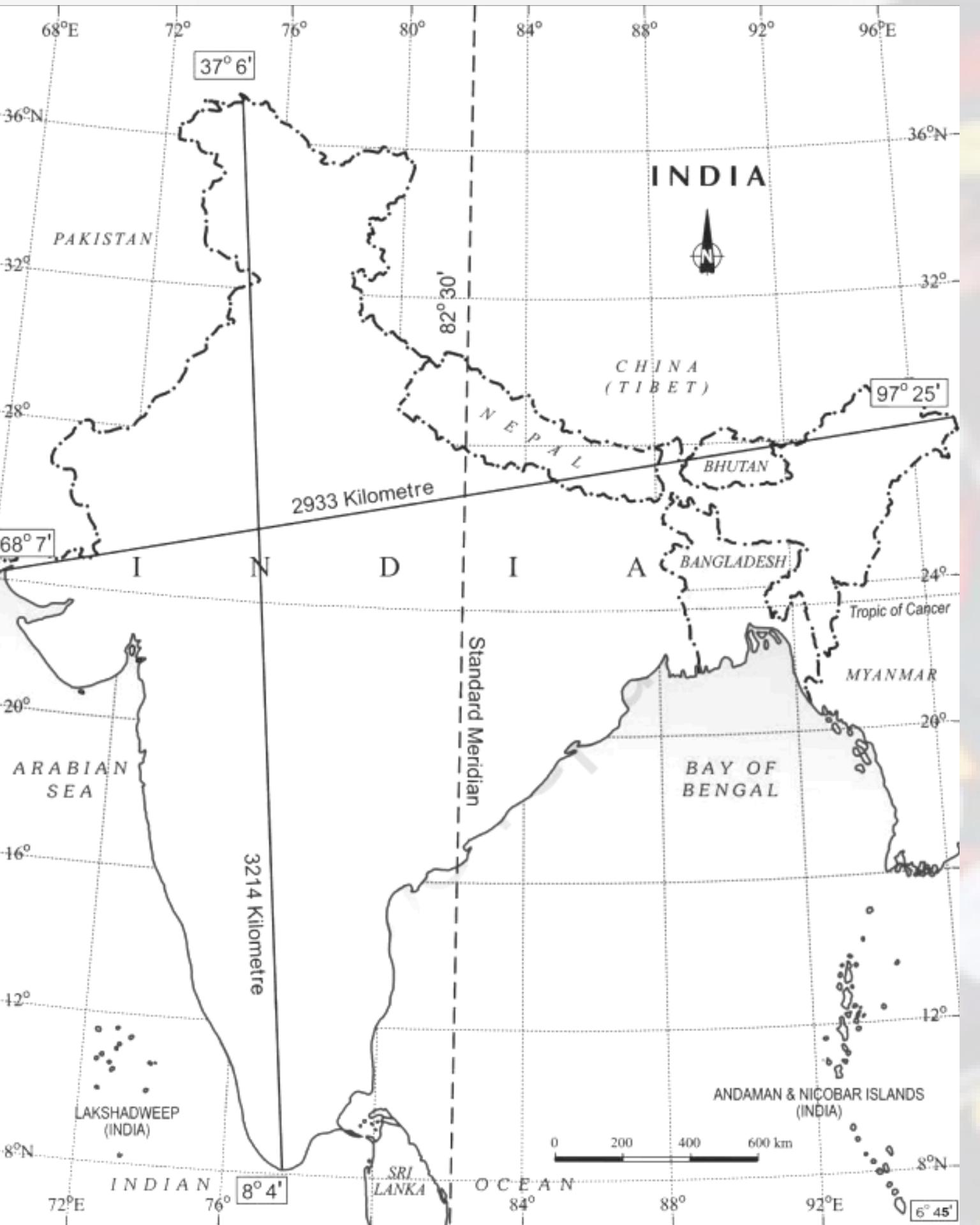


India: Geographical Extent & Frontiers



East-West Extent of Main Land India (Including Pak occupied Kashmir-POK):

68° 7' east to 97° 25' east longitude

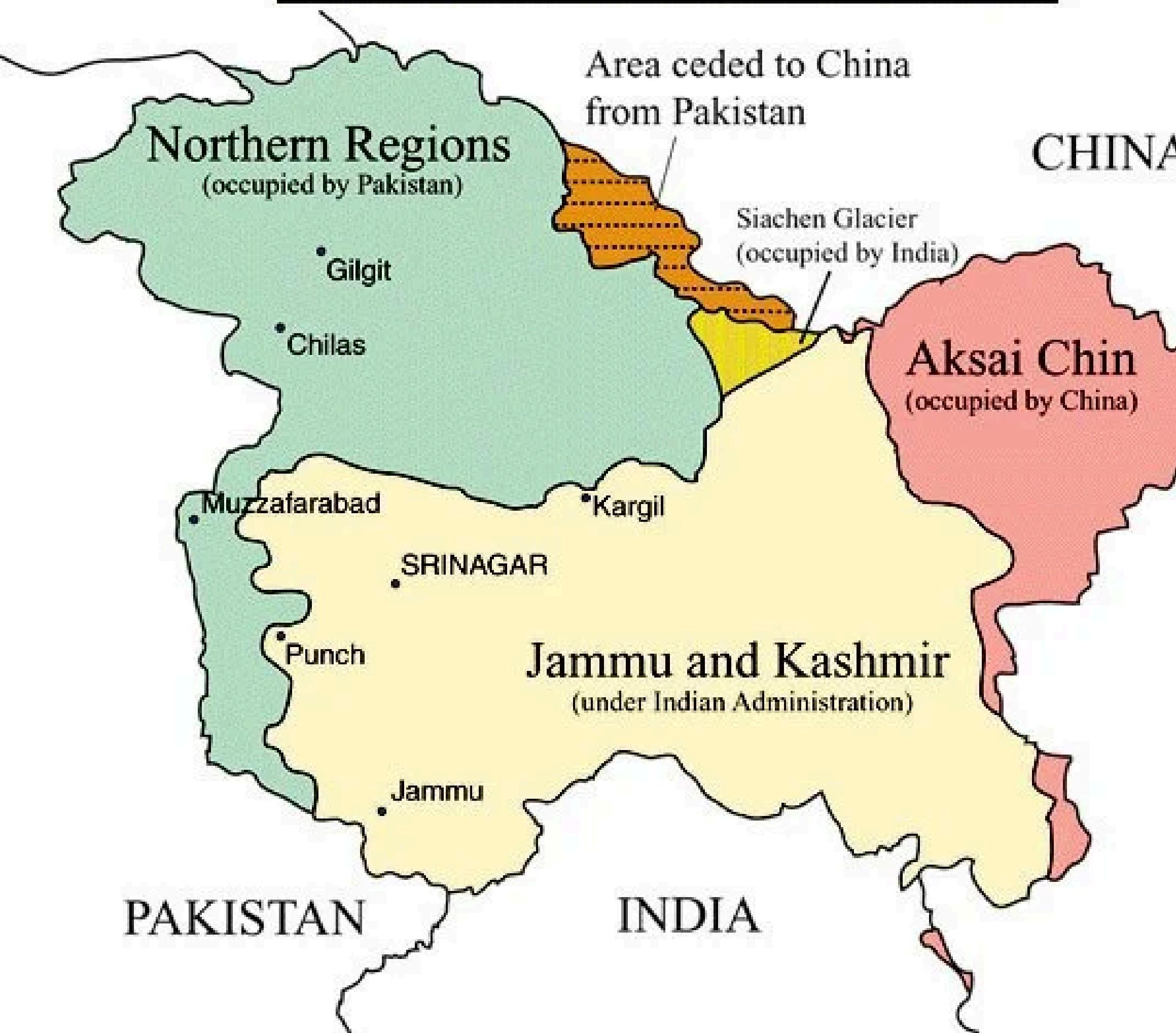
South-North Extent of Main Land India:

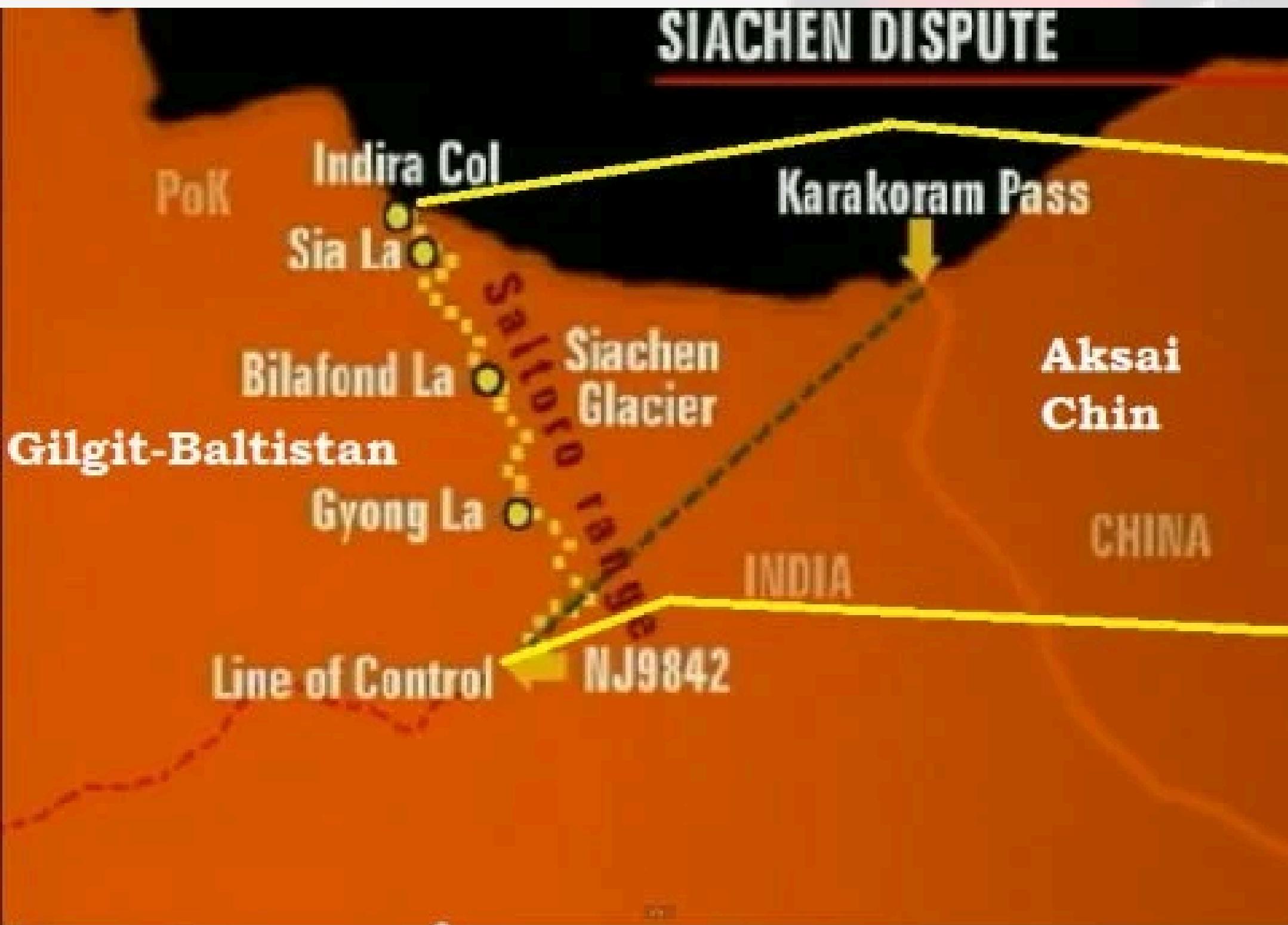
8° 4' north to 37° 6' north latitude

Locational Extent:

8° 4' N to 37° 6' N latitude and 68° 7' E to 97° 25' East longitude.

PRESENT MAP OF JAMMU & KASHMIR





SIACHEN DISPUTE

Indira Col

$35^{\circ}39' \text{ N}, 76^{\circ}47' \text{ E}$

tripoint where territories controlled by India, Pakistan and China meet.

NJ9842

$35^{\circ} \text{ N}, 77^{\circ} \text{ E}$

northernmost demarcated point of the India-Pakistan cease fire line known as the Line of Control

Top 10 Largest Countries in the World by Area



Rank	Country	Capital City	Continent	Area (square km)
1	Russia	Moscow	Europe	17098242
2	Canada	Ottawa	North America	9984670
3	United States of America	Washington DC	North America	9826675
4	China	Beijing	Asia	9596961
5	Brazil	Brasilia	South America	8514877
6	Australia	Canberra	Oceania	7741220
7	India	New Delhi	Asia	3287263
8	Argentina	Buenos Aires	South America	2780400
9	Kazakhstan	Astana	Asia	2724900
10	Algeria	Algiers	Africa	2381741



India's Geographical Extent:

- Southernmost Point: Indira Point (formerly Pygmalion Point) at $6^{\circ}45'N$ latitude.
- North-South Extent: 3,214 km from Indira Col to Kanyakumari.
- East-West Width: 2,933 km from Rann of Kutch to Arunachal Pradesh.
- Area: 32,87,263 sq km (7th largest globally), 2.4% of the world's surface.
- Tropic of Cancer: Divides India, with the area north of it being twice the size of the area south of it.
- Peninsula: Extends over 800 km south of $22^{\circ}N$ latitude into the Indian Ocean.
- Time Difference: 2 hours between the westernmost and easternmost points, due to 30 degrees longitudinal difference (1° longitude = 4 minutes).



India's Frontiers: Key Facts

- Land Border: 15,106.7 km across 92 districts in 17 states.
- Coastline: 7,516.6 km (6,100 km mainland + 1,197 km islands) touching 13 states and UTs.
- Frontline States: All states except MP, Chhattisgarh, Jharkhand, Delhi, Haryana, Telangana.
- Longest Border: Bangladesh
- Shortest Border: Afghanistan

Name of the country	Length of the border (in Km)
Bangladesh	4,096.7
China	3,488
Pakistan	3,323
Nepal	1,751
Myanmar	1,643
Bhutan	699
Afghanistan	106
Total	15,106.7

India's Land Borders:



Border with China:

- Second longest border.
- Five Indian states share this border: Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, and Arunachal Pradesh.
- Three sectors: Western, Middle, and Eastern.
- Disputes: Aksai Chin, Changmo Valley, Pangong Tso, Sponggar Tso, Huza-Gilgit area.

Border with Nepal:

- Five Indian states: Uttarakhand, Uttar Pradesh, Bihar, West Bengal, Sikkim.
- Porous border with unrestricted movement.
- Runs along the Shiwalik Range foothills.

Border with Bhutan: Peaceful, no disputes.



Border with Bangladesh:

- India's longest border (4,096 km).
- Determined by the Radcliffe Award.

Border with Myanmar:

- Runs along the Brahmaputra-Ayeyarwady watershed.
- Passes through dense forests.

Border with Sri Lanka:

- Separated by the Palk Strait.
- Closest points: Dhanushkodi (India) and Talaimanar (Sri Lanka), connected by Adam's Bridge.



Border with Pakistan:

- Result of the 1947 Radcliffe Award.
- Major disputed regions: Jammu and Kashmir, Sir Creek.

India : Size & Location

Size

Landmass of India has

- Area: 3.28 million square km.
- Land boundary: 15,200 km.
- Length of coast line: 7,516.6km.
- Standard Meridian: 82°30'E

India & The World

- Central location between the East & the West Asia.
- Trans Indian Ocean routes connect West European countries & East Asian countries.
- Various passes across northern mountains provided passages to ancient travellers.
- Routes have contributed in the exchange of ideas and commodities.

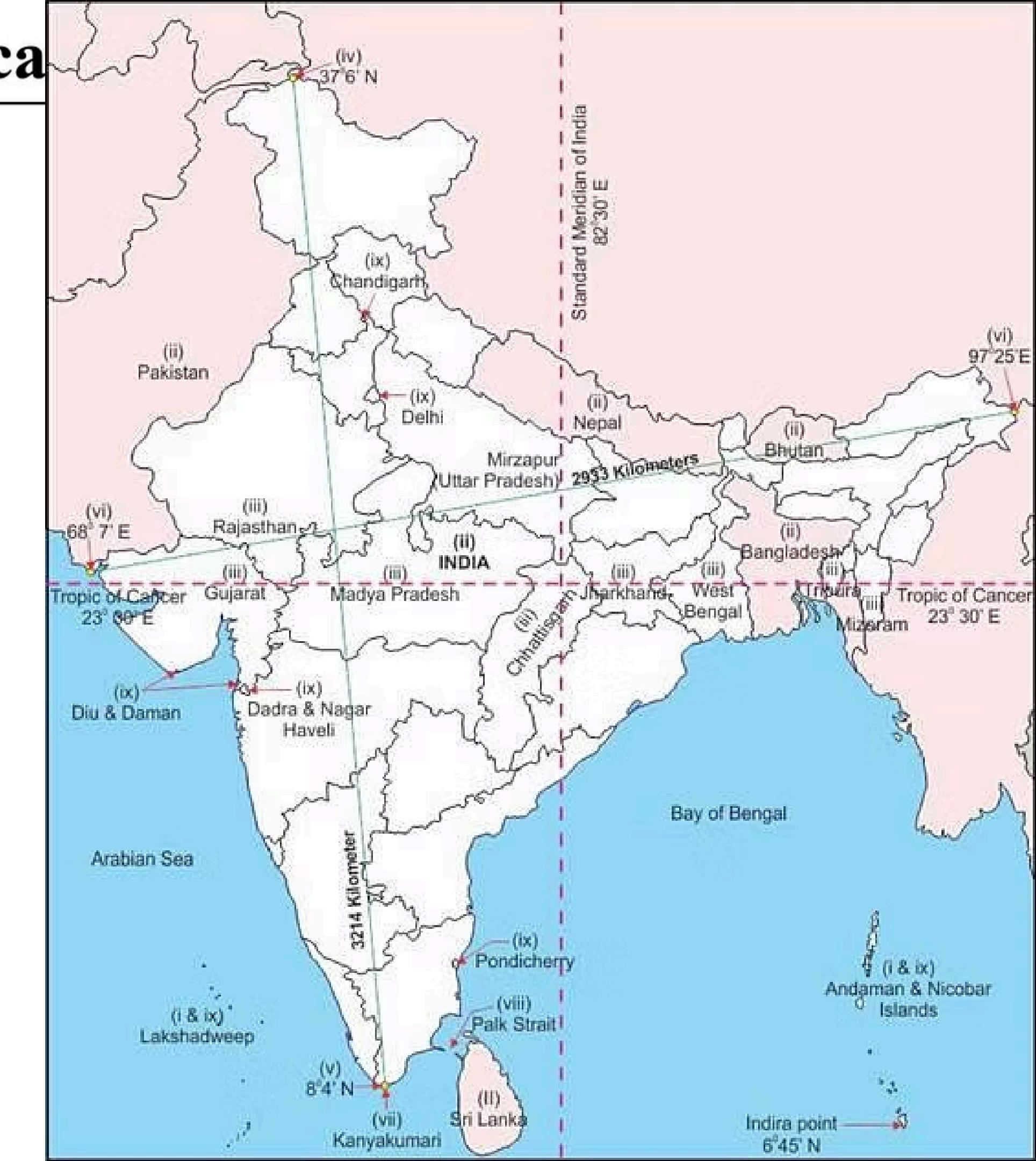
Location

Northern Hemisphere

- Latitudes: 8°4'N and 37°6'N
- Longitudes: 68°7'E and 97°25'E

India's Neighbour

- Pakistan and Afghanistan in the north west.
- China (Tibet), Nepal & Bhutan in the north.
- Myanmar and Bangladesh in the east.
- Southern neighbours are two island countries: Sri Lanka and Maldives
- Sri Lanka is separated by the Palk Strait & the Gulf of Mannar.





On the basis of varied physiographic features, India is divided into six physiographic divisions:

- The Northern Mountains
- The Northern Plains
- The Peninsular Plateau
- The Indian Desert
- The Coastal Plains
- The Islands

Formation of the Himalayas: A Simplified Timeline

- Pangea & Panthalassa (250 million years ago): A supercontinent (Pangea) surrounded by a vast ocean (Panthalassa).
- Pangea Breaks Apart (150 million years ago): Forms Laurasia (north) and Gondwanaland (south).
- Tethys Sea Forms: A long, narrow sea between Laurasia and Gondwanaland.
- Sediment Deposition: Rivers deposit sediments into the Tethys Sea, filling it up.
- Gondwanaland & Angaraland Break Further: Indo-Australian Plate (including Indian subcontinent) and Eurasian Plate emerge.
- Plate Convergence: Indo-Australian Plate drifts northward, colliding with the Eurasian Plate.
- Fold Formation: Tethys Sea shrinks, sediments are pushed upwards, creating folds.
- Himalayas Rise: Tethys Sea disappears, uplifted sediments form the Himalayas.
- Ongoing Uplift: Plates continue to converge, causing the Himalayas to rise about 5mm per year.

The Northern and Northeastern Mountains



This region encompasses the Himalayas and the Northeastern hills, forming a significant physical, climatic, drainage, and cultural divide for the Indian subcontinent.

Himalayas:

- Mountain Ranges: Greater Himalayas or Himadri (includes the Great Himalayas and Trans-Himalayan ranges)
- The Lesser/ Middle Himalayas or Himachal
- The Outer Himalayas or Shiwaliks
- The Eastern Hills - Purvanchal: A chain of hills in North-East India.

Location:

- Asia, extending across multiple countries including India, China, Pakistan, Nepal, Bhutan, and Afghanistan.

Size:

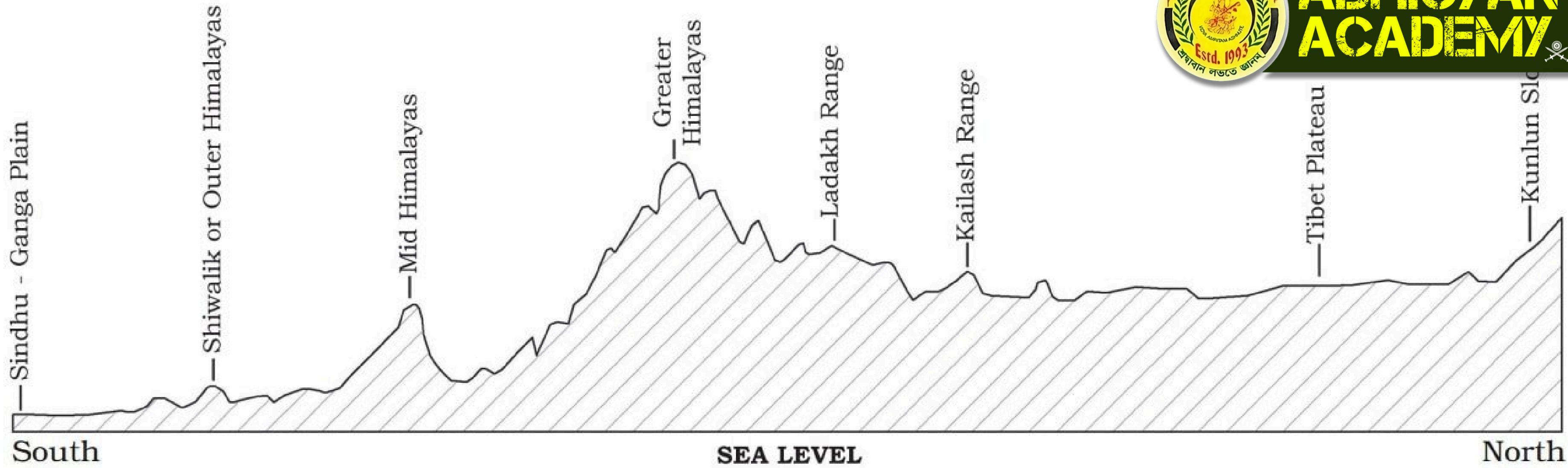
- Length: Approximately 2500 km (east-west)
- Width: 160 km to 400 km

Height:

- Average: 6000 meters
- Highest Peak: Mount Everest (8848 meters)
- India's Highest Peak: Kanchenjunga/Mount K2 (8586 meters) - located at the border of Nepal and Sikkim.

Key Points:

- The Himalayas are young fold mountains formed due to tectonic plate collisions.
- They act as a natural barrier and influence India's climate, drainage patterns, and cultural landscape.
- The Himalayas are home to some of the world's highest peaks, including Mount Everest and Kanchenjunga.

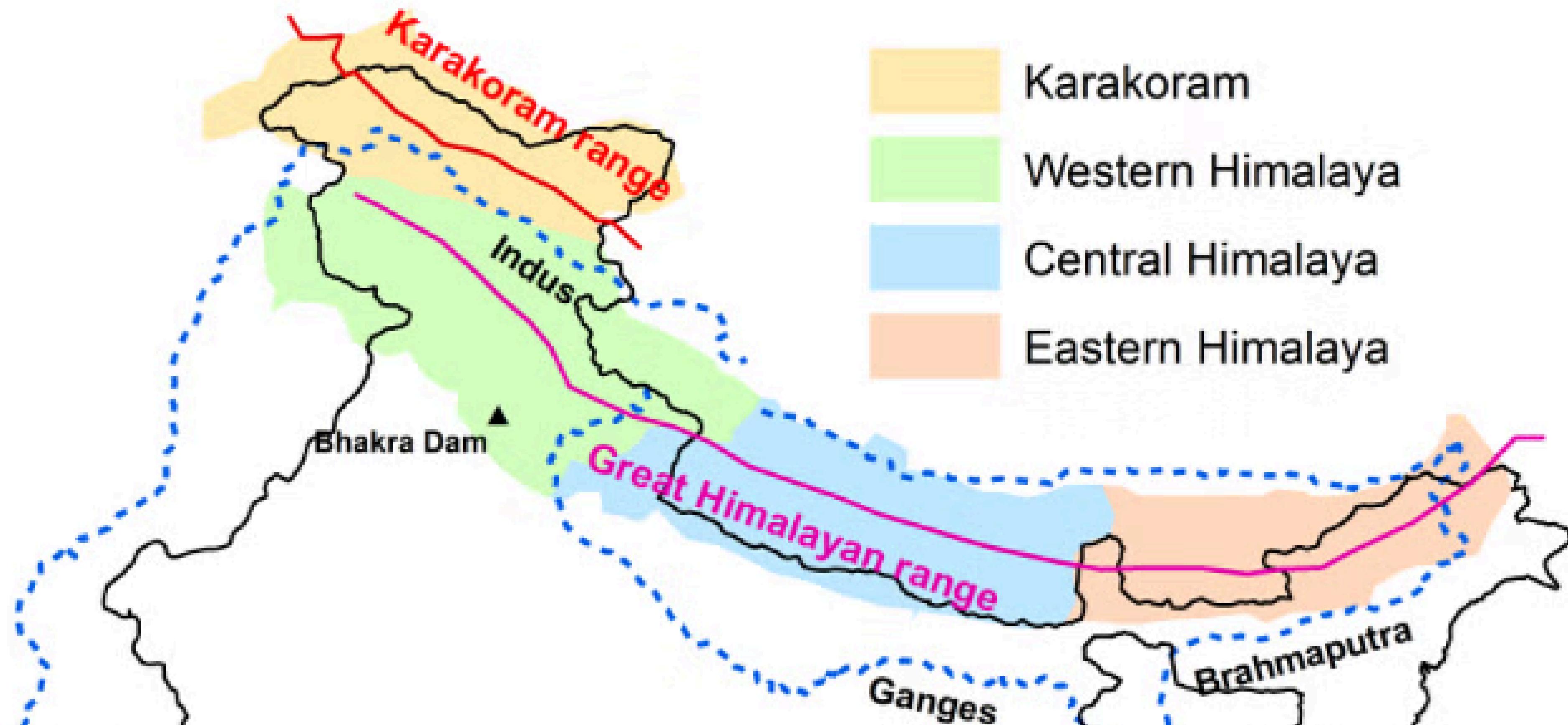


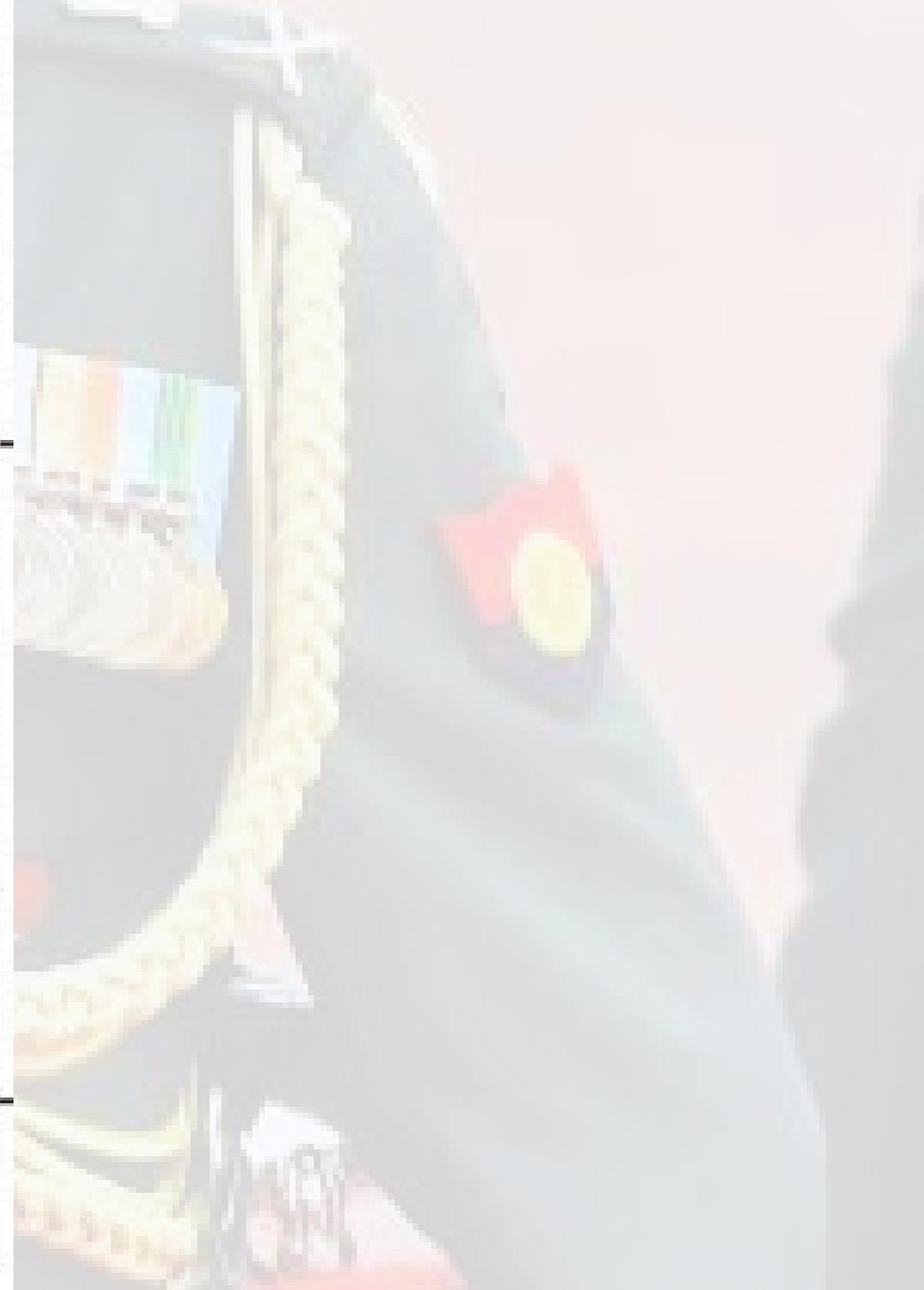
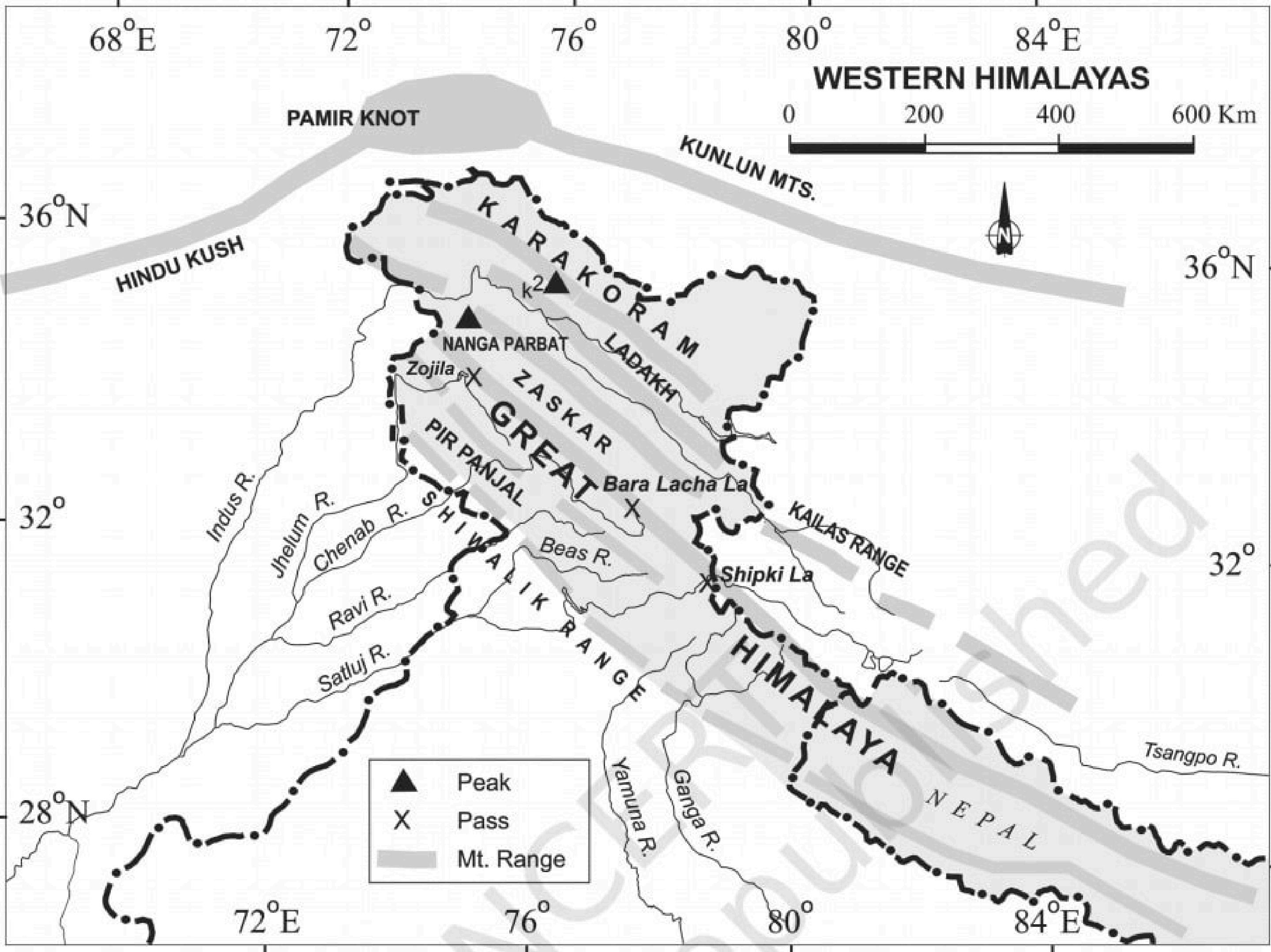
Himalayan Mountain Complex : Cross Sectional View from South to North

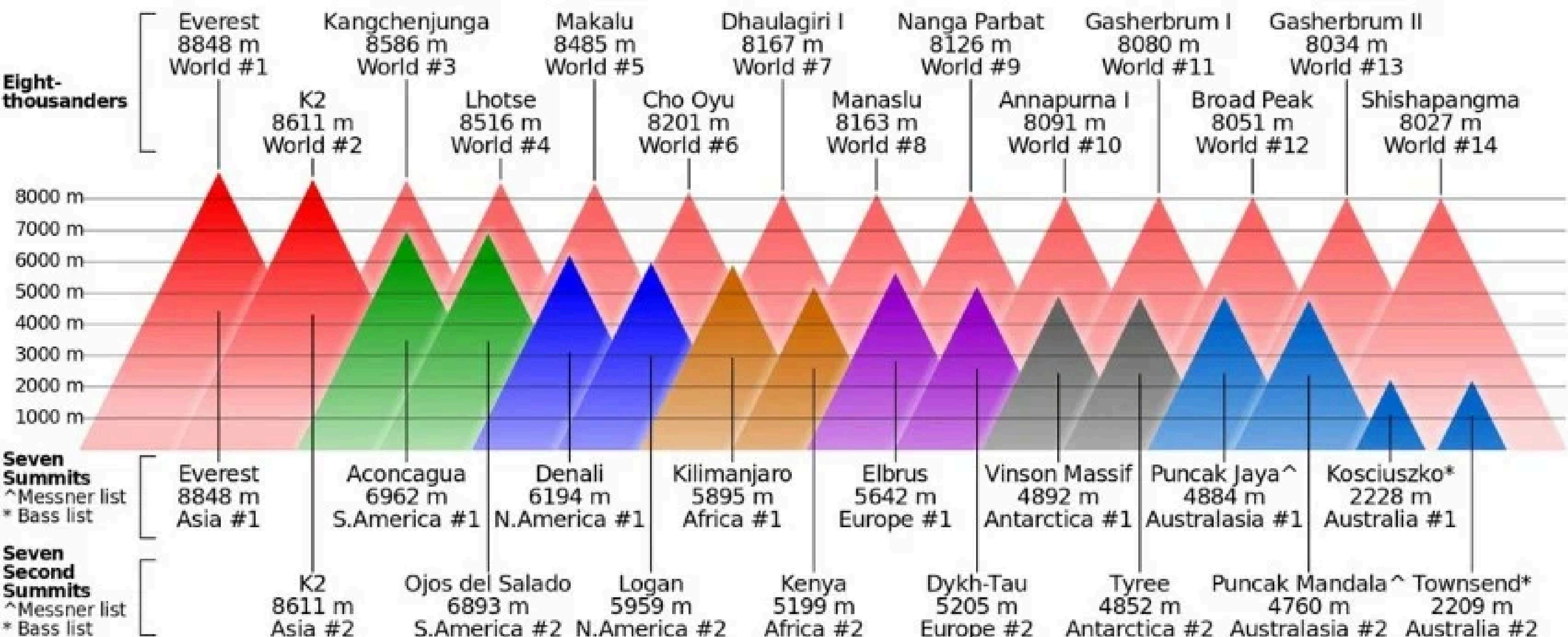
Major Sub-divisions of the Himalayas:

The Trans-Himalayas; Kashmir or Northwestern Himalayas; Tibetan Himalayas:

- Location: North of the Great Himalayan range, primarily in Tibet.
- Mountain Ranges: Karakoram, Ladakh {Northeast of Karakoram, divided into plains and mountains (Soda Plains, Aksai Chin, Lingzi Tang, Depsang Plains, Chang Chenmo)}, Zaskar (Includes Nanga Parbat), Pir Panjal, Kailas Range: Mount Kailas (6,714 m), source of the Indus River, Karakoram Range
- Features: Cold desert, Kashmir Valley, Dal Lake, Baltoro & Siachen glaciers.
- Passes: Zoji La (J&K), Banihal, Photu La, Khardung La, Nathu La (Sikkim)
- Lakes: Wular, Dal (freshwater); Pangong Tso, Tso Moriri (saltwater).
- Rivers: Drained by the Indus and its tributaries (Jhelum, Chenab).
- Notable: Pilgrimage sites (Vaishno Devi, Amarnath), Karewa formations for saffron cultivation.

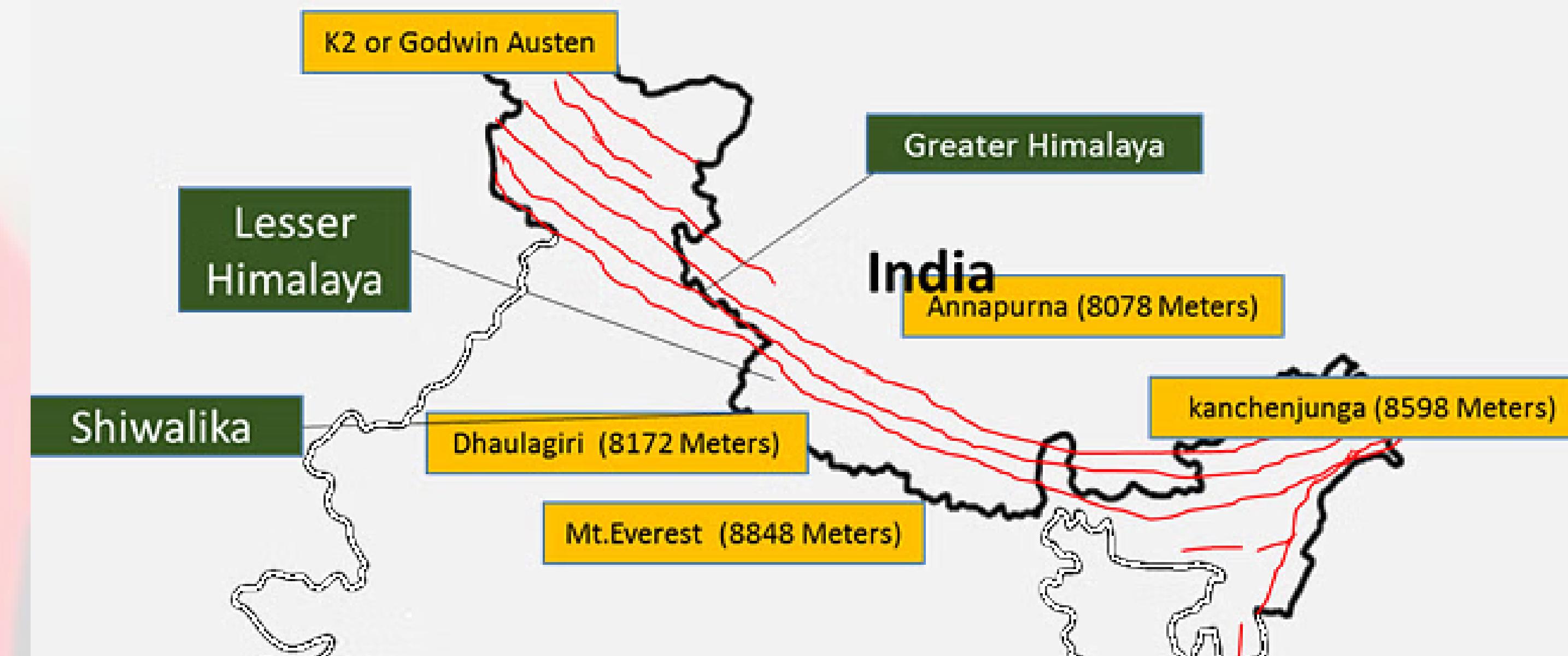






The Middle Himalayas (or Himachal):

- Location: Between the Shiwaliks (Outer Himalayas) and the Greater Himalayas.
- Elevation: 3,500 to 4,500 meters above sea level.
- Width: 60-80 km, Length: 2,400 km.
- Slopes: Steep, bare southern slopes; gentle, forested northern slopes.
- Features: Hill stations (Shimla, Mussoorie, etc.), valleys (Kashmir, Kangra, Kulu), and important ranges like Pir Panjal, Dhaola Dhar, Mussoorie, and Nag Tibba.
- Rivers: Drained by the Indus and Ganga river systems.

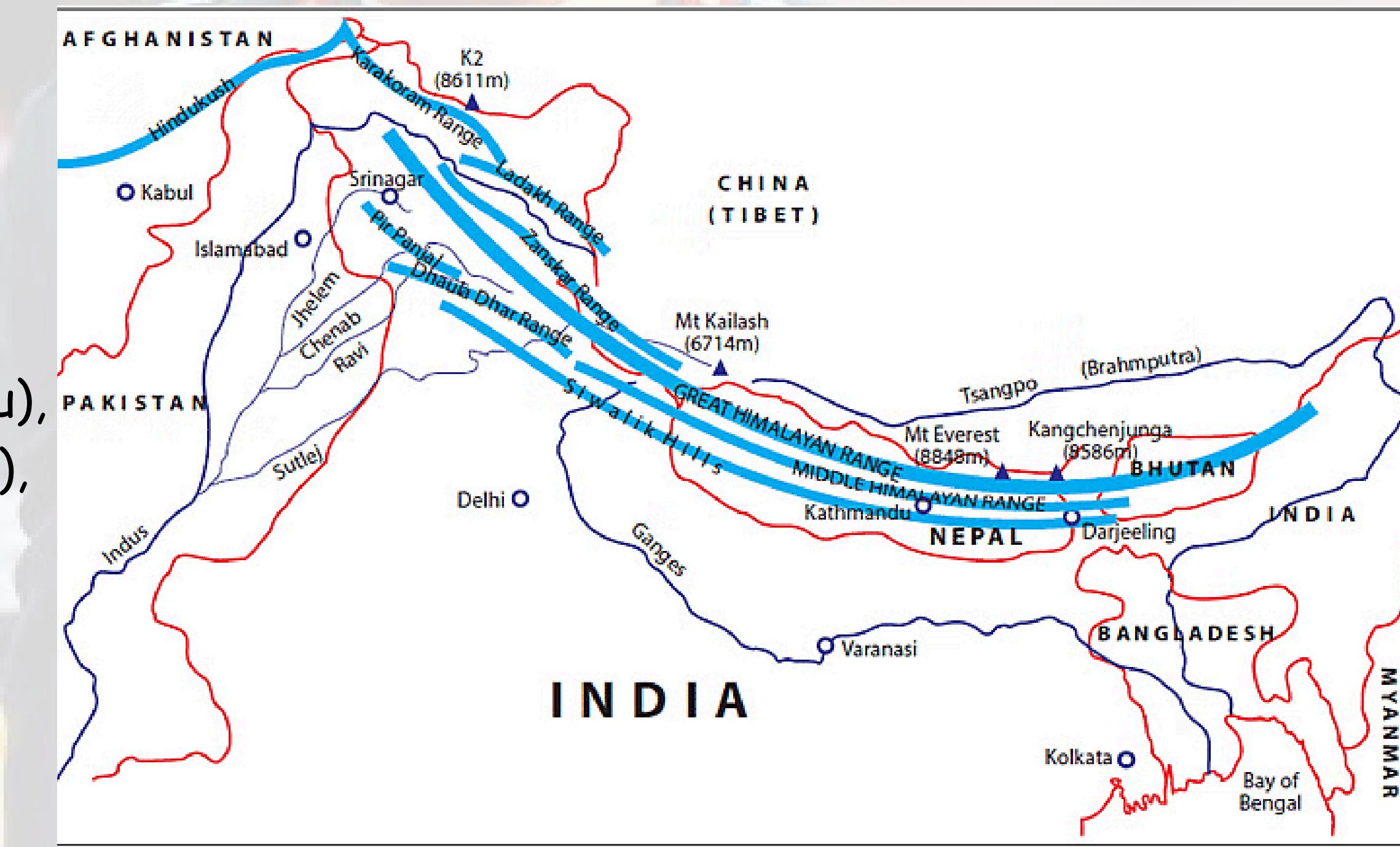


Pir Panjal Range:

- Longest and most important range in the Middle Himalayas.
- Extends from the Jhelum River to the upper Beas River.
- Peaks over 5,000 meters, mainly volcanic rocks.
- Passes: Pir Panjal, Bidil, Golabghar, Banihal (used by highway and railway).
- Valleys: Kashmir Valley (synclinal basin with alluvial deposits), Kangra Valley (strike valley), Kulu Valley (transverse valley).

The Shiwaliks (or Outer Himalayas):

- Location: Between the Great Plains and the Lesser Himalayas.
- Width: Varies from 50 km (Himachal Pradesh) to <15 km (Arunachal Pradesh).
- Slopes: Steep southern slopes, gentle northern slopes.
- Features: Mostly unbroken chain of hills, except for the Tista and Raidak river valleys.
- Vegetation: Thick forests in the east, decreasing towards the west.
- Formation: Consolidated sand, gravel, and conglomerate deposits (alluvial fans) folded and hardened due to plate movement.
- Different Names: Jammu Hills (Jammu), Dhang & Dundwa Ranges (Uttarakhand), Churia Ghat Hills (Nepal), Dafla, Miri, Abor & Mishmi Hills (Arunachal Pradesh).



Duns (Doons):

- Formation: Temporary lakes created by conglomerate deposits obstructing rivers, later drained leaving plains.
- Examples: Dehra Dun (largest), Kota, Patli Kothri, etc.
- The Middle Himalayas are more accessible and habitable than the Greater Himalayas.
- The Shiwaliks are the youngest and lowest range, formed from river deposits.
- Duns are fertile valleys created by the drainage of temporary lakes.

Purvanchal (Eastern Hills): Key Points

- Location & Formation: Southward extension of the Himalayas along India's northeastern border with Myanmar.
- Formed by a sharp bend in the Himalayas at the Dihang Gorge.
- Extends from Arunachal Pradesh to Mizoram.
- Convex shape towards the west.
- Major Hill Ranges:

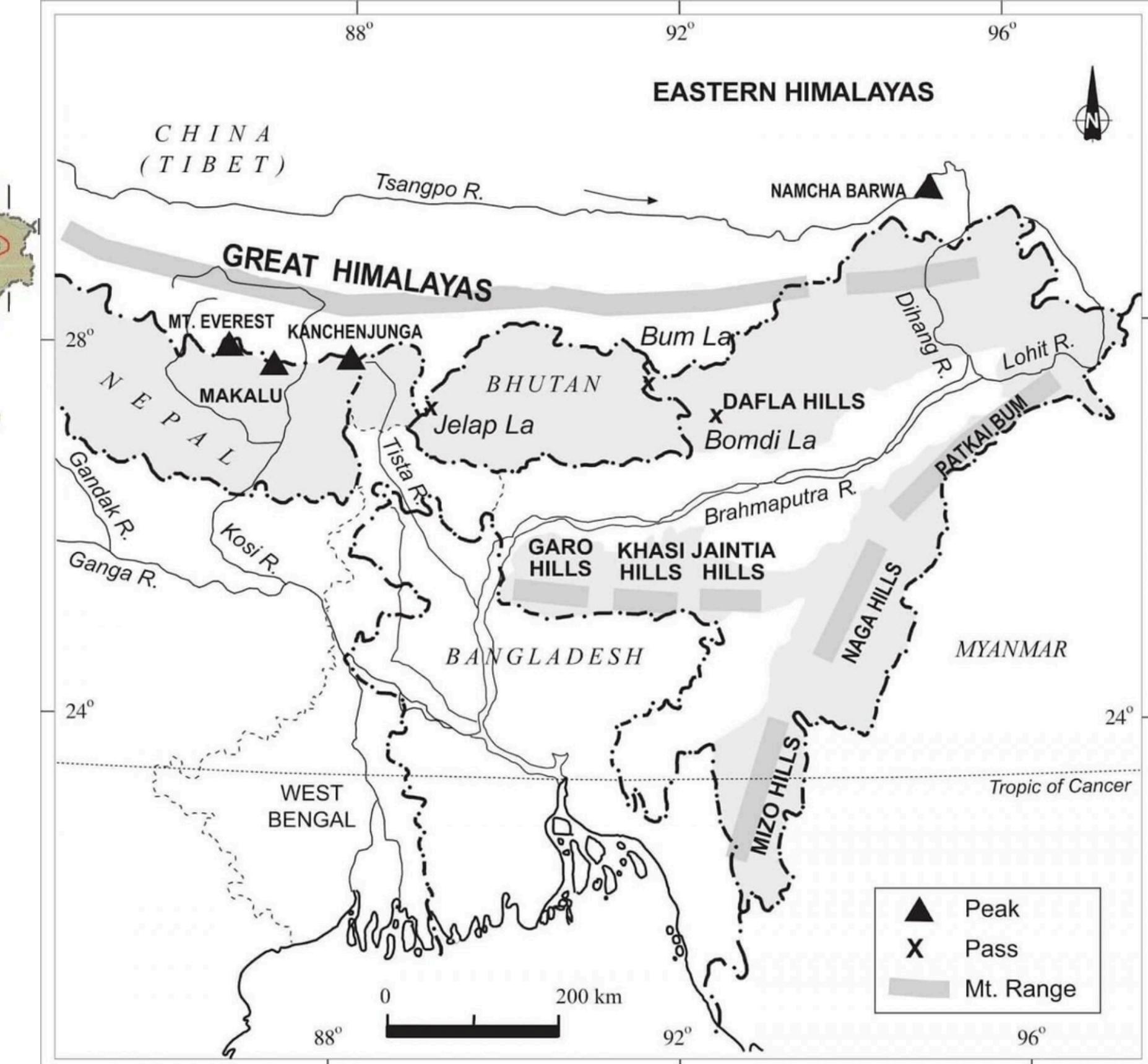
Patkai Bum: Sandstone, 2,000-3,000m elevation, merges with Naga Hills.

Naga Hills: Highest peak is Saramati (3,826m), forms watershed with Patkai Bum.

Manipur Hills: Less than 2,500m elevation, south of Naga Hills, separated by Barail Range.

Barail Range: Swings west into Jaintia, Khasi, and Garo Hills (extension of Indian Peninsular Block).

Mizo Hills (Lushai Hills): Less than 1,500m elevation, highest point is Blue Mountain (2,157m).

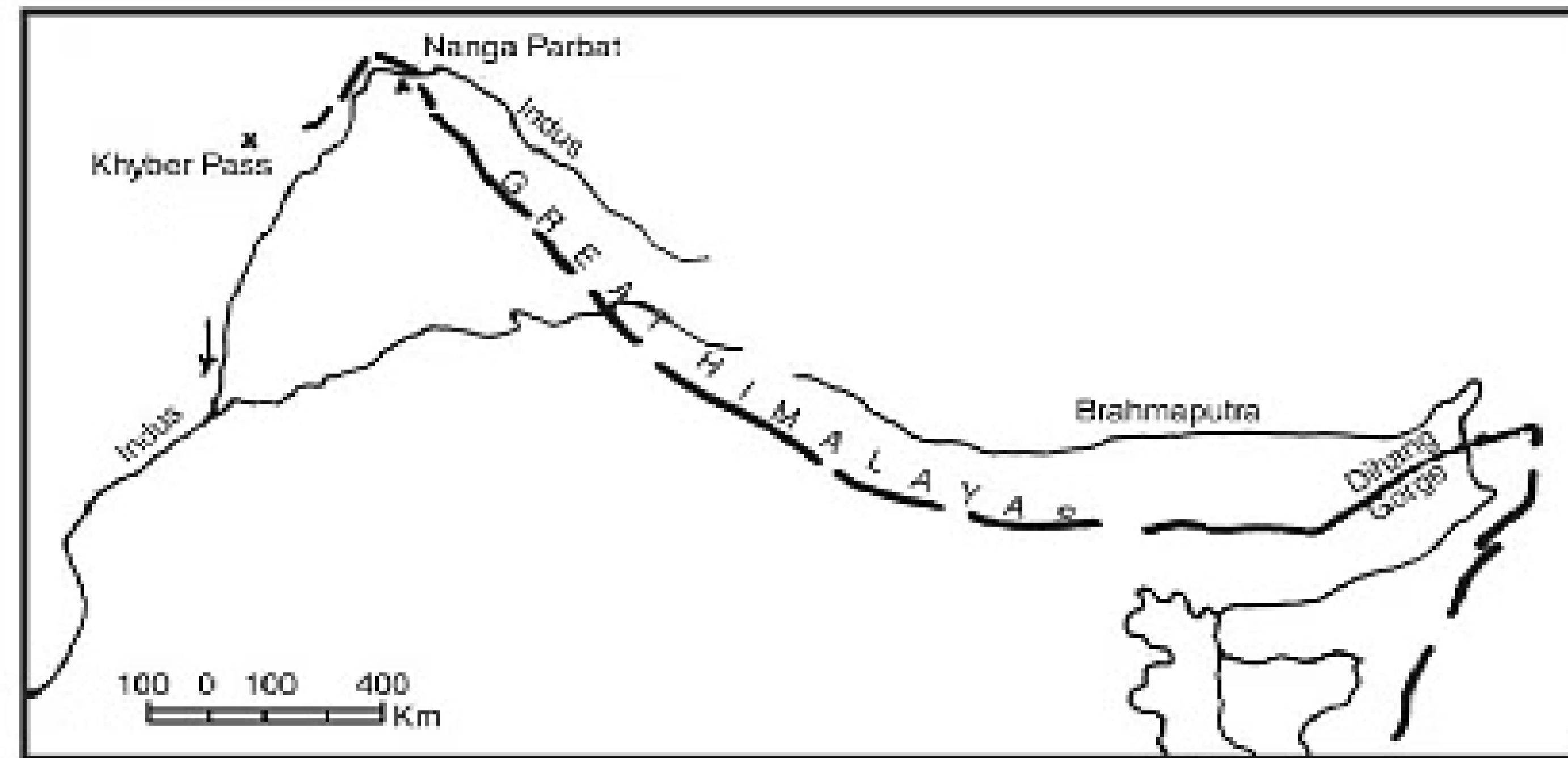


Syntactical Bends of the Himalayas:

Definition: Sharp southward bends in the Himalayan range at the Indus and Brahmaputra gorges.

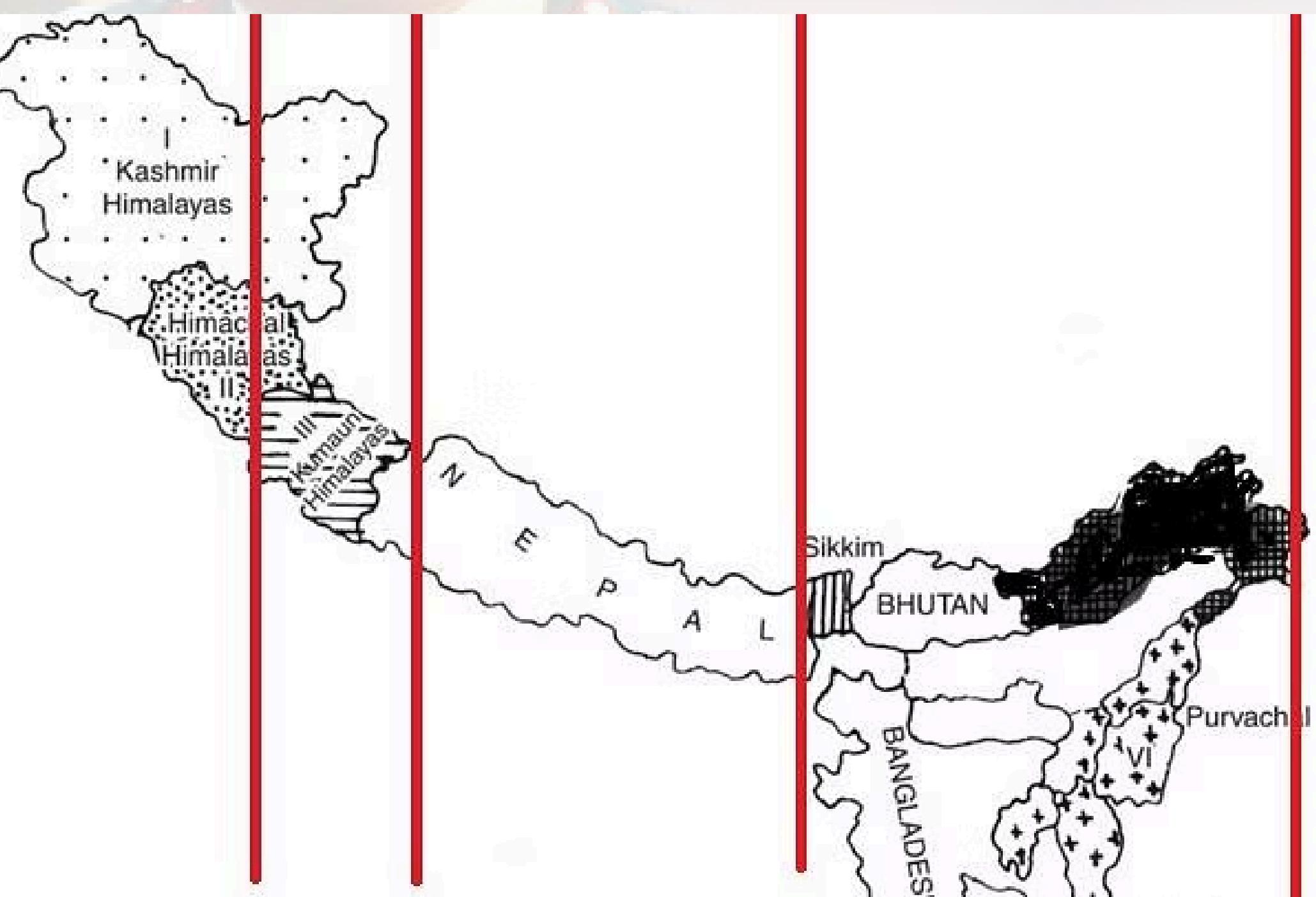
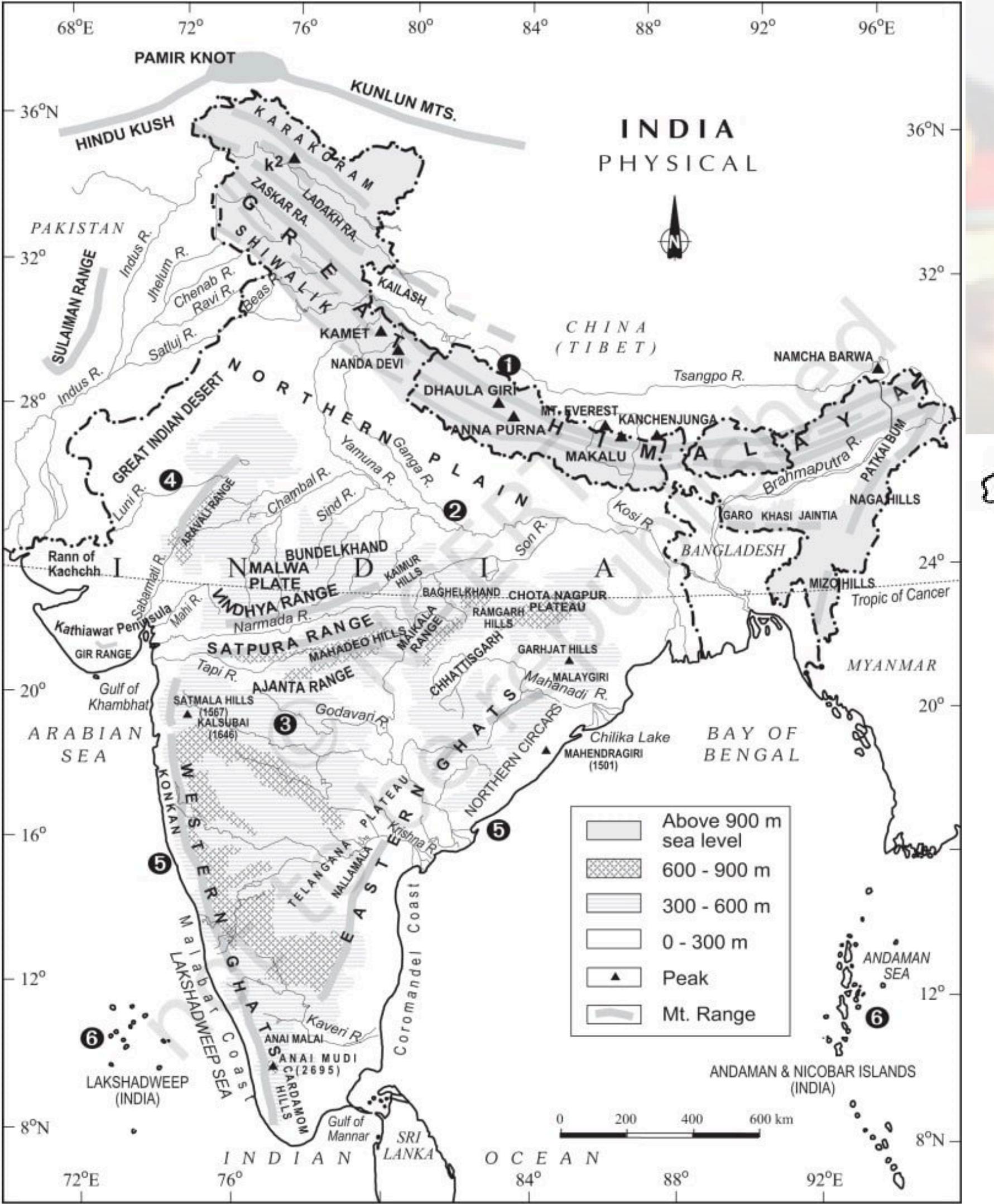
Western Bend: Located near Nanga Parbat, formed by the Indus River gorge.

Eastern Bend: Located near Namche Barwa, formed by the Brahmaputra River gorge.





ABHIGYAN ACADEMY



Regional Divisions of the Himalayas:



Punjab Himalayas:

- Location: Between Indus & Sutlej rivers.
- States: Jammu & Kashmir, Himachal Pradesh.
- Features: High snow-covered peaks, deep gorges, mountain passes.
- Ranges: Karakoram, Pir Panjal, Ladakh, Zanskar, Dhauladhar.

Kumaon Himalayas:

- Location: Between Satluj & Kali rivers.
- Also known as: Garhwal Himalayas (western part).
- Features: Higher elevation than Punjab Himalayas, hill stations (Nainital, Ranikhet, Almora).
- Peaks: Nanda Devi, Trisul, Kedarnath, Kamet.

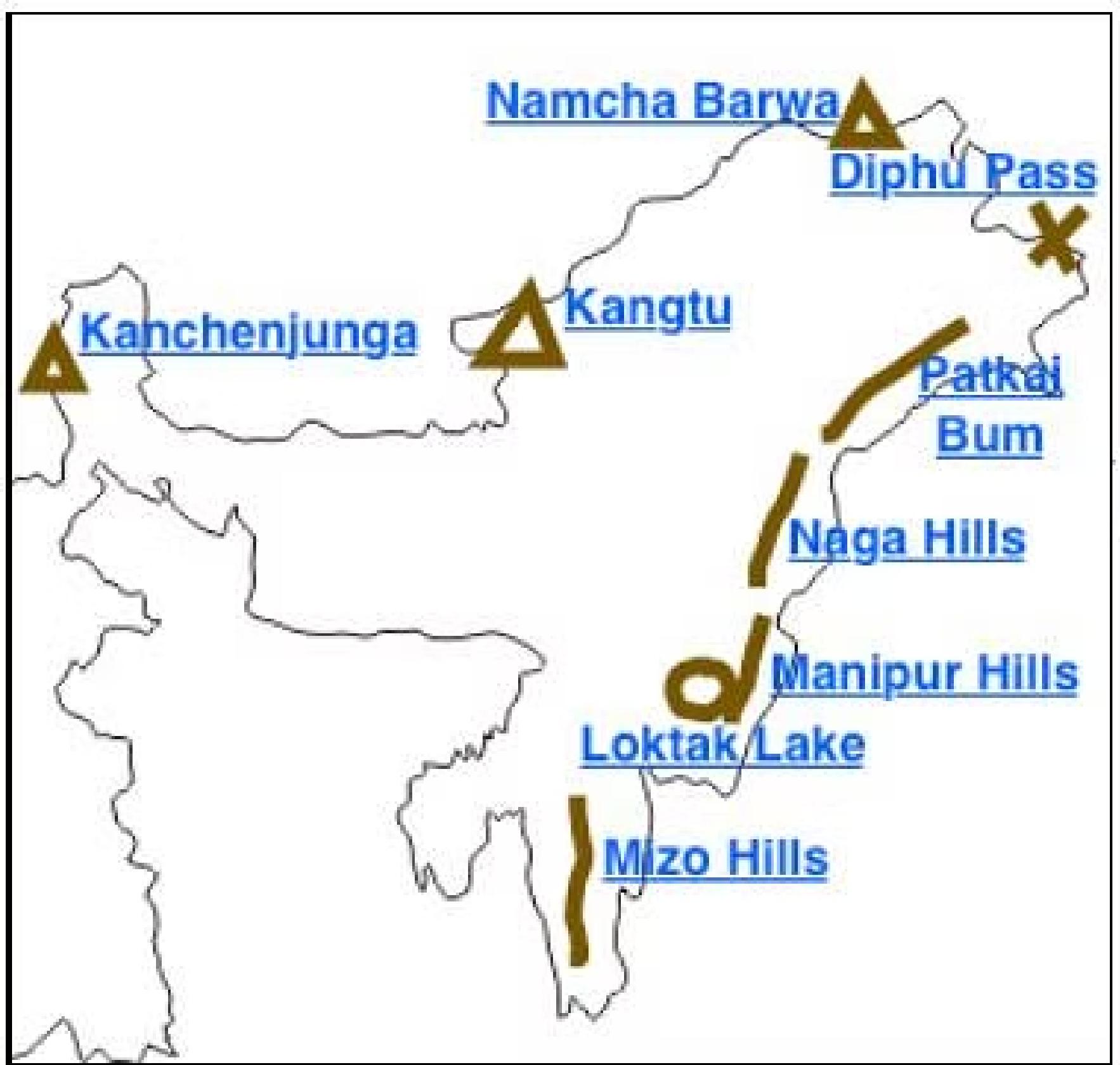
Nepal Himalayas:

- Location: Between Kali & Tista rivers, mainly in Nepal.
- Features: Tallest peaks (Everest, Kanchenjunga, Dhaulagiri), Kathmandu Valley

Arunachal Himalayas: Key Features

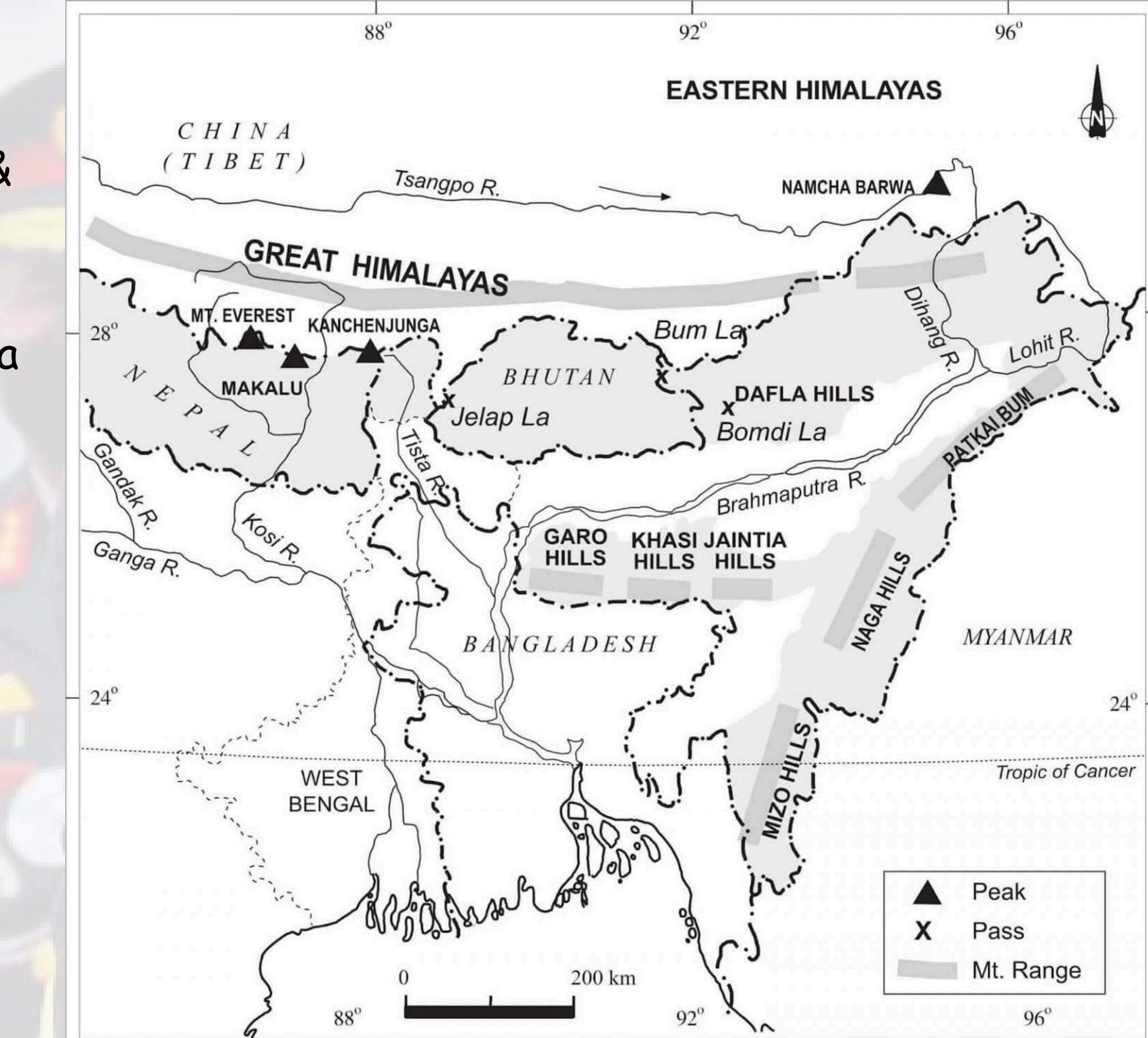


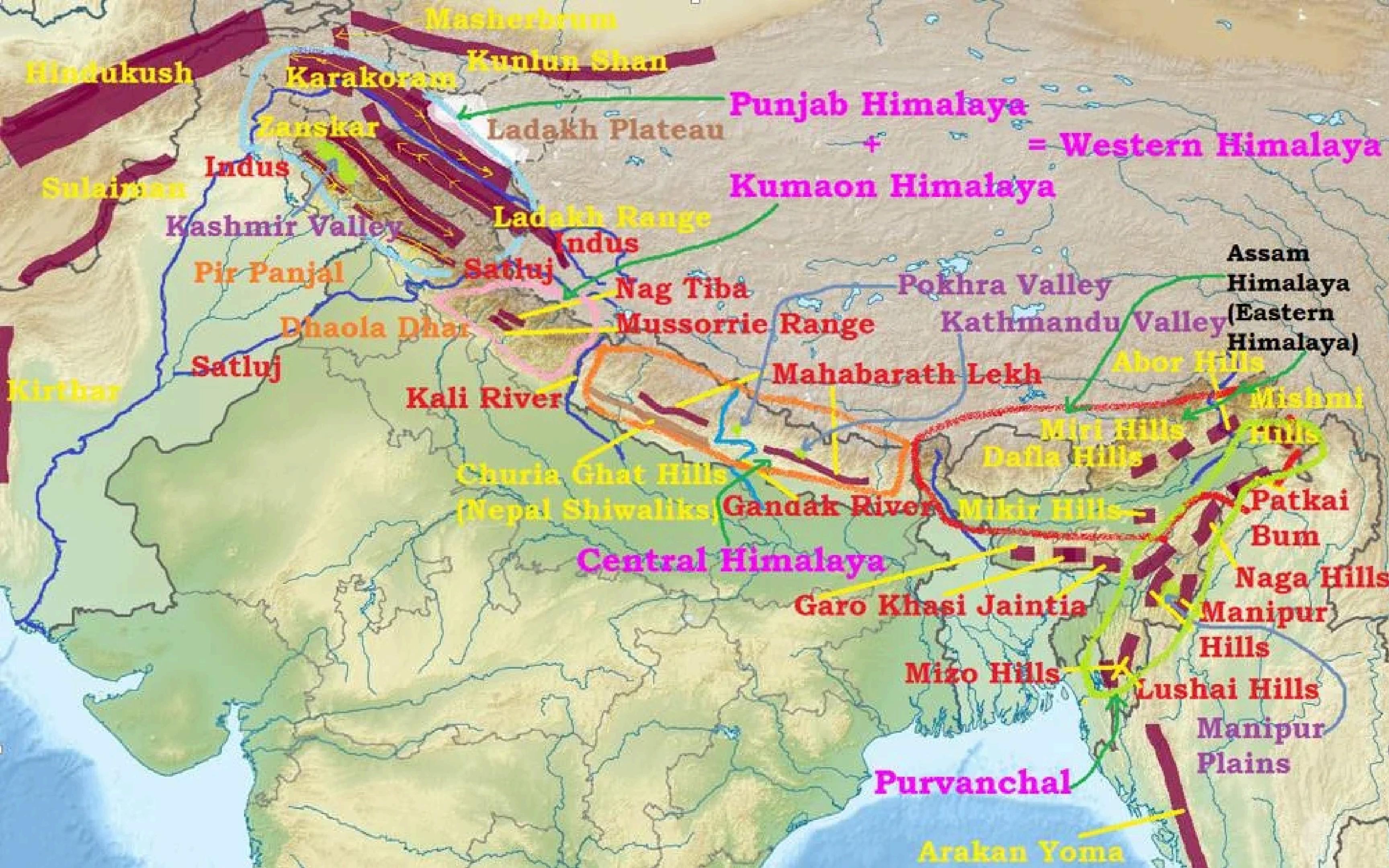
- Location: East of Bhutan Himalayas to Diphu Pass.
- Direction: Southwest to northeast.
- Peaks: Kangtu, Namcha Barwa.
- Rivers: Kameng, Subansiri, Dihang, Lohit (perennial with high hydroelectric potential).
- Deep Gorges: Formed by fast-flowing rivers dissecting the ranges.
- Brahmaputra Gorge: Formed after the river crosses Namcha Barwa.
- Tribal Communities: Monpa, Dafla, Abor, Mishmi, Nishi, Nagas (practice Jhumming/shifting cultivation).
- Limited Transportation: Rugged terrain hinders inter-valley connectivity.
- Interactions: Occur mainly through the duar region along the Arunachal-Assam border.



Assam Himalayas:

- Location: Between Tista & Brahmaputra rivers, in Assam & Arunachal Pradesh.
- Features: Lower elevation, ranges run north-south due to a bend in Arunachal Pradesh.
- Peaks: Namcha Barwa, Gyala Peri, Kengto, Nyegyi Kangsang.





Himalayan Glaciers, Peaks, and Passes:



Glaciers: Large, slow-moving masses of ice on land.

- Important Himalayan Glaciers: Karakoram Range: Siachen, Fedchenko (longest outside polar regions), Hispar, Biafo, Baltoro.
- Pir Panjal Range: Sonapani, Bara Shighi, Rakhiot, Gangri.
- Kumaon-Garhwal Range: Kafni, Kalabaland, Kedar Bamak, Meola, Namik, Panchchuli, Pindari, Ralam, Satopanth, Chorabari.

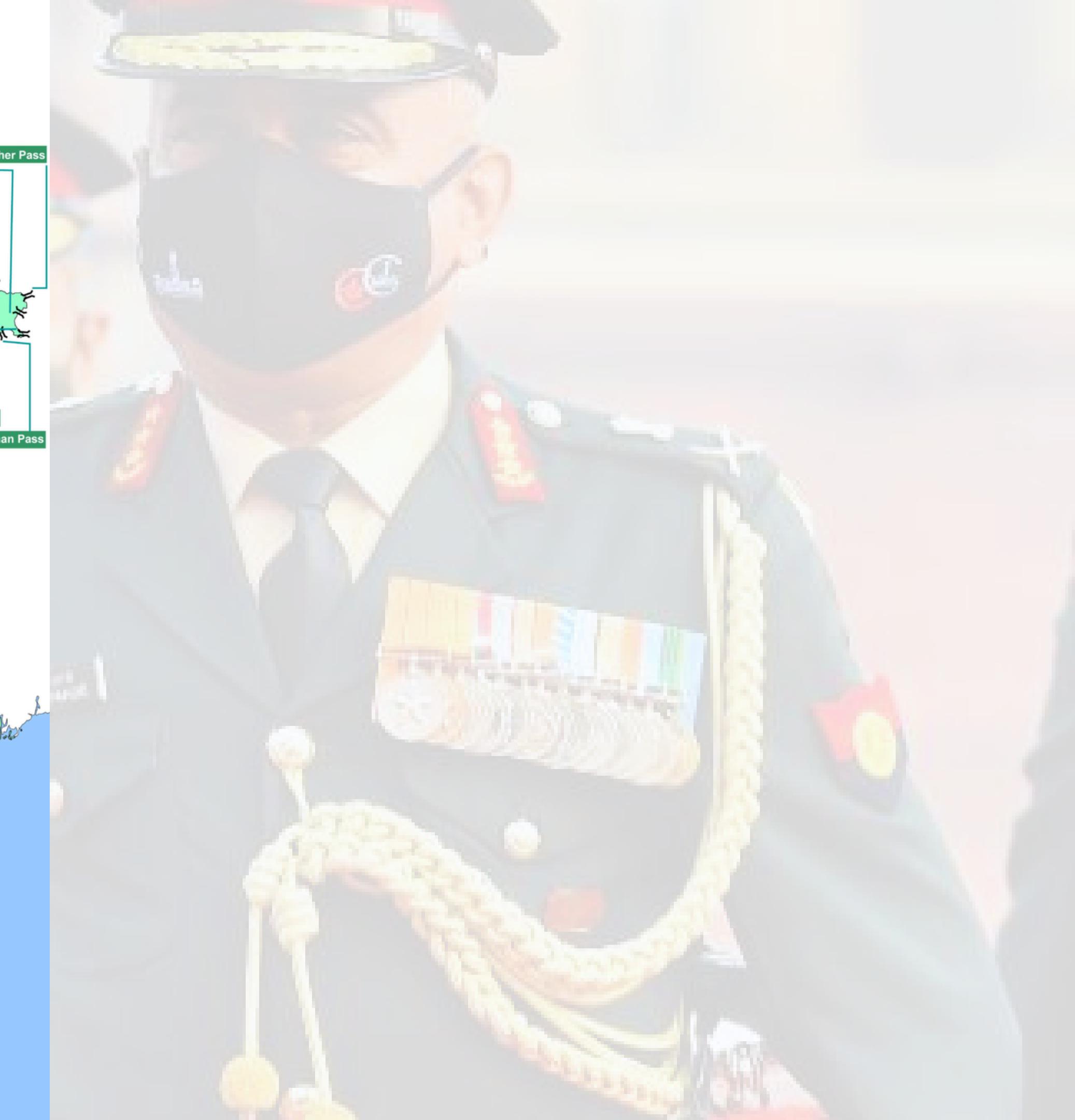
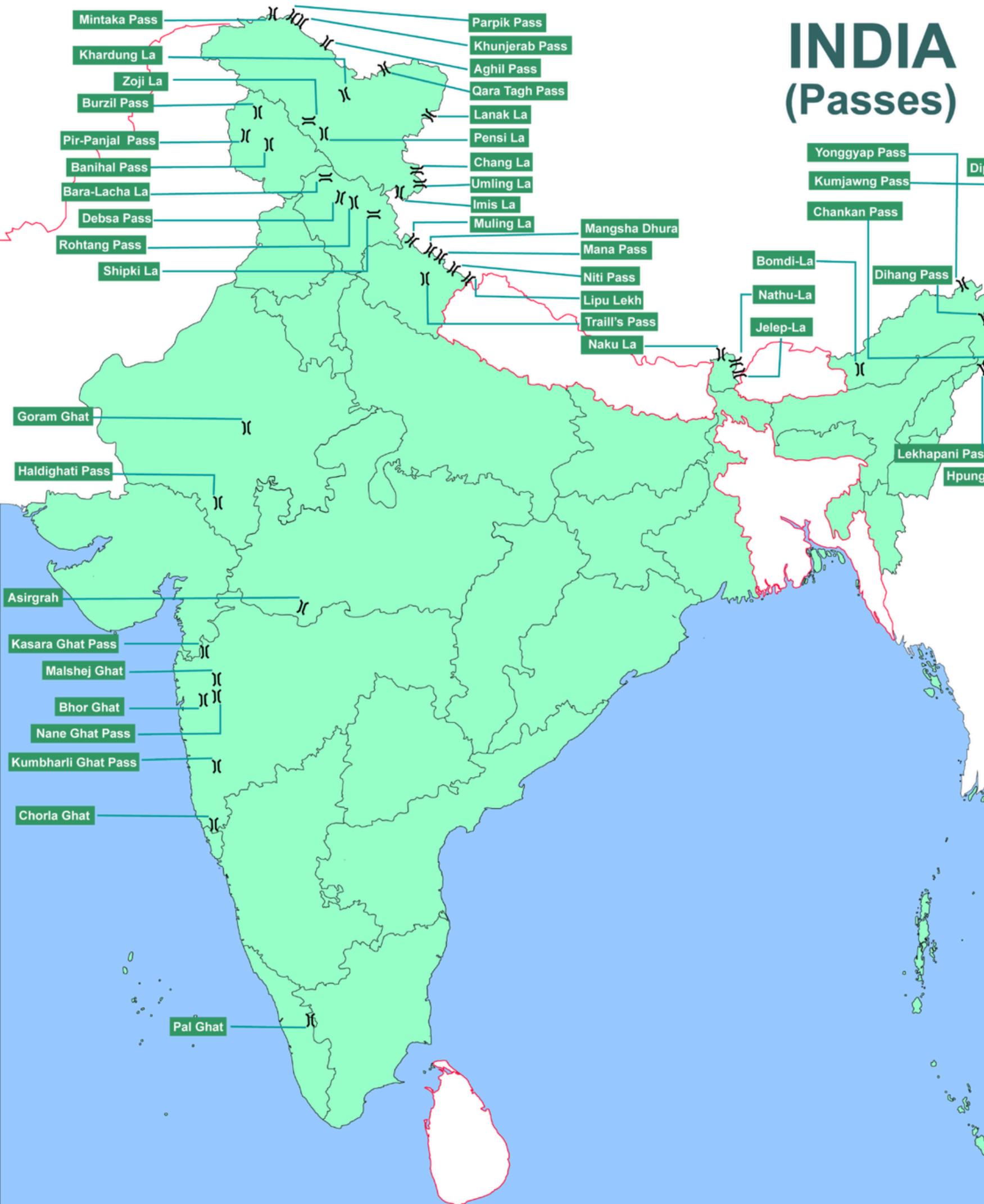
Snowline: Boundary between snow-covered and snow-free areas.

- Altitude: Lower in Western Himalayas due to latitude increase.

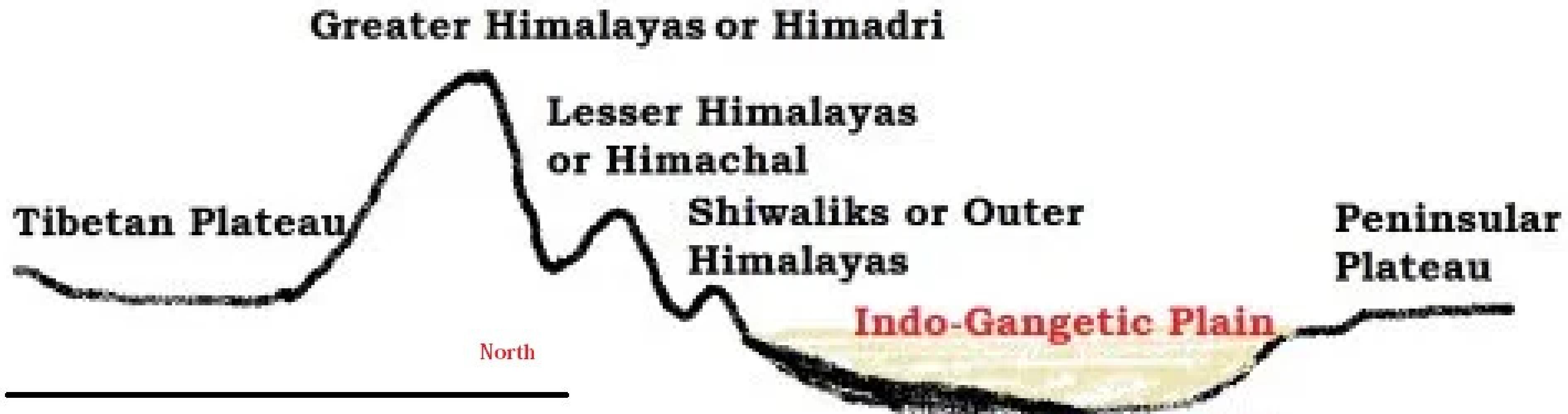
Mountain Peaks:

- Himalayas: Home to 10 of the world's 14 highest peaks (over 8,000m).
- Prominent Peaks: Nanga Parbat, Annapurna, Mount Everest, K2, Kanchenjunga.
- Mountain Passes: Navigable routes through mountain ranges or ridges, formed by erosion. Provide easier travel across steep terrain.

INDIA (Passes)



Indo-Gangetic-Brahmaputra Plain | Bhabar, Terai, Bhangar, Khadar



Bhabar belt

Tarai belt

Bhangar (old Alluvial plains)

Khadar (New Alluvial plains)



Formation:

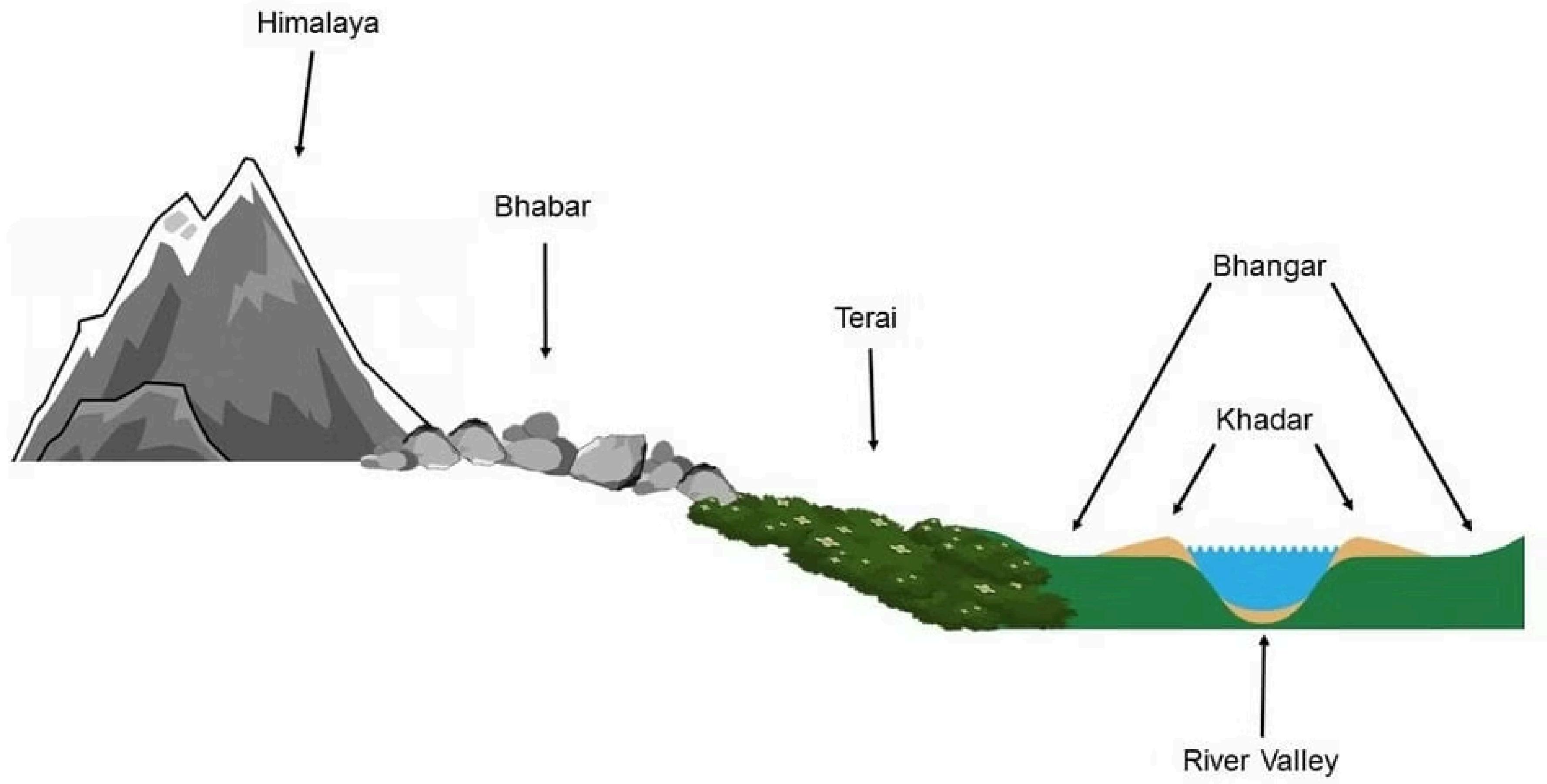
- Sediment Accumulation: Ancient rivers deposited sediments in the Tethys Geosyncline.
- Himalayan Uplift: These sediments were uplifted, creating the Himalayas and a trough to the south.
- River Rejuvenation: Existing rivers changed course and deepened due to the uplift.
- Conglomerate Deposition: Eroded material filled the trough between the peninsula and Himalayas.
- New Rivers & Glaciers: Himalayan uplift formed new rivers and glaciers, adding more alluvium.
- Tethys Disappearance: The trough was completely filled, forming the Indo-Gangetic Plain.
- Recent Deposits: Indus, Ganga, and Brahmaputra rivers continue to deposit alluvium.

Features:

- Largest alluvial tract globally (3,200 km long, 2,400 km in India).
- Bounded by Shiwaliks (north), peninsular edge (south), Sulaiman & Kirthar ranges (west), Purvanchal hills (east).
- Width varies: Widest in the west (500 km), narrower in the east.
- Alluvium depth: Up to 6,100 m, varying across regions.
- Flat topography with average elevation of 200 m.
- Watershed near Ambala (291 m) separates Indus and Ganga systems.
- Gentle gradient decreases from Saharanpur to Kolkata.

Geomorphological Features:

- Bhabar: Narrow, porous belt along Shiwalik foothills with dry river courses.
- Terai: Ill-drained, marshy, forested strip south of Bhabar, with re-emerging streams.
- Bhangar: Older alluvium terraces with kankar (calcareous concretions).
- Khadar: Newer alluvium forming floodplains, most fertile soil.
- Reh/Kollar: Saline efflorescences in drier areas, worsened by irrigation.



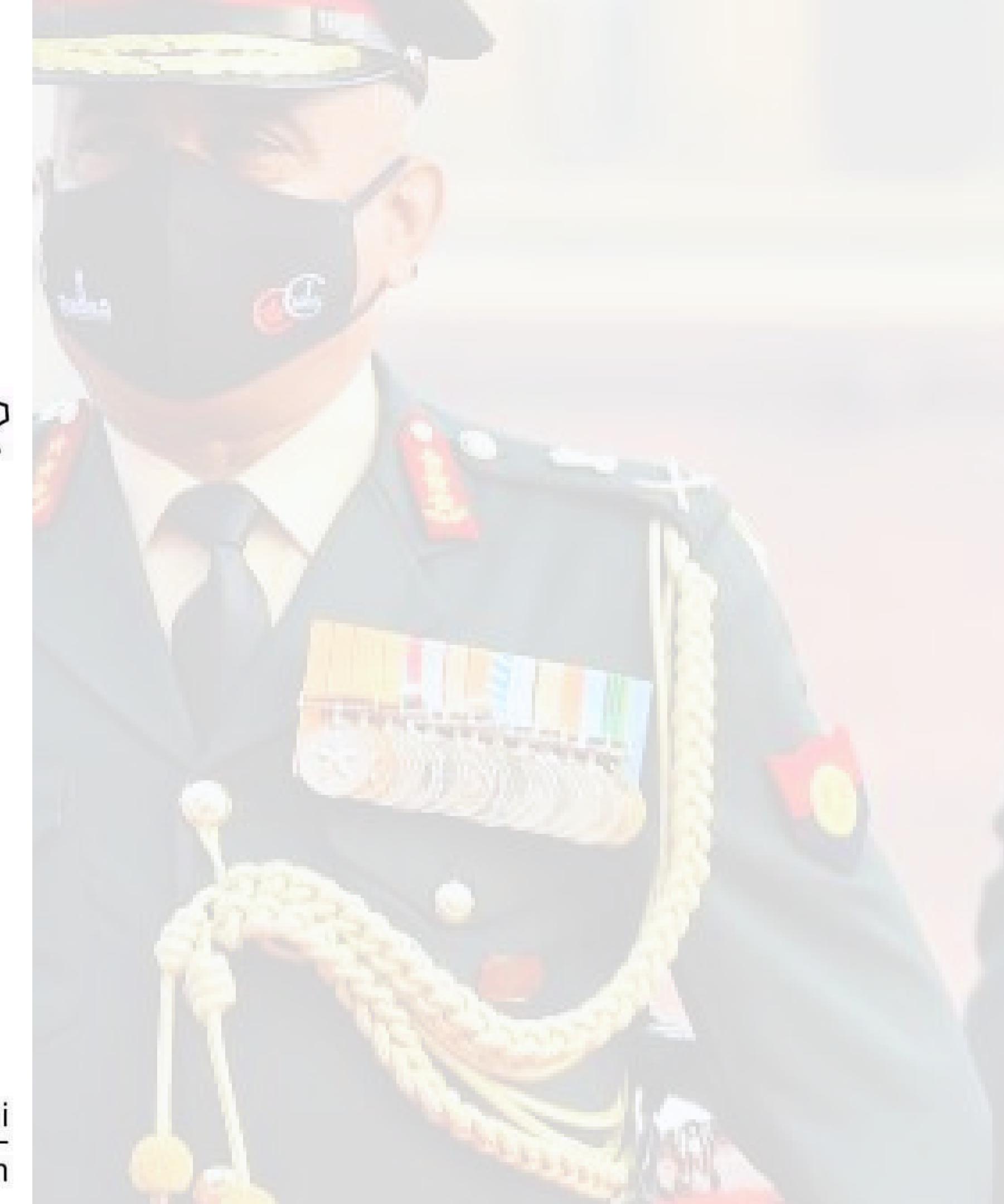
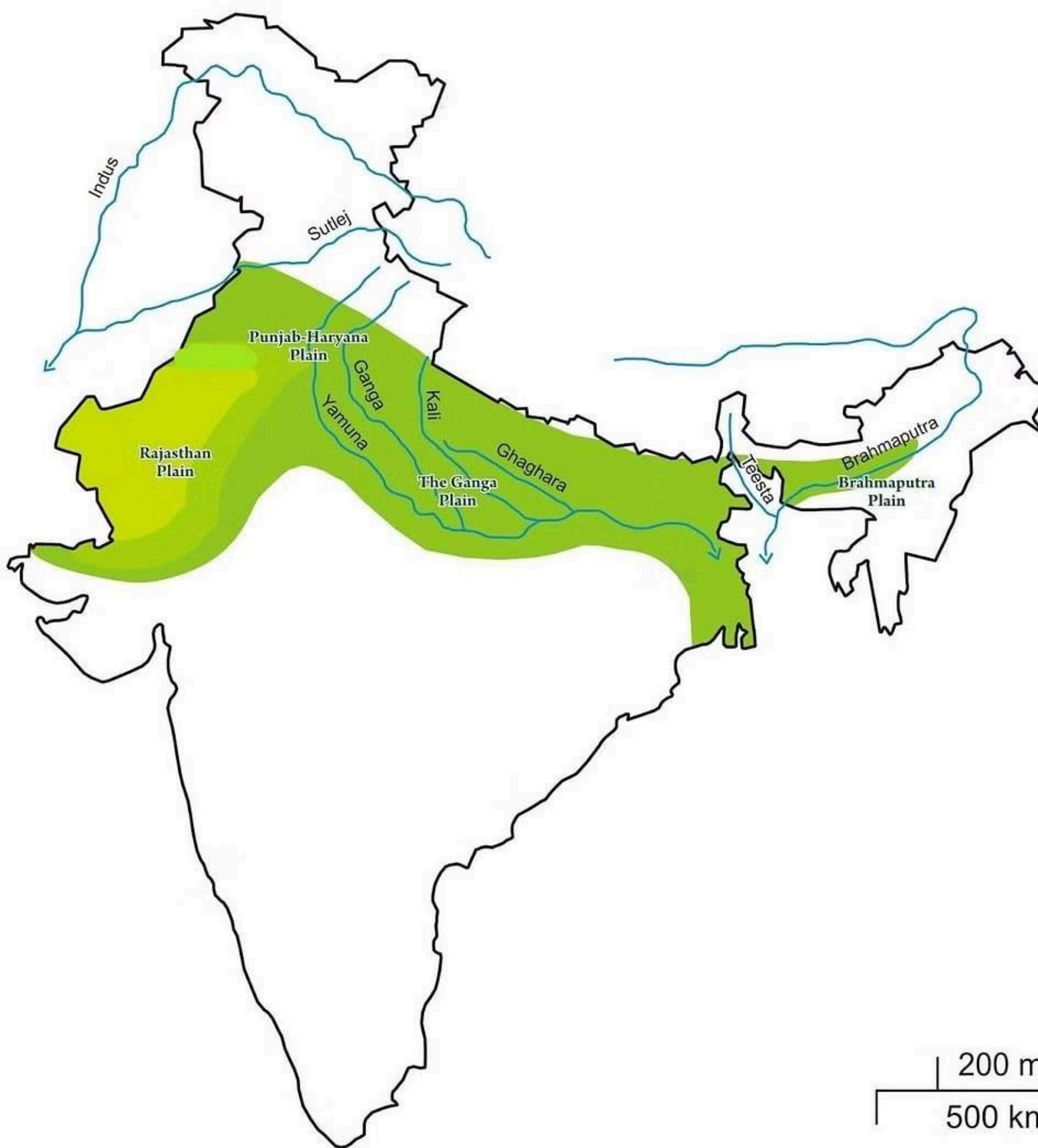
Indo-Gangetic-Brahmaputra Plain: Regional Divisions & Significance

Sindh Plain (Pakistan):

- Primarily Bhangar plains (older alluvium).
- Features: Dhors (depressions, former river courses), Dhands (alkaline lakes).

Rajasthan Plain:

- Thar Desert (Marusthali): Undulating plain, 325m average elevation, eastern part rocky, western part sandy.
- Rajasthan Bagar: Semi-arid plain east of Thar, drained by seasonal streams, supports agriculture.
- Luni River: Flows into Rann of Kutch, area north is Thali (sandy plain).
- Saline Lakes: Sambhar, Didwana, Degana, Kuchaman (source of salts).



Punjab Plain:

- Formed by five Indus system rivers (Jhelum, Chenab, Ravi, Sutlej, Beas).
- Made up of doabs (land between rivers), merged due to deposition.
- 1.75 lakh sq km area, 250m average elevation.
- Eastern boundary: Delhi-Aravali ridge.
- Northern part (Shiwaliks) heavily eroded by Chos (streams), causing gullying.
- Malwa Plain: South of the Satluj River.
- Haryana Tract: Between Ghaggar and Yamuna, acts as a water divide.
- Ghaggar River: Successor of the ancient Saraswati River.

Ganga Plain:

- Largest unit (3.75 lakh sq km), stretches from Delhi to Kolkata.
- Formed by Ganga and its tributaries, along with peninsular rivers (Chambal, Betwa, Ken, Son).
- Slope: East and southeast.
- Features: Levees, bluffs, oxbow lakes, marshes, ravines due to sluggish flow.
- Prone to floods: Kosi River ("Sorrow of Bihar") is notorious.
- Regional divisions: Rohilkhand, Avadh, Mithila, Magadh plains.

Ganga-Brahmaputra Delta:

- World's largest delta.
- Features: Multiple channels, low slope, estuaries, mudflats, mangrove swamps, tidal forests (Sunderbans).

CHINA

New Delhi

Jaipur

Agra

Banas
Chambal

Yamuna

Kanpur

Betwa
Tamsa

Allahabad

Lucknow

Ghaghara

Gandak

Gomti

Varanasi

Son

Patna

Indore

Bhopal

INDIA

Yarlung Zangbo (Tsangpo)

Lhasa

NEPAL

Kathmandu

Kosi

Teeesta

Ganges

Farakka

Damodar

Hooghly

Jamuna

Padma

Mouths of the Ganges

Bay of Bengal

BHUTAN

Subansiri

Lohit

Guwahati

Surma

Barak

BANGLADESH

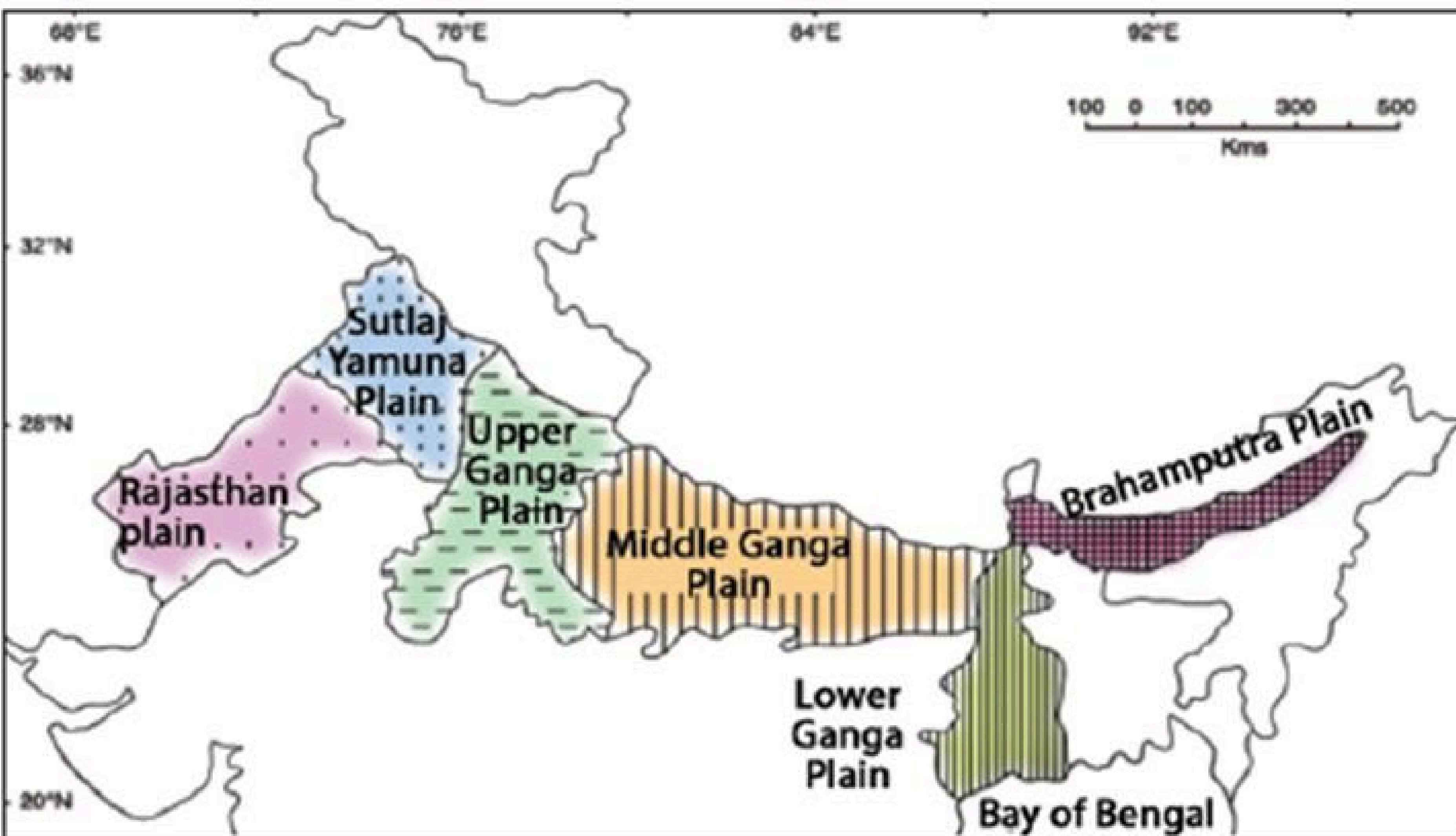
Dhaka

Kolkata

MYANMAR

Brahmaputra Plain (Assam Valley):

- Bounded by Indo-Bangladesh border (west), Purvanchal hills (east).
- Formed by Brahmaputra and its tributaries.
- Features: Alluvial fans, river meandering, bills, oxbow lakes, marshy tracts.



Significance:

- Home to half of India's population.
- Fertile soil, flat surface, rivers, and favorable climate enable intensive agriculture.
- Granary of India: Punjab, Haryana, western Uttar Pradesh (due to irrigation).
- Industrialization and urbanization due to transportation network.
- Cultural tourism: Religious sites along Ganga and Yamuna rivers.

Which among the following is the highest peak in India?

1. Kanchenjunga
2. Nanga Parbat
3. Nanda Devi
4. More than one of the above
5. None of the above

Which state does ***not*** share its boundary with Myanmar ?

1. Arunachal Pradesh
2. Sikkim
3. Manipur
4. More than one of the above
5. None of the above

Which one of the following pairs of islands is separated from each other by the ‘Ten Degree Channel’? (2014)

1. Andaman and Nicobar
2. Nicobar and Sumatra
3. Maldives and Lakshadweep
4. Sumatra and Java



ISLANDS

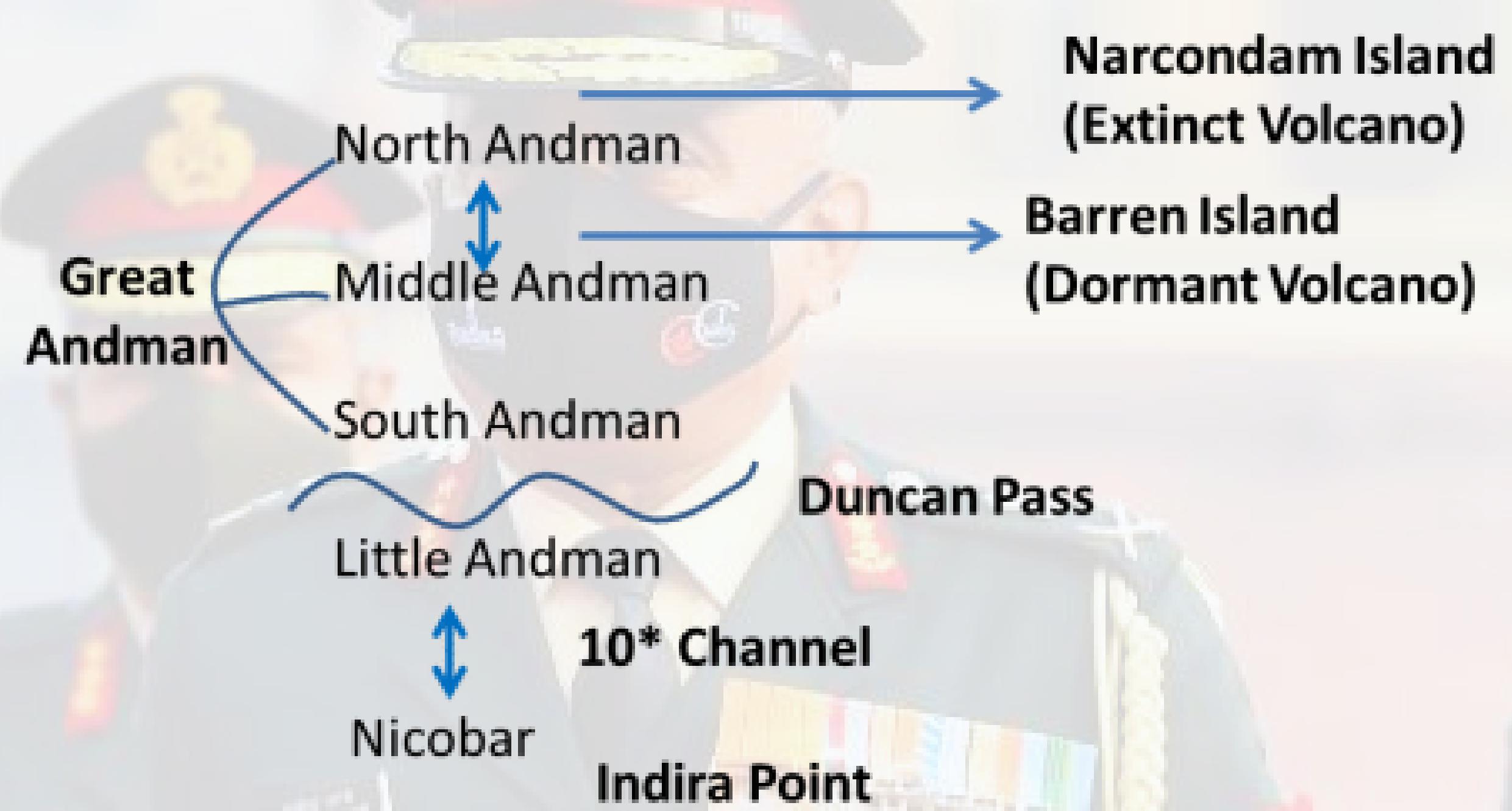
Lakshdweep (Coral island)

↔
9* Channel

Minicoy (Coral Islands)

↔
8* Channel

Maldieves



Q. Among the following cities, which one is at the highest altitude above mean sea level? (2003)

- a) Bangalore
- b) Delhi
- c) Jodhpur
- d) Nagpur



Answer: (a)

Elevation (above mean sea level)

- Bangalore- 937 meters
- Delhi- 218 meters
- Jodhpur- 230 meters
- Nagpur- 247.5 meters

Q. Consider the following statements: (2004)

Among the Indian States

1. Andhra Pradesh has the longest coastline.
2. Gujarat has the highest number of airports.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Answer: (d)

Andhra Pradesh

- The coastline of Andhra Pradesh is located on the southeast coast of the **Indian Peninsula, and forms a part of the Northern Circars, with waters in Bay of Bengal. It has the second longest coastline in India next to Gujarat, with a length of 975 km (606 mi).**
- Andhra Pradesh now has 6 airports, **in Kadapa, Visakhapatnam, Tirupati, Rajahmundry and Vijayawada and the sixth airport in Kurnool.**
- **Kurnool is the judicial capital of Andhra Pradesh and a historical hub of the country.**

Gujarat

- Gujarat has the longest coastline in India which lies in the Kathiawar region of the state and is 1,600 km long. This coastline is surrounded by the Arabian Sea and is dotted with 41 ports-- 1 major, 11 intermediate and 29 minor. Some of the beaches of Gujarat are-- Diu, Dwarka, Porbandar, etc.
- Maharashtra with 26 airports has highest number of airports in India followed by Gujarat and Karnataka (14 each).