalayas across the Tibetan plateau. This results in the sudden burst of the monsoon around the



Atmospheric Condition During March and April

Town planning involves the designing and planning of the physical layout of the cities. It involves planning the infrastructure like roads, buildings, residential areas, and sewage lines of an urban area. It is done to beautify the town, arrange it in such a manner to make it convenient and at the same time ensure the proper health of the inhabitants.

Case Study- Delhi NCR

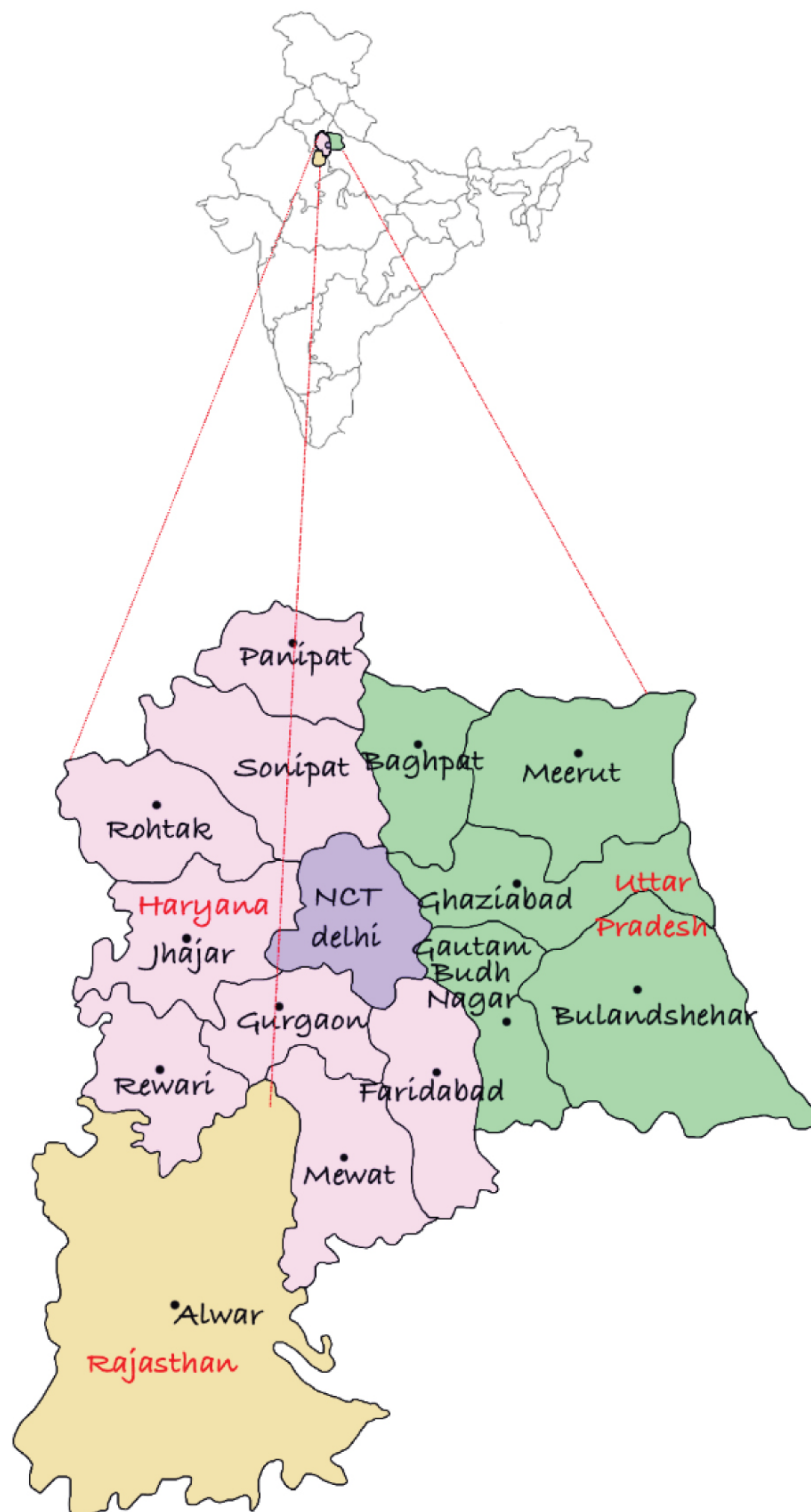
The National Capital Region (NCR) comprises the entire national capital territory of Delhi, which includes New Delhi and urban areas surrounding it in its neighbouring states of Uttar Pradesh, Haryana and Rajasthan. NCR is the world's largest agglomeration with a population of over 46,069,000. All the regions of NCR together generated a GDP of \$128.9 billion in 2011-2012, which was 7.5% of the Indian GDP. Urban regions of Delhi have been given the special status of National Capital Region (NCR) under 69th Amendment Act of 1991 in the Constitution of India.

Total 22 districts in three neighbouring states of Uttar Pradesh, Haryana and Rajasthan along with the whole of the National Capital Territory region of Delhi forms the National Capital Region (NCR) of India as mentioned in National Capital Region Planning Board (NCRPB) Act, 1985.

The plan was to develop a metropolitan region around Delhi in order to divert the escalating pressure of population from Delhi due to which the concept of the National Capital Region was first mentioned in 1962. This plan aims to protect Delhi's infrastructure from extreme pressure.

Participating States and their Districts in NCR

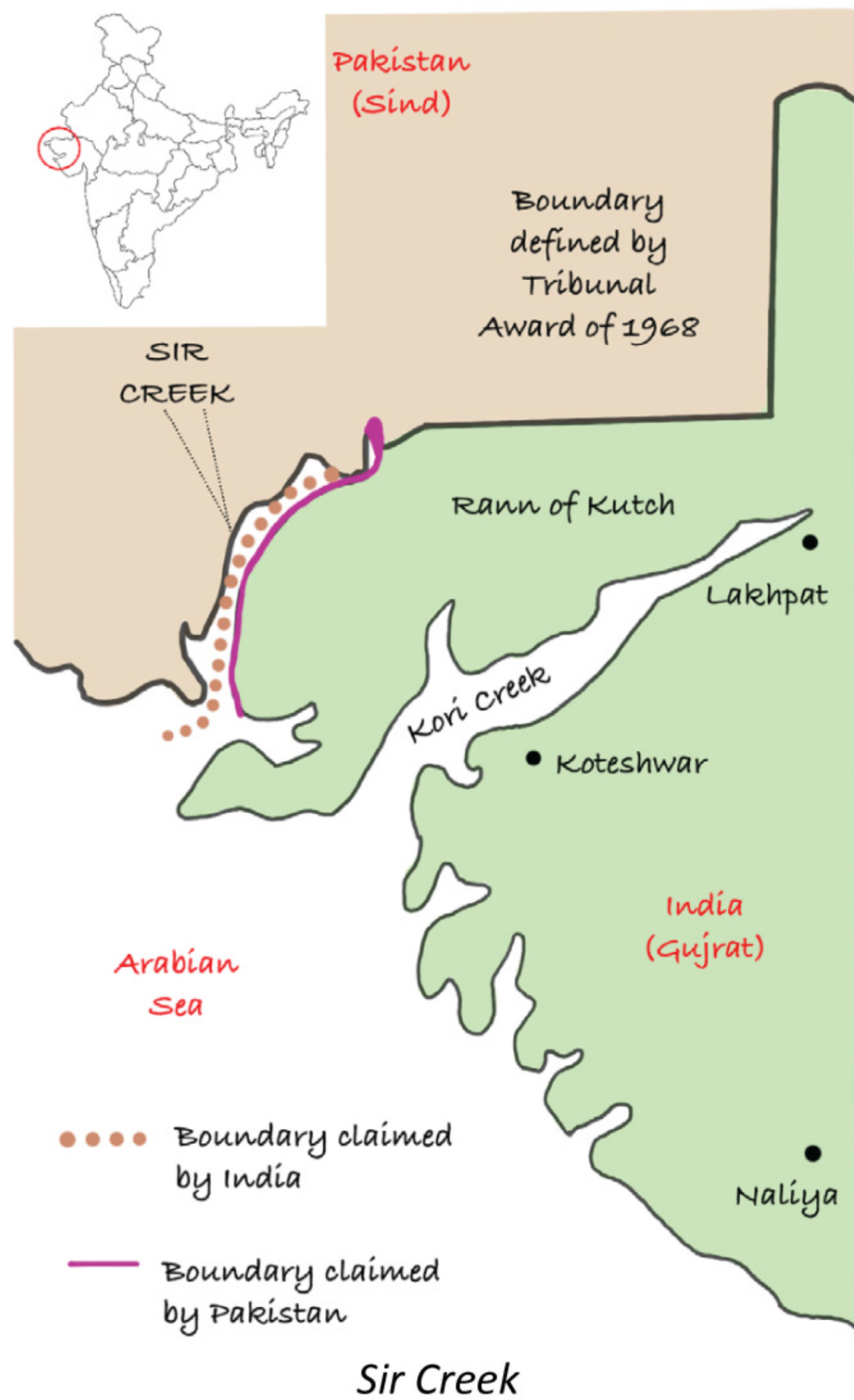
1. National Capital Territory of Delhi - It covers Delhi and New Delhi.
2. Haryana – Bhiwani, Faridabad, Gurgaon, Jhajjar (Jhajjar and Bahadurgarh), Mahendragarh, Panipat, Rewari, Rohtak, Sonipat, Mewat, Palwal, Jind, Karnal.
3. Rajasthan – Alwar, Bharatpur
4. Uttar Pradesh – Baghpat, Bulandshahr, Gautam Buddha Nagar District (Noida and Greater Noida), Ghaziabad, Muzaffarnagar, Meerut Hapur



Delhi NCR

Things that should be taken care of to ensure proper town planning-

1. The future growth of the town should be kept in mind and accordingly it should be planned.
2. Buildings should be planned according to the convenience of the people. For example, the residence should be closer to the workplace.
3. Requirements for the next 50 years should be considered while planning a town.
4. The roads and buildings should be made spacious keeping in mind the future growth of traffic. Growing demand for electric vehicles would need to establish a fast-charging infrastructure.



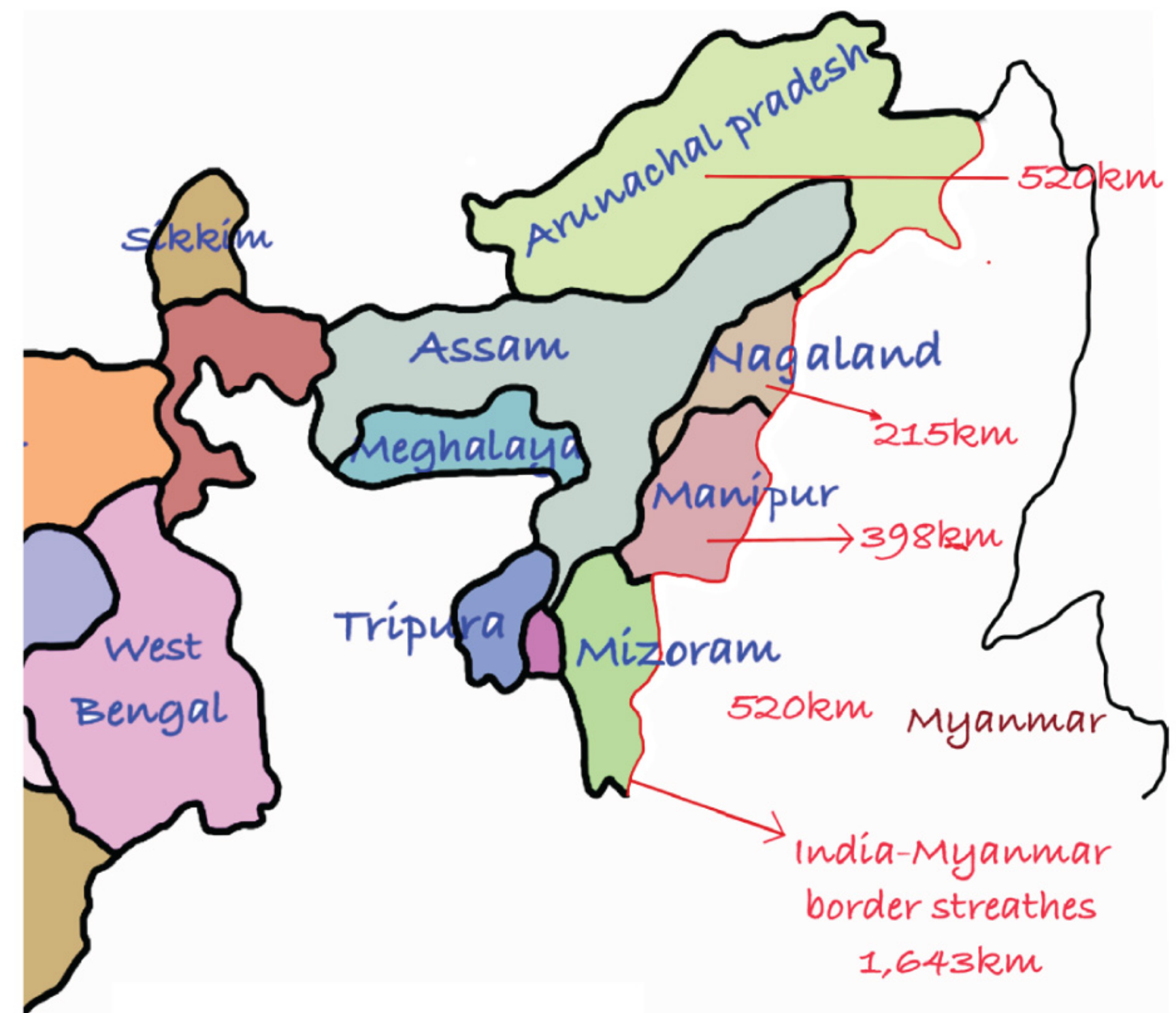
India-Bangladesh Border

India shares the largest land boundary with Bangladesh. The **Radcliffe Line** demarcates the boundary between the two countries. The states of India that shares the border with Bangladesh are **Assam, Tripura, Meghalaya, Mizoram, and West Bengal**. India shares cultural and language similarities with Bangladesh. The boundary question were unsettled for many enclaves (small pockets of territories) in each other's countries, which were recently swapped between India and Bangladesh.



India-Bangladesh Boundary

India-Myanmar Border:

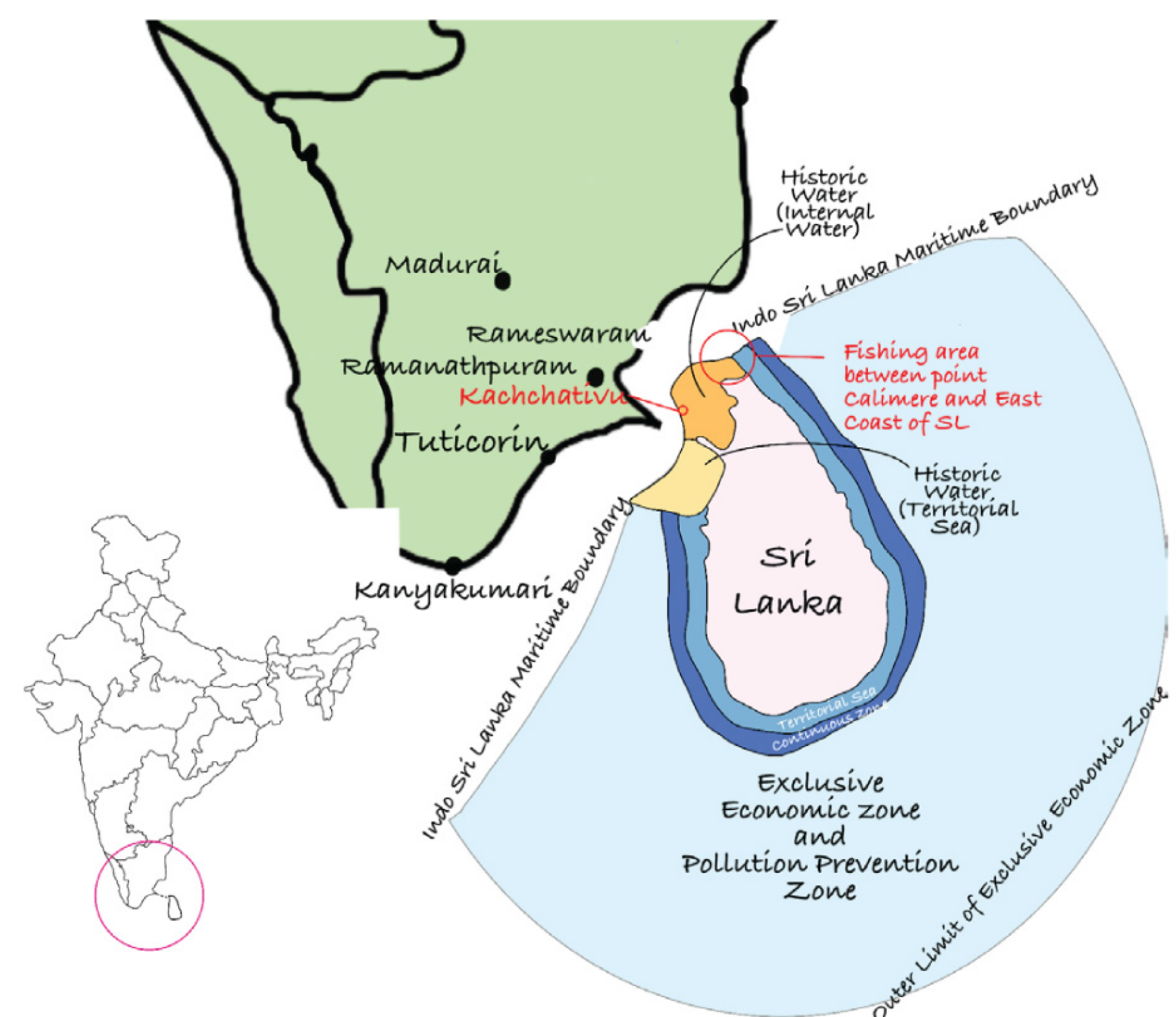


India-Myanmar Border

The boundary roughly runs through the watershed between **Brahmaputra** and **Irrawaddy** Rivers. The border passes through the thickly forested regions with Mizo Hills, Manipur, and Nagaland on the Indian side and Chin Hills, Naga Hills, and Kachin region on the Myanmar side. The states that border Myanmar are **Arunachal Pradesh, Nagaland, Manipur and Mizoram**.

India-Sri-Lanka Border:

The **Palk Strait** separates India and Sri-Lanka. Dhanushkodi in Tamil Nadu is 32 Kilometres away from the Jaffna Peninsula in Sri Lanka. India handed over the **Kachchatheevu Island** to Sri Lanka in 1974.



India-Srilanka Boundary