- FACULTY NAME:
  - KANHAIYA JHA
- SUBJECT:
  - GEOGRAPHY
- TOPIC NAME:
  - LOCATION AND EXTENT

AUSTRALIA — Independent state

Bermuda — Dependency or area of special sovereignty

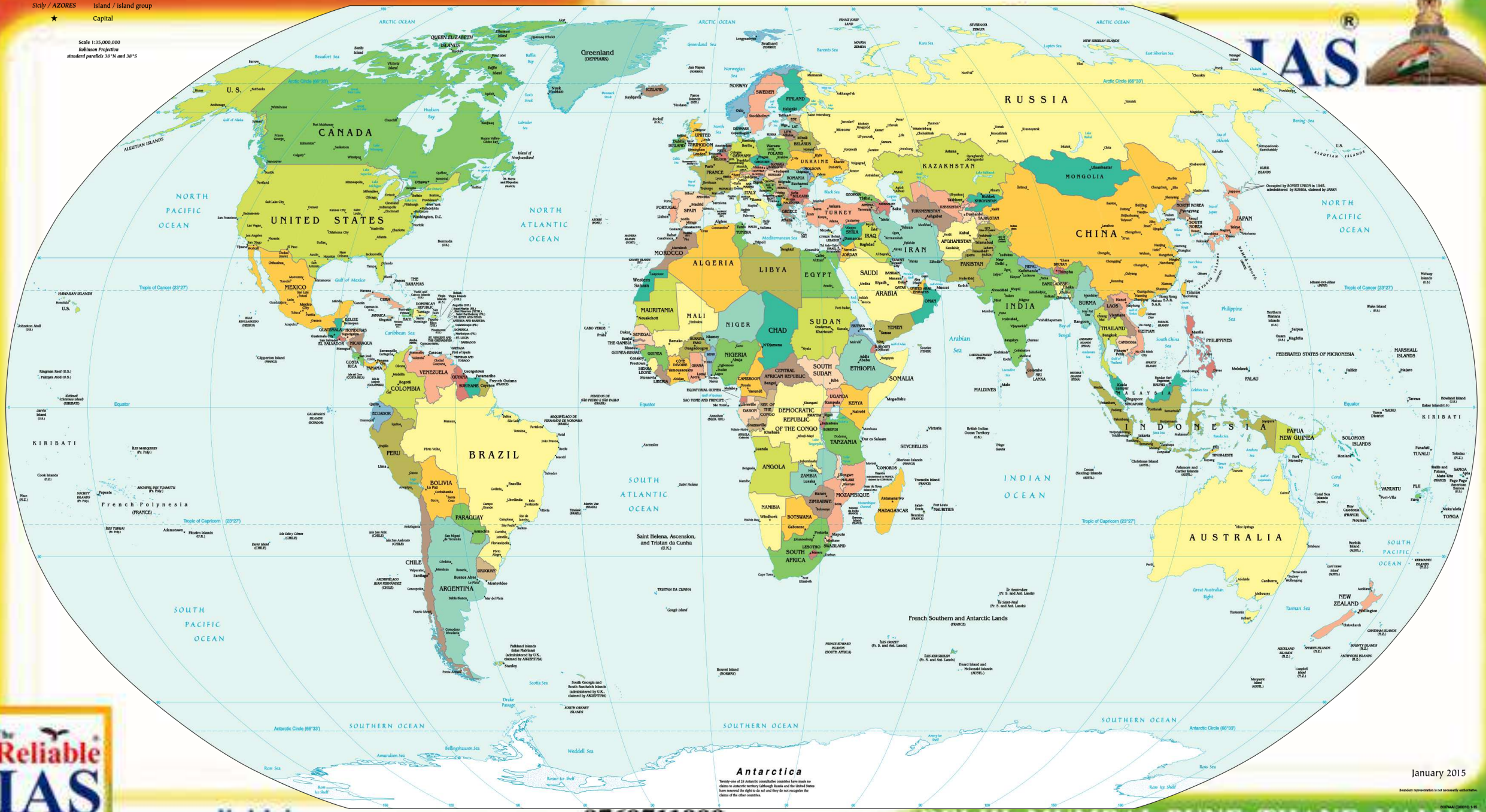
Sicily / AZORES — Island / island group

★ — Capital

Scale 1:35,000,000

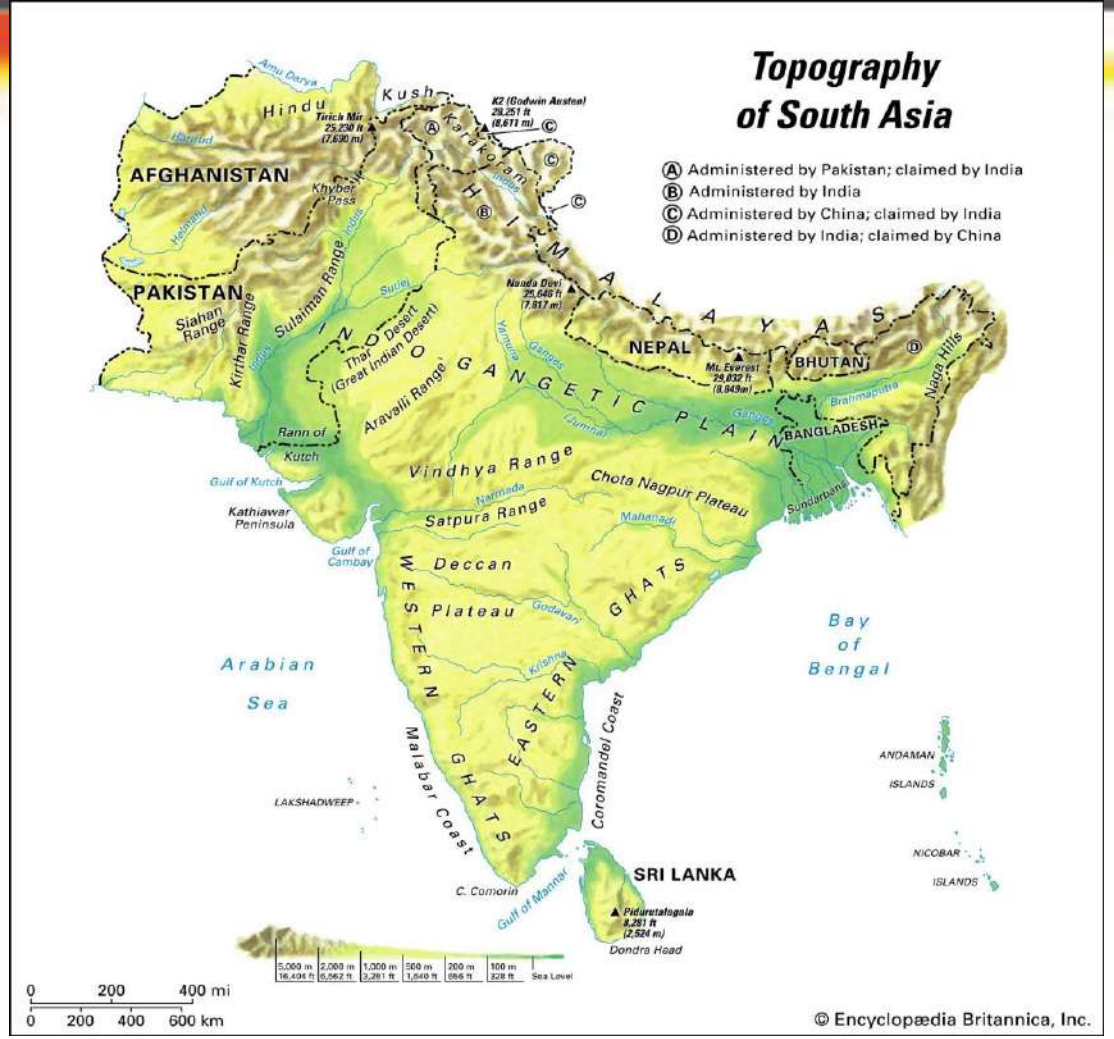
Robinson Projection

standard parallels 38°N and 38°S



January 2015

Boundary representation is not necessarily authoritative.



Geopolitical coverage of the subcontinent

Area	4,440,000 km^2 (1,710,000 sq mi)
Population	c. 1.9 billion
Countries	7 [hide]

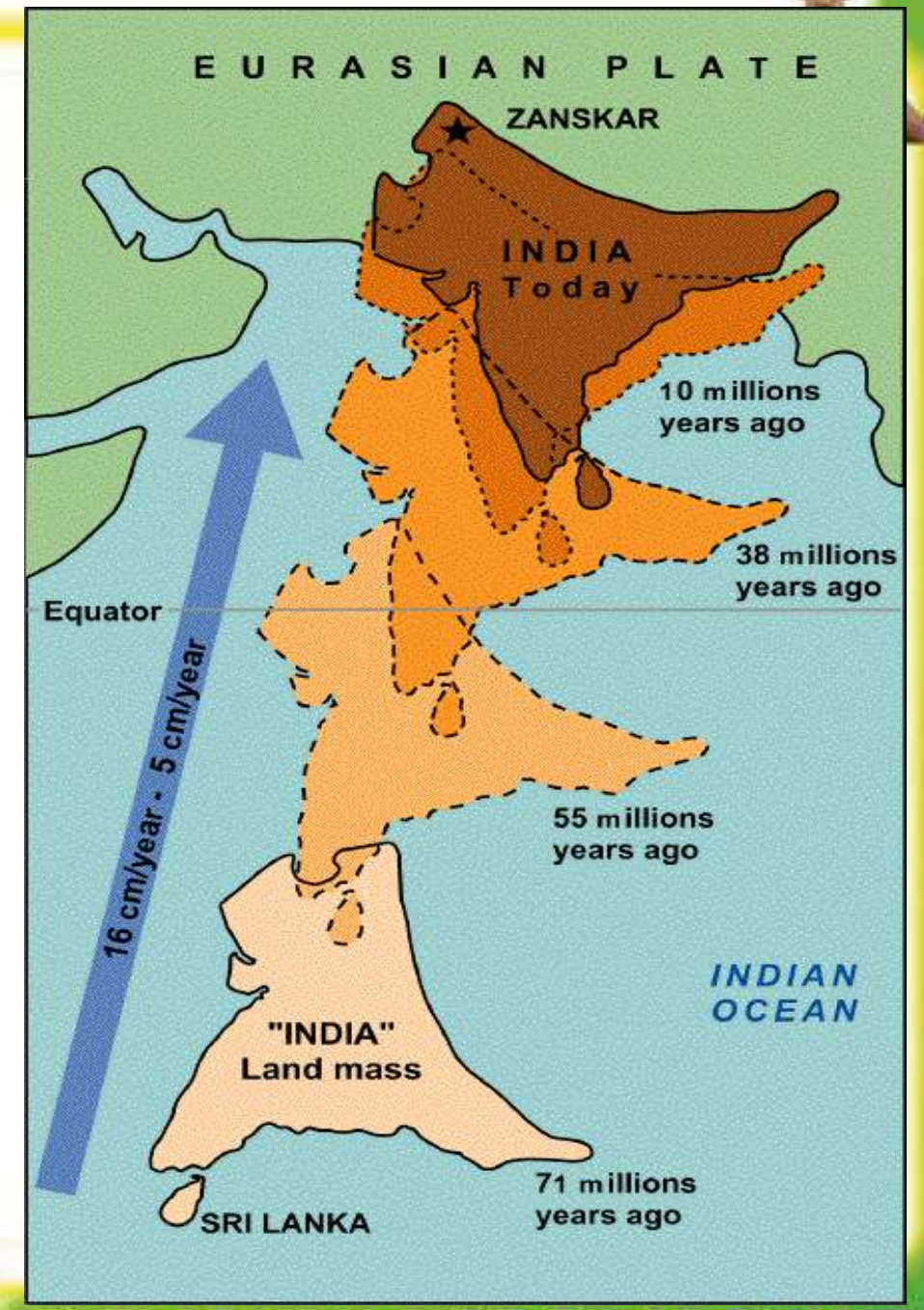
Bangladesh
Bhutan
India[note 1]
Maldives[note 2]
Nepal[note 3]
Pakistan[note 4]
Sri Lanka[note 2]

- ✓ South Asia = Afghanistan + country of Indian subcontinent
- ✓ Country of Indian subcontinent = **7 countries**
- ✓ India, Pakistan, Bangladesh, Nepal, Bhutan, Sri Lanka and Maldives

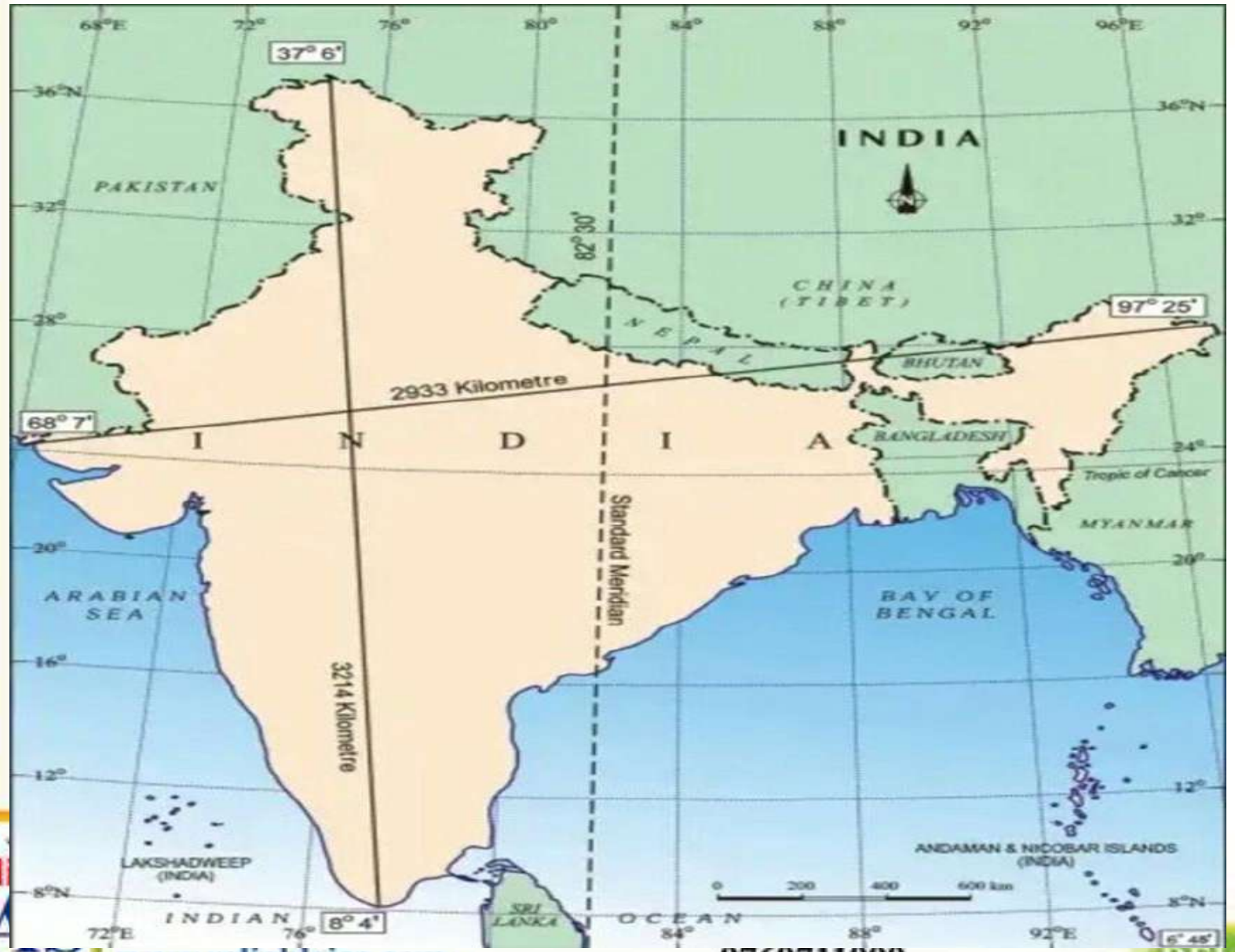
Why India is regarded a subcontinent ?

Tectonic Plate:	• India sits on its own tectonic plate, separated from the rest of Asia.
Large Landmass:	• A vast area in South Asia, bordered by the Himalayas and oceans.
Geographical Diversity:	• Features mountains, plains, deserts, and coastal regions.
Climate Variations:	• Diverse climate zones, from tropical in the south to temperate in the north.
Cultural and Ethnic Diversity:	• Home to numerous languages, religions, and ethnic groups with distinct customs.
Economic Scale:	• One of the world's largest economies with a wide range of sectors—agriculture, industry, and services.
Historical Identity:	• Ancient civilizations and colonial history shaped its unique identity.

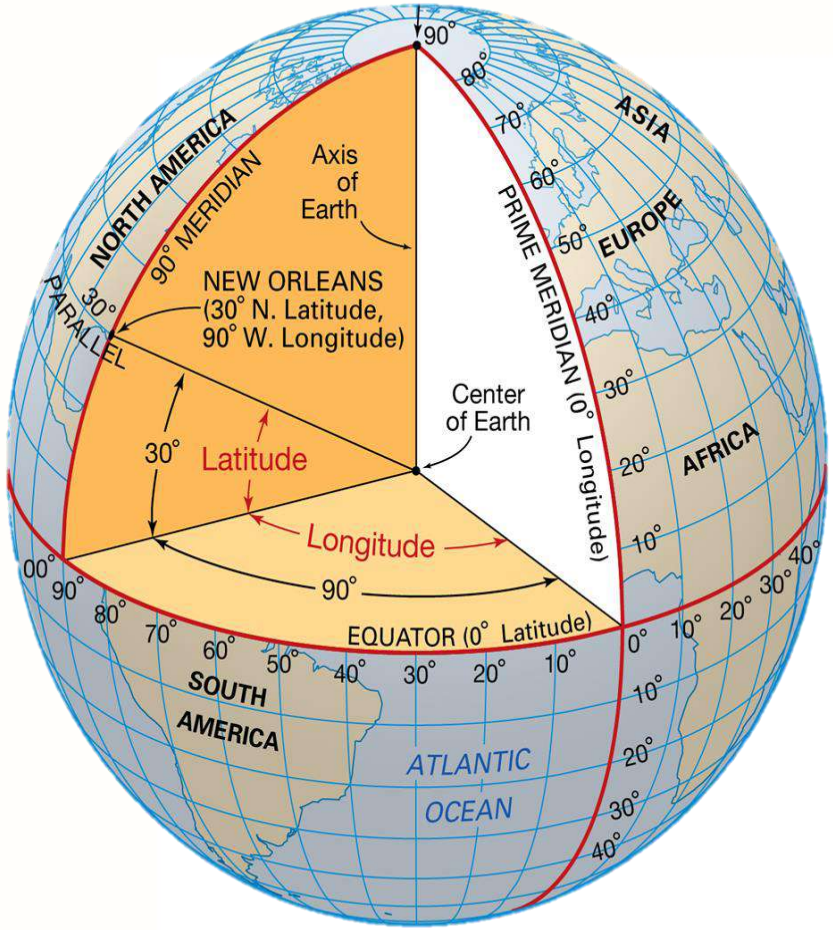

INDIA
AFGHANISTAN
PAKISTAN
CHINA (TIBET)
NEPAL
BHUTAN
BANGLADESH
MYANMAR (BURMA)
SRI LANKA
MALDIVES
INDIAN OCEAN
Arabian Sea
Bay of Bengal
LADAKH
JAMMU & KASHMIR
HIMACHAL PRADESH
PUNJAB
UTTARAKHAND
HARYANA
DELHI
RAJASTHAN
UTTAR PRADESH
BIHAR
JHARKHAND
WEST BENGAL
SIKKIM
ARUNACHAL PRADESH
ASSAM
NAGALAND
MEGHALAYA
MANIPUR
TRIPURA
MIZORAM
GUJARAT
MADHYA PRADESH
ODISHA
CHHATTISGARH
MAHARASHTRA
TELANGANA
ANDHRA PRADESH
KARNATAKA
TAMIL NADU
PUDUCHERRY
KERALA
GOA
DADRA & NAGAR HAVELI AND DAMAN & DIU
LAKSHADWEEP (INDIA)
ANDAMAN & NICOBAR ISLANDS (INDIA)
Srinagar
Leh
Jammu
Amritsar
Jalandhar
Shimla
Ludhiana
CHANDIGARH
Dehradun
Haridwar
Patiala
Sri Ganganagar
Karnal
Sirsa
Muzaffarnagar
Meerut
Moradabad
New Delhi
Ghaziabad
Bareilly
Gurugram
Faridabad
Aligarh
Shahjahanpur
Bikaner
Alwar
Bahraich
Sikar
Mathura
Farrukhabad
Jaipur
Bharatpur
Agra
Etawah
Jodhpur
Ajmer
Kanpur
Lucknow
Gorakhpur
Darbhanga
Pali
Gwalior
Raebareli
Mau
Chapra
Purnia
Bhilwara
Jhansi
Prayagraj
Varanasi
Patna
Raiganj
Udaipur
Kota
Mirzapur
Gaya
Bhagalpur
Satna
Rewa
Baharampur
Gandhinagar
Ratlam
Sagar
Murwara
Dhanbad
Asansol
Durgapur
Jamnagar
Ahmedabad
Ujjain
Bhopal
Jabalpur
Ranchi
Barddhaman
Rajkot
Indore
Dewas
Jamshedpur
Vadodara
Kharagpur
Kolkata
Khandwa
Bilaspur
Korba
Bhavnagar
Rourkela
Haldia
Junagadh
Burhanpur
Nagpur
Raipur
Surat
Dhule
Jalgaon
Amravati
Bhilai
Daman
Akola
Malegaon
Cuttack
Bhubaneswar
Nashik
Jalna
Chandrapur
Brahmapur
Ahmednagar
Mumbai
Nanded
Nizamabad
Karimnagar
Vizianagaram
Pune
Latur
Bidar
Warangal
Visakhapatnam
Solapur
Hyderabad
Rajahmundry
Kakinada
Sangli
Kalaburagi
Eluru
Yanam (Puducherry)
Kolhapur
Vijayapura
Amaravati
Vijayawada
Raichur
Guntur
Machilipatnam
Belagavi
Kurnool
Panaji
Bellary
Hosapete
Anantapur
Nellore
Shivamogga
Tirupati
Tumakuru
Chennai
Bengaluru
Mangaluru
Vellore
Mysuru
Mahe (Puducherry)
Salem
Kozhikode
Karaikal (Puducherry)
Kavaratti
Thrissur
Tiruchirappalli
Thanjavur
Dindigul
Kochi
Madurai
Alappuzha
Kollam
Tirunelveli
Thiruvananthapuram
Nagercoil
Port Blair
Yarlung (Brahmaputra)
Ganges
Indus
Jhelum
Chenab
Ravi
Sutlej
Yamuna
Ghaghara
Gandak
Kosi
Teesta
Brahmaputra
Lohit
Barak
Chambal
Betwa
Son
Mahi
Narmada
Tapi
Godavari
Wardha
Penganga
Bhima
Krishna
Tungabhadra
Pennar
Palar
Cauvery
Periyar
Ghaghara
Tel
Mahanadi
Brahmani
Map not to Scale
International Boundary
State Boundary
Rivers
Country Capital
State/UT Capital
Major Cities
Copyright © 2020 www.mapsofindia.com

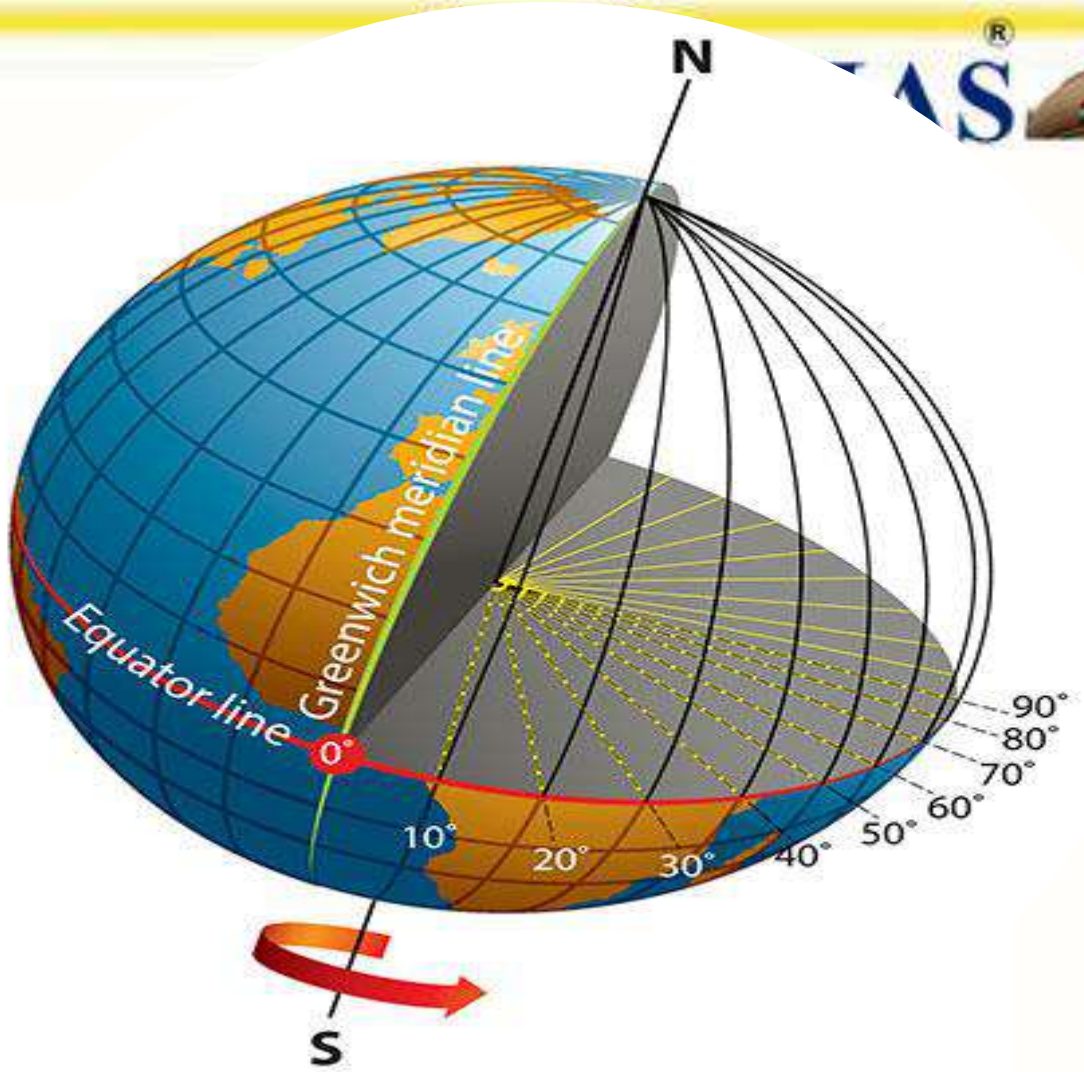

EURASIAN PLATE
ZANSKAR
INDIA Today
10 millions years ago
38 millions years ago
55 millions years ago
71 millions years ago
Equator
16 cm/year - 5 cm/year
"INDIA" Land mass
SRI LANKA
INDIAN OCEAN

INDIA: LOCATION

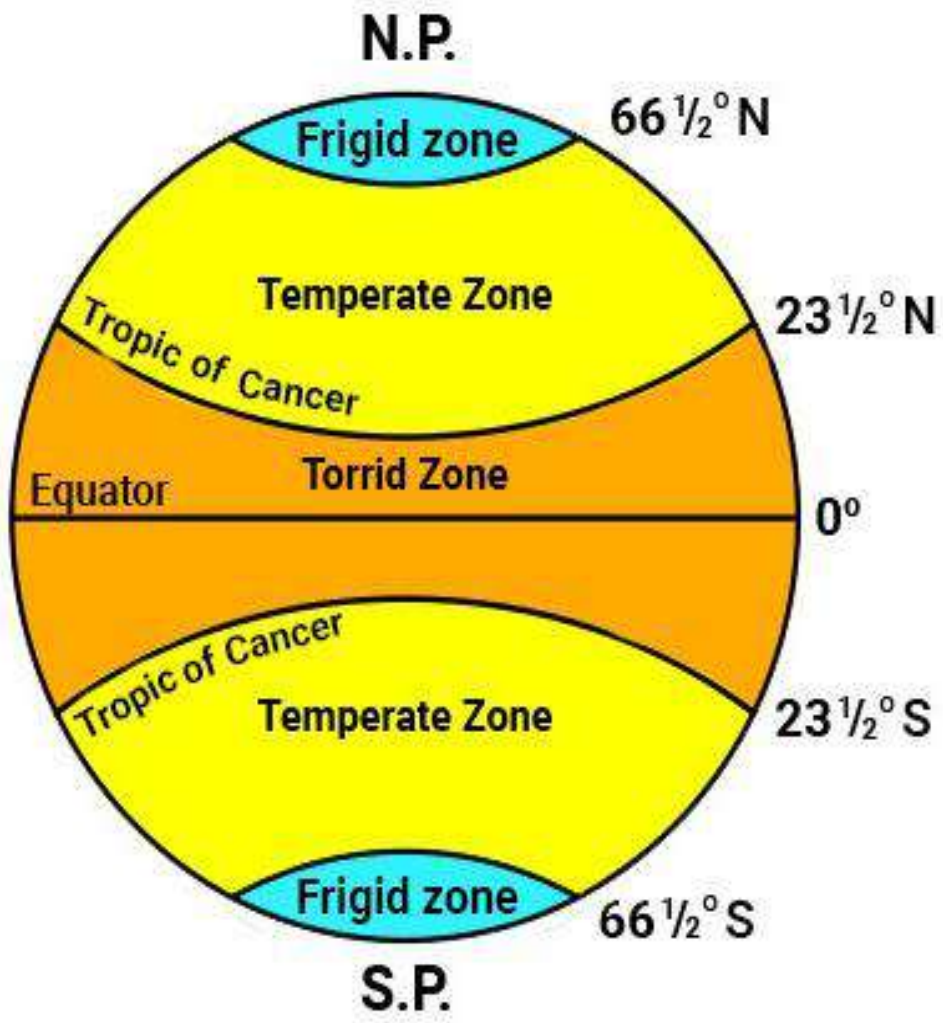


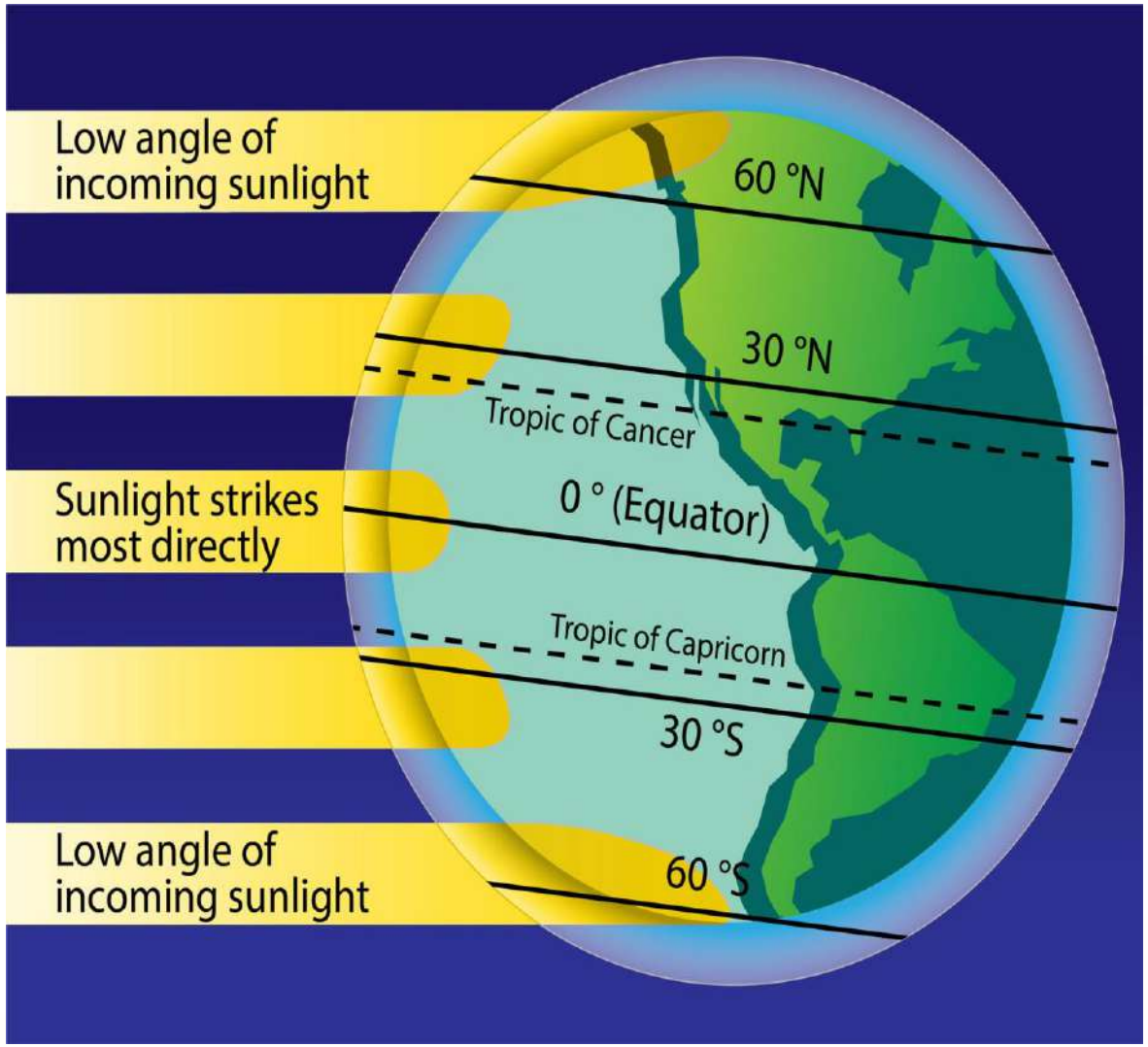
- Geographical area :-
  - 3.28 million sq. km (32,87,263 sq. km)
  - Is **about 2.4 per cent of the total geographical area of world.**
  - 7th largest country of world by an area
  - **1. Russia 2. Canada 3. USA 4. China 5. Brazil 6. Australia 7. India 8. Argentina 9. Kazakhstan 10. Algeria**
  - The **second most populous** country of the world after China (17.78% of the world's population)



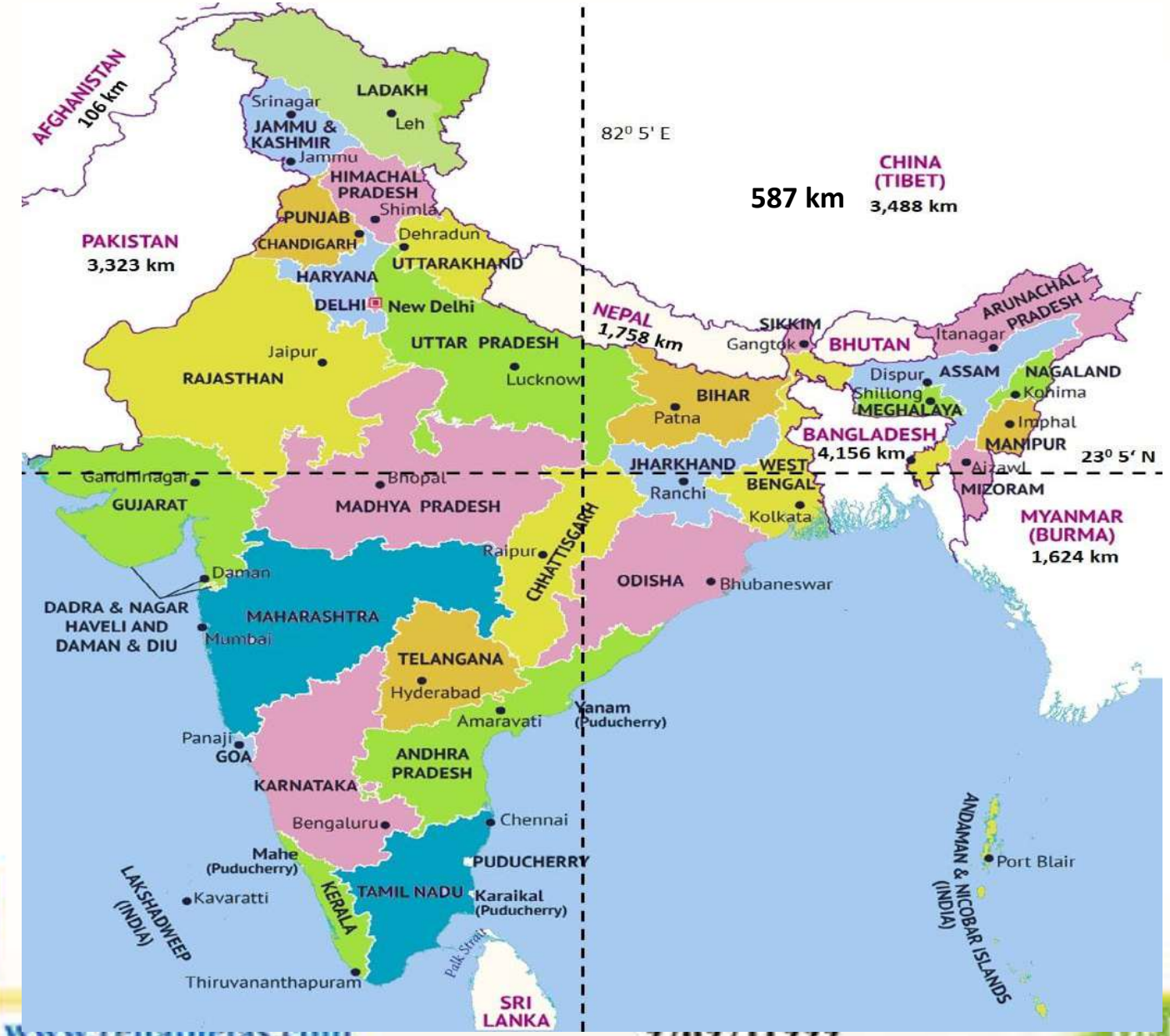


- Earth takes 24 hr. (24 x 60 mint.) for one spin.
- After 4 mint. Sunlight reaches to next longitude.
- 15 degree – 1 hr.cc


N.P.
66½° N
Frigid zone
Temperate Zone
Tropic of Cancer
23½° N
Equator
Torrid Zone
0°
Tropic of Cancer
Temperate Zone
23½° S
Frigid zone
66½° S
S.P.


Low angle of incoming sunlight
60 °N
30 °N
Tropic of Cancer
Sunlight strikes most directly
0 ° (Equator)
Tropic of Capricorn
30 °S
Low angle of incoming sunlight
60 °S

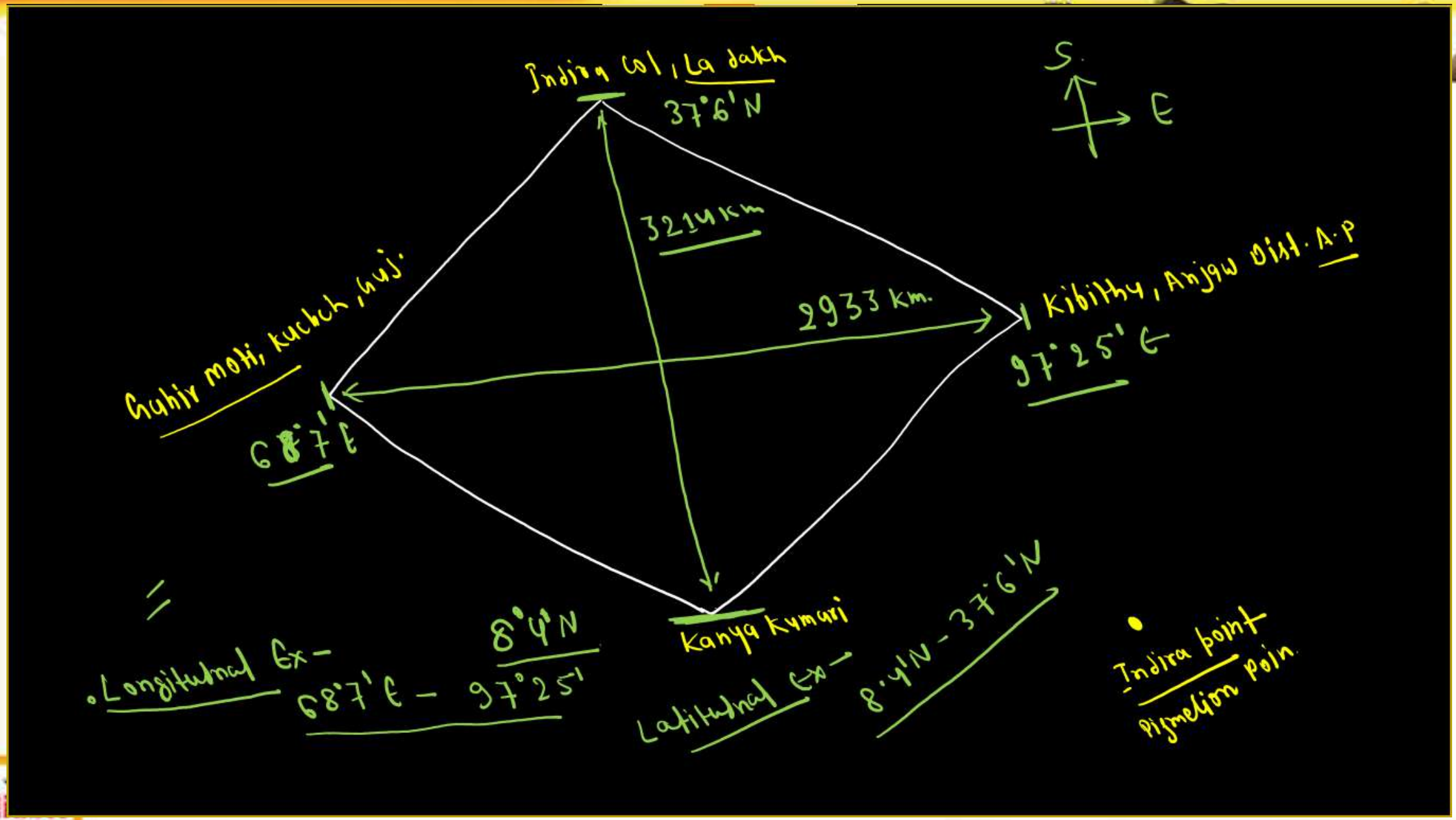
INDIA: FARTHEST POINT




Guhar Moti

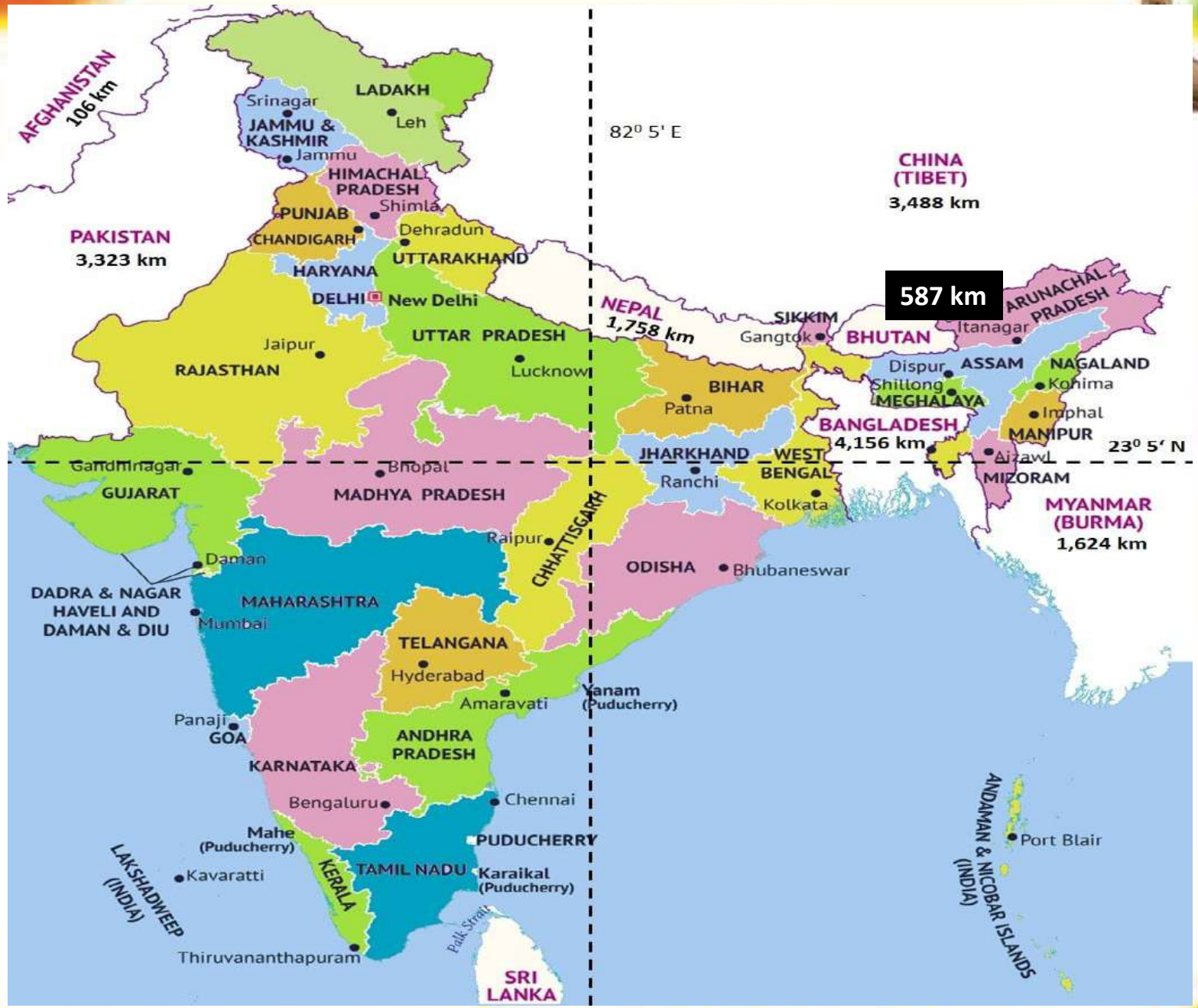

Kibithu

- **NORTHERN POINT**
  - **INDIRA COL, LADAKH**
  - a mountain pass at 5,988 mtr. Altitude
  - on the **Indira Ridge of Siachen Muztagh in Karakoram Range**.
  - It is on the border between Indian-controlled Siachen Glacier and the Chinese-controlled Trans-Karakoram Tract.
- **SOUTHERN POINT**
  - **KANYA KUMARI,T.N.**
  - "The Virgin Princess" ,
  - 'The Land's End'
  - Meeting point of the three seas : **the Indian Ocean, the Arabian Sea and the Bay of Bengal**
- **WESTRN POINT**
  - **GUHAR MOTI, KUTCH, GUJ.**
- **EASTRN POINT**
  - **KIBITHU , ANJAW, A.P.**
- SOUTHERN MOST POINT
  - INDIRA POINT (Pygmalion point), GREAT NICOBAR

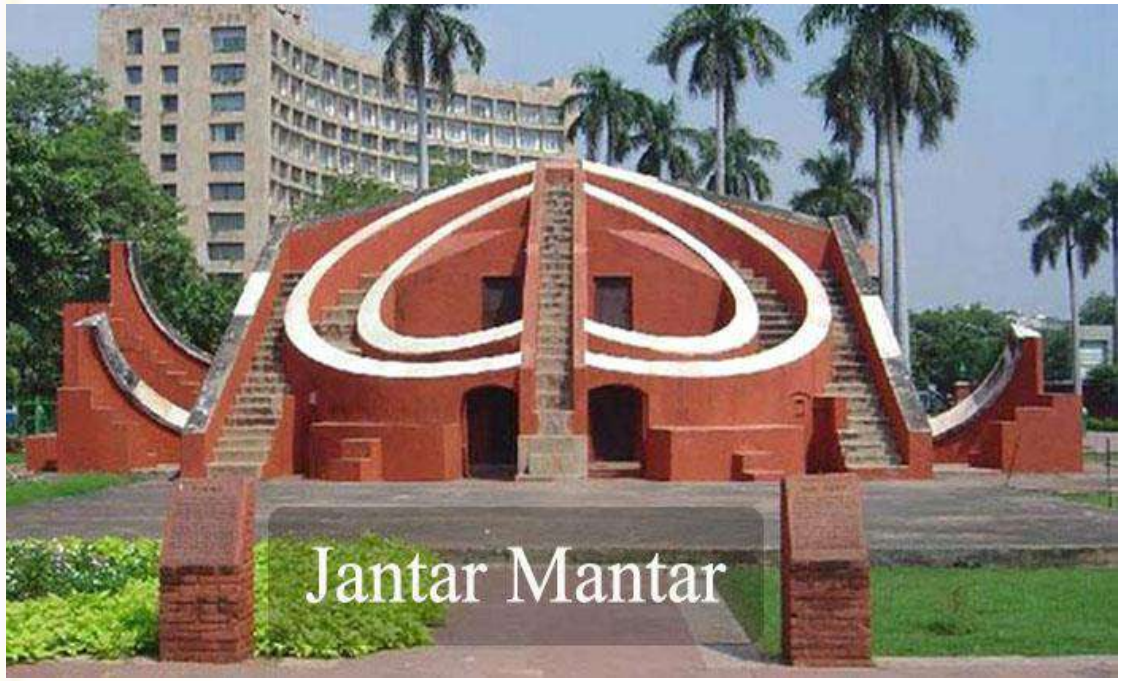

Indira Col, Ladakh
37°6'N
S
E
3214 km
2933 km.
Guhir moti, kuchch, Guj.
68°7'E
Kibithu, Anjaw Dist. A.P
97°25'E
=
• Longitudnal Ex-
68°7'E - 97°25'
8°4'N
Kanya Kumari
Latitudnal Ex-
8°4'N - 37°6'N
• Indira point
Pigmelion poin.

Tropic of cancer

- It runs through 8 state.
- Riv. Mahi crosses it twice.



Indian Standard time (IST)



Jantar Mantar

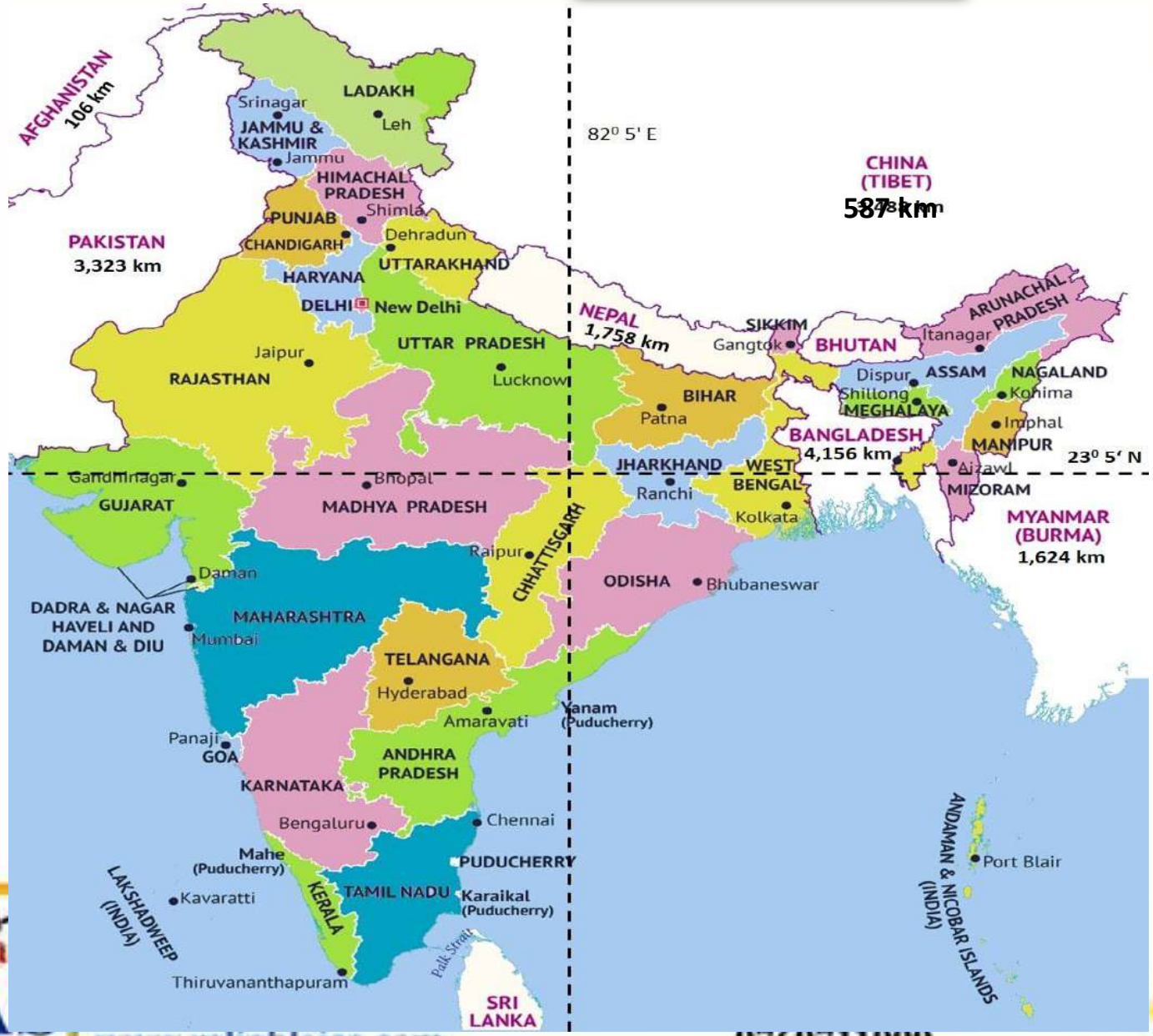
- Was completed in 1724
- By Maharaja Jai Singh II of Jaipur.
- Five observatories in Delhi ,Jaipur, Ujjain, Mathura and Varanasi

Indian Standard time (IST)

- There is a general understanding among the countries of the world to select the **standard meridian in multiples of 7°30' of longitude**.
- That is why 82°30' E has been selected as the 'standard meridian' of India.
- It passes through 5 states, namely
  - UP
  - MP
  - 36
  - ODISHA
  - AP
- Indian Standard Time is ahead of Greenwich Mean Time by 5 hours and 30 minutes.

- Indian Standard Time (IST) is **calculated from the clock tower in Mirzapur** nearly exactly on the reference longitude of IST at 82°30'E, within 4 angular minutes.
- **In 1905, the meridian passing east of Allahabad was declared as a standard time zone for British India.** It was adopted on 1 January 1906.
- **In 1974** the same was declared as IST **for the independent of India.**

BOUNDRY



- **A line that separates two sovereign country**
- **Land boundary :- 15200 km**
- **Sea boundary :- 7517 km**
- mainland coastline of 6,100 km
- entire geographical coast of the mainland plus the island groups 7,517 km.

- **Frontiers**
- A geographical region lies between two cumene (inhabited region).

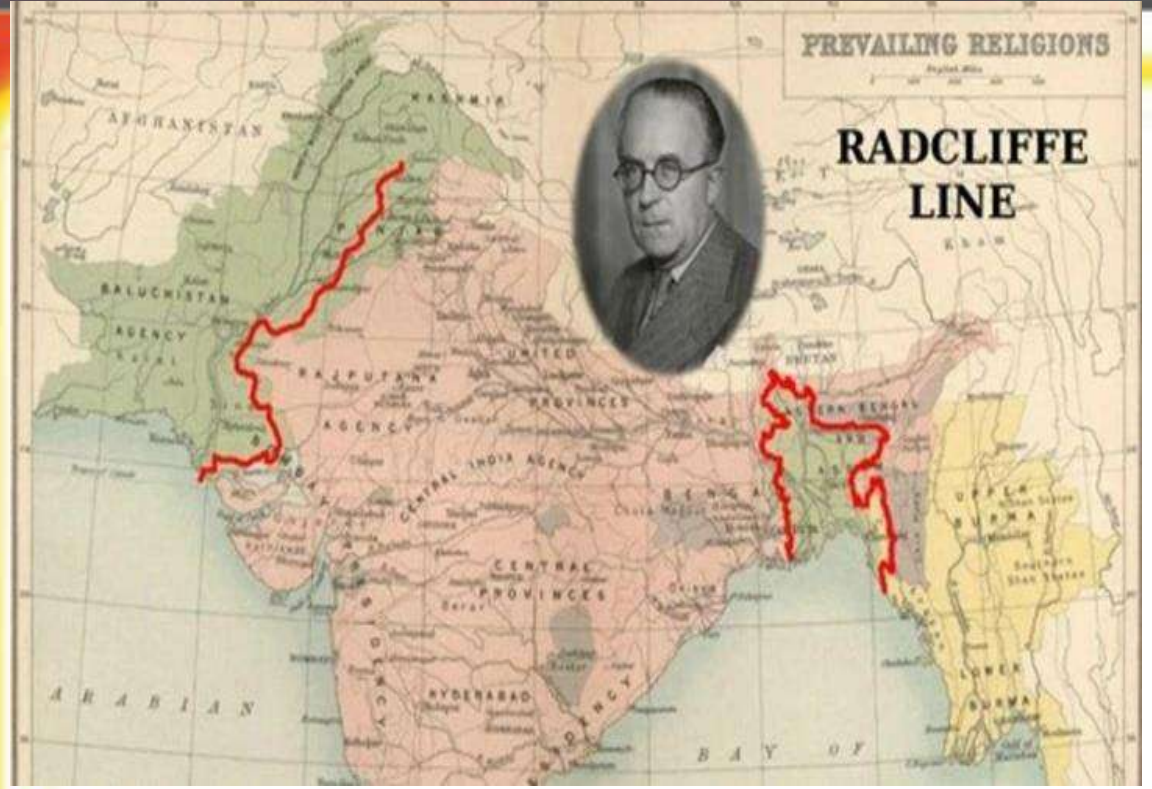
LAND BOUNDRY

- **Land boundary :- 15200 km**
- **With 7 country**

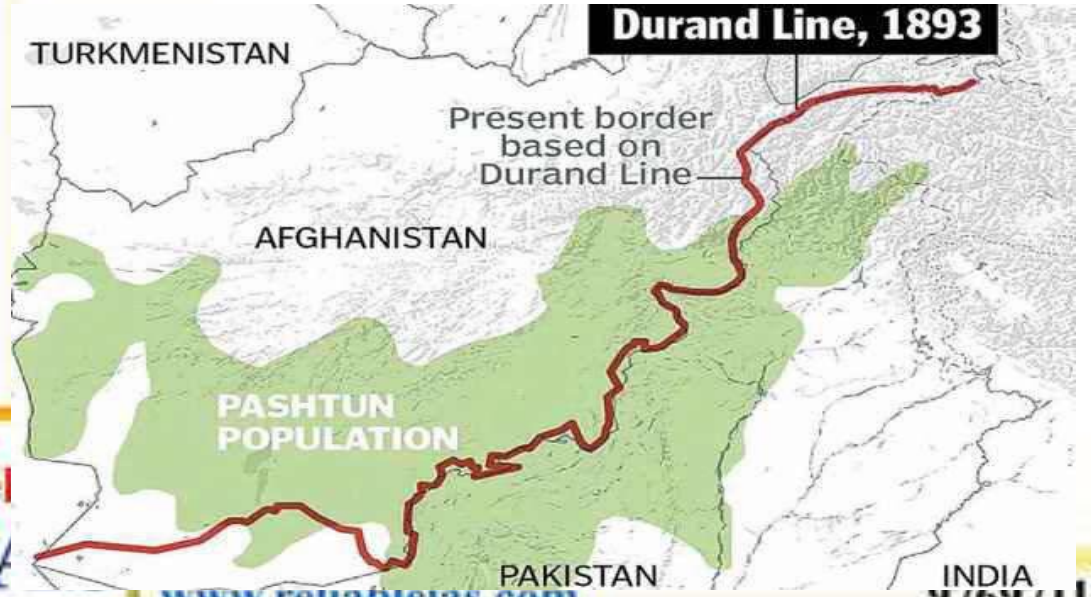
587 km

India has 15,106.7 Km of land border and a coastline of 7,516.6 Km including island territories. The length of our land borders with neighbouring countries is as under:

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**


PREVAILING RELIGIONS
RADCLIFFE LINE
AFGHANISTAN
BALUCHISTAN AGENCY
RAJPUTANA AGENCY
CENTRAL INDIA AGENCY
CENTRAL PROVINCES
HYDERABAD
ARABIAN
BAY OF


TAJI
AFGHANISTAN
CHINA
INDIA
Territory ceded by Pakistan to China in 1963
PAK OCCUPIED KASHMIR
AKSAI CHIN
PAKISTAN
Line of Control
Kargil
India-China Line of Actual Control
JAMMU & KASHMIR
INDIA
CHINA
INDIA
Map not to scale


Durand Line, 1893
TURKMENISTAN
Present border based on Durand Line
AFGHANISTAN
PASHTUN POPULATION
PAKISTAN
INDIA


TOI
McMohan Line
CHINA
Longju
Dibang Valley
ARUNACHAL PRADESH
Asaphila
Yangtse
Dichu
Namkha Chu
Sumdorong Chu
INDIA
BHUTAN
MYANMAR

Sticking points

India and China have a total boundary of around 4,050 km, divided into three sectors. The States of Jammu and Kashmir, Uttarakhand, Himachal Pradesh, Sikkim and Arunachal Pradesh share their borders with China

Western sector

- With **2,150 km** of border, the two sides differ over the boundary line that separates Jammu and Kashmir from Xinjiang province of China
- India accuses China of illegally occupying Aksai Chin, and some other parts of the Ladakh region
- The 1962 war saw fierce fighting between the two sides here
- Tense standoffs occasionally take place, and in summer months, the two sides send deep patrols to assert their respective claim over boundaries

Middle sector

- The **625 km** in this sector are the least controversial of the three. Himachal Pradesh and Uttaranchal abet the boundary. Both sides do not have much disagreement over this area

Eastern sector

- The **1,140 km** long boundary is contentious, and is historically referred to as the McMahon Line, which Chinese do not accept because the McMahon Line was agreed to by Tibetan representatives. China claims the whole of Arunachal Pradesh, around 85,000 sq km, as its territory
- The two sides fought fiercely in this sector in 1962, but a better prepared Chinese had the advantage

Jammu and Kashmir

Himachal Pradesh

Uttarakhand

INDIA

CHINA

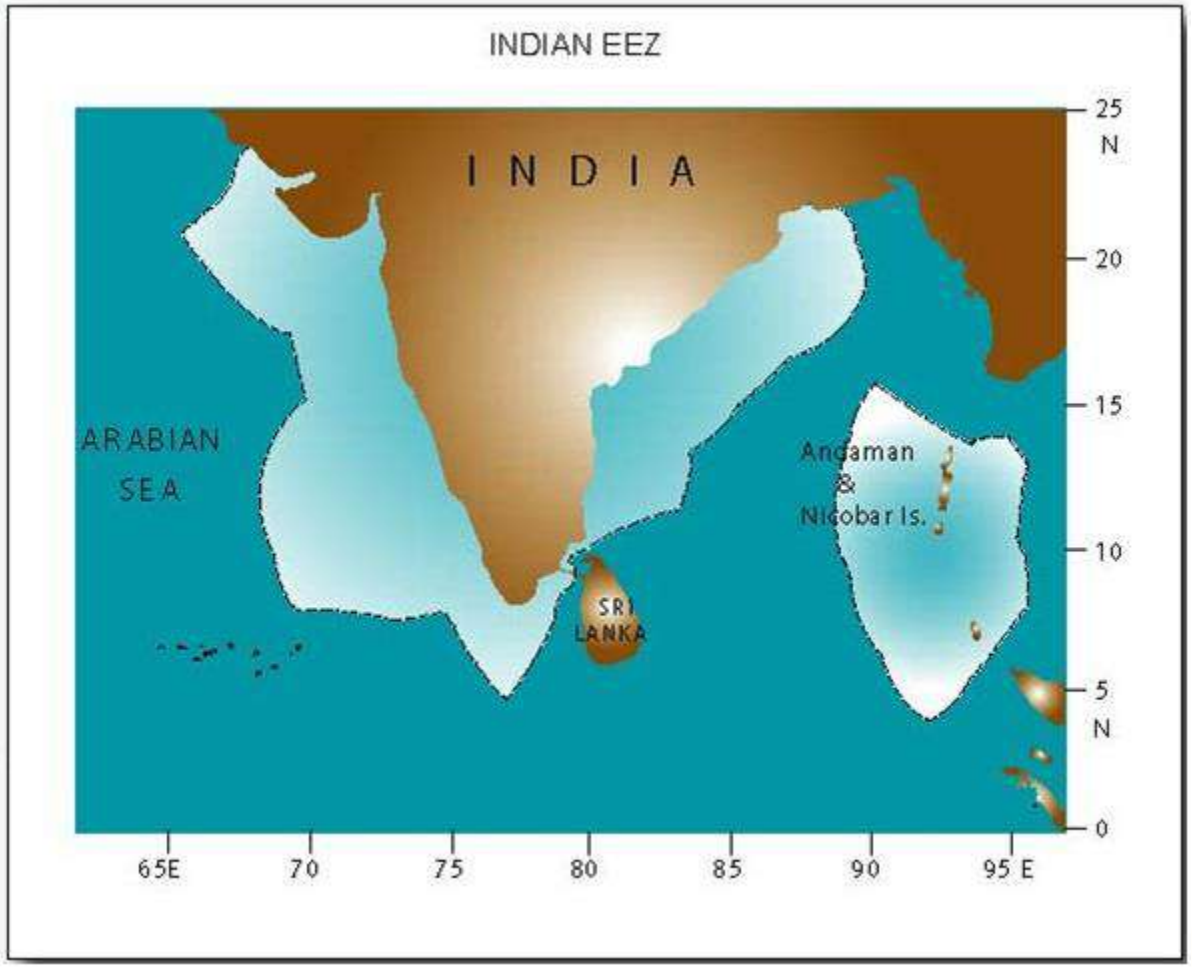
Arunachal Pradesh

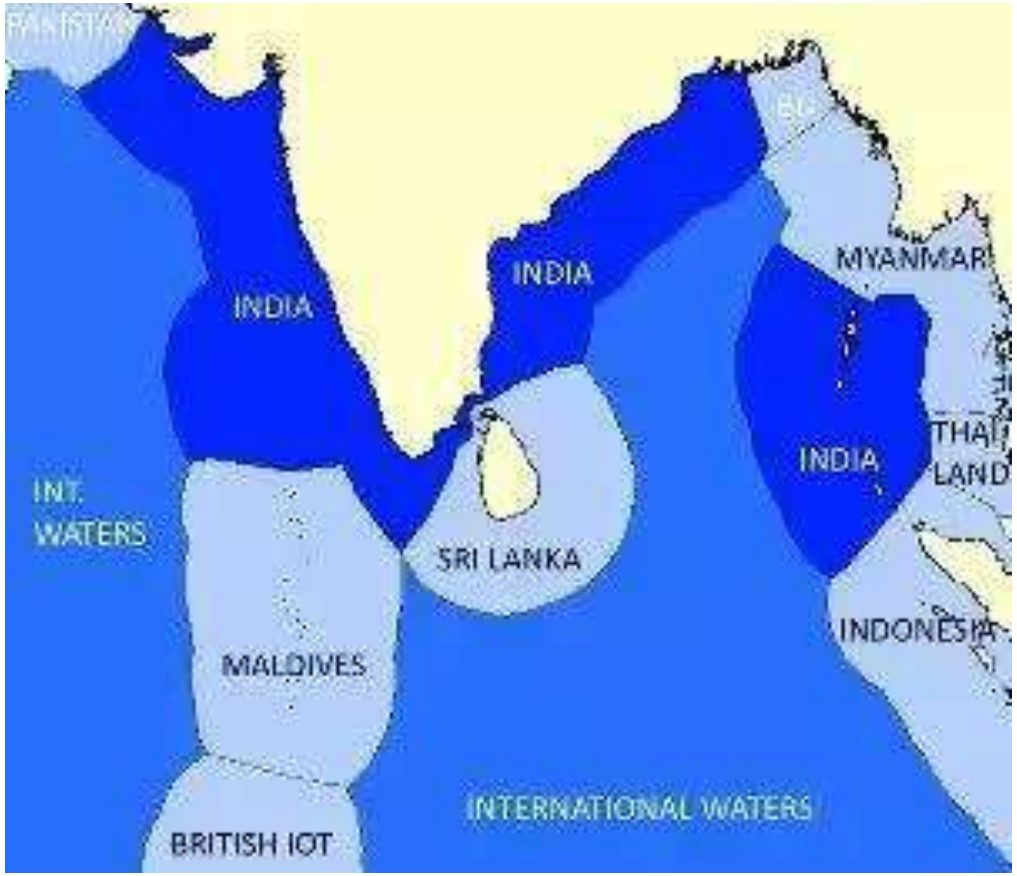
Sikkim

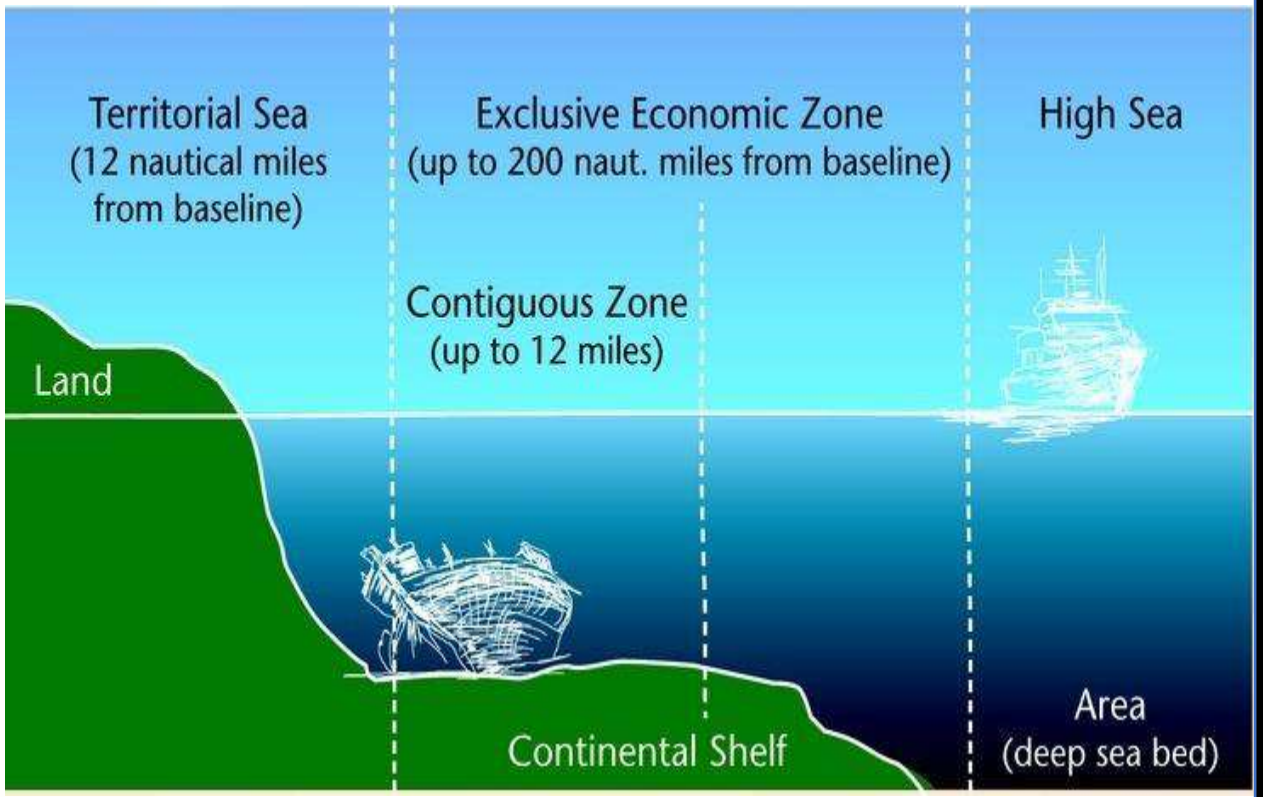
DOKLAM TRI-JUNCTION

- The present standoff, in the tri-junction of Bhutan-India-China is taking place in this sector

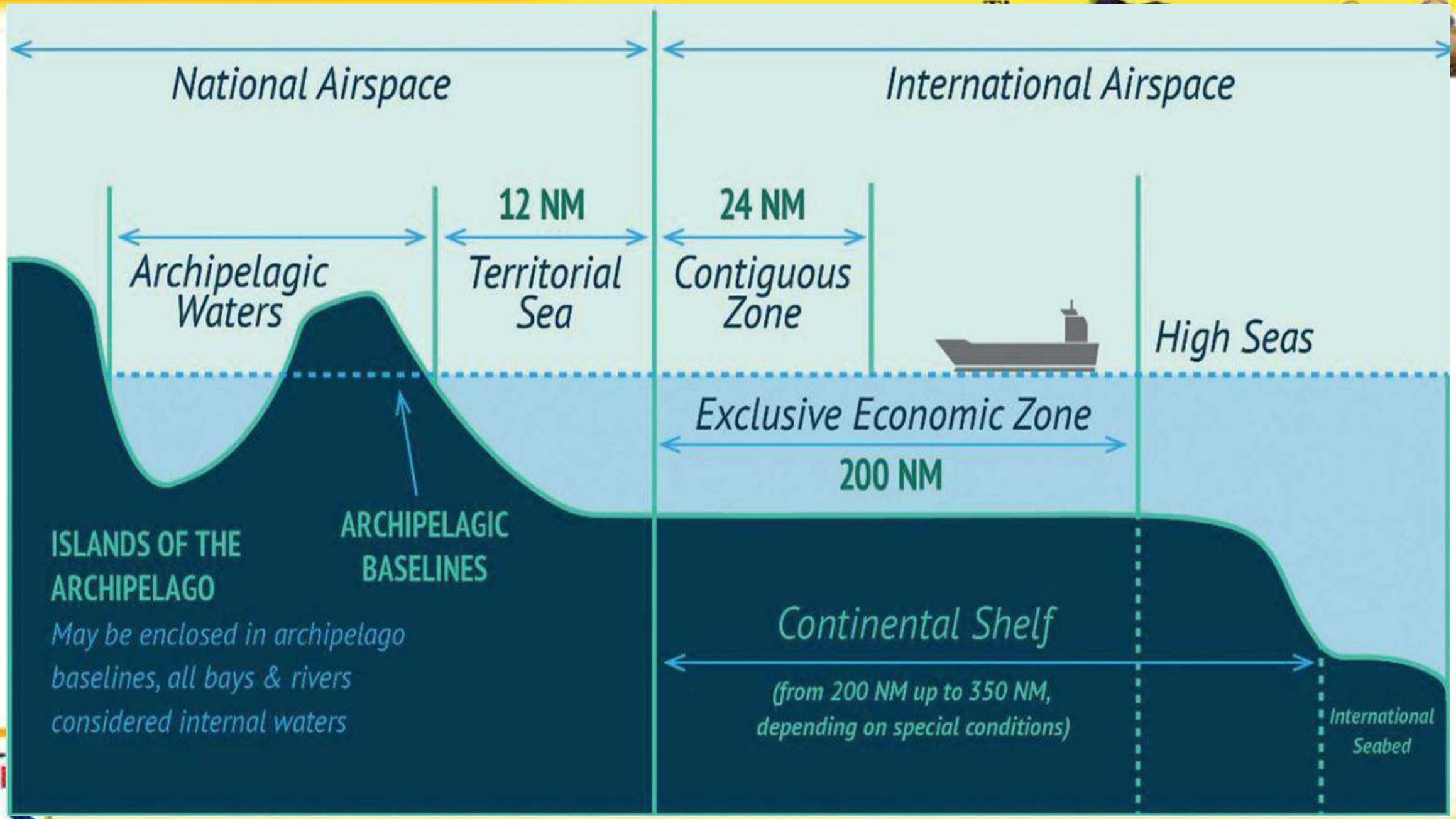
MARINE BOUNDRY

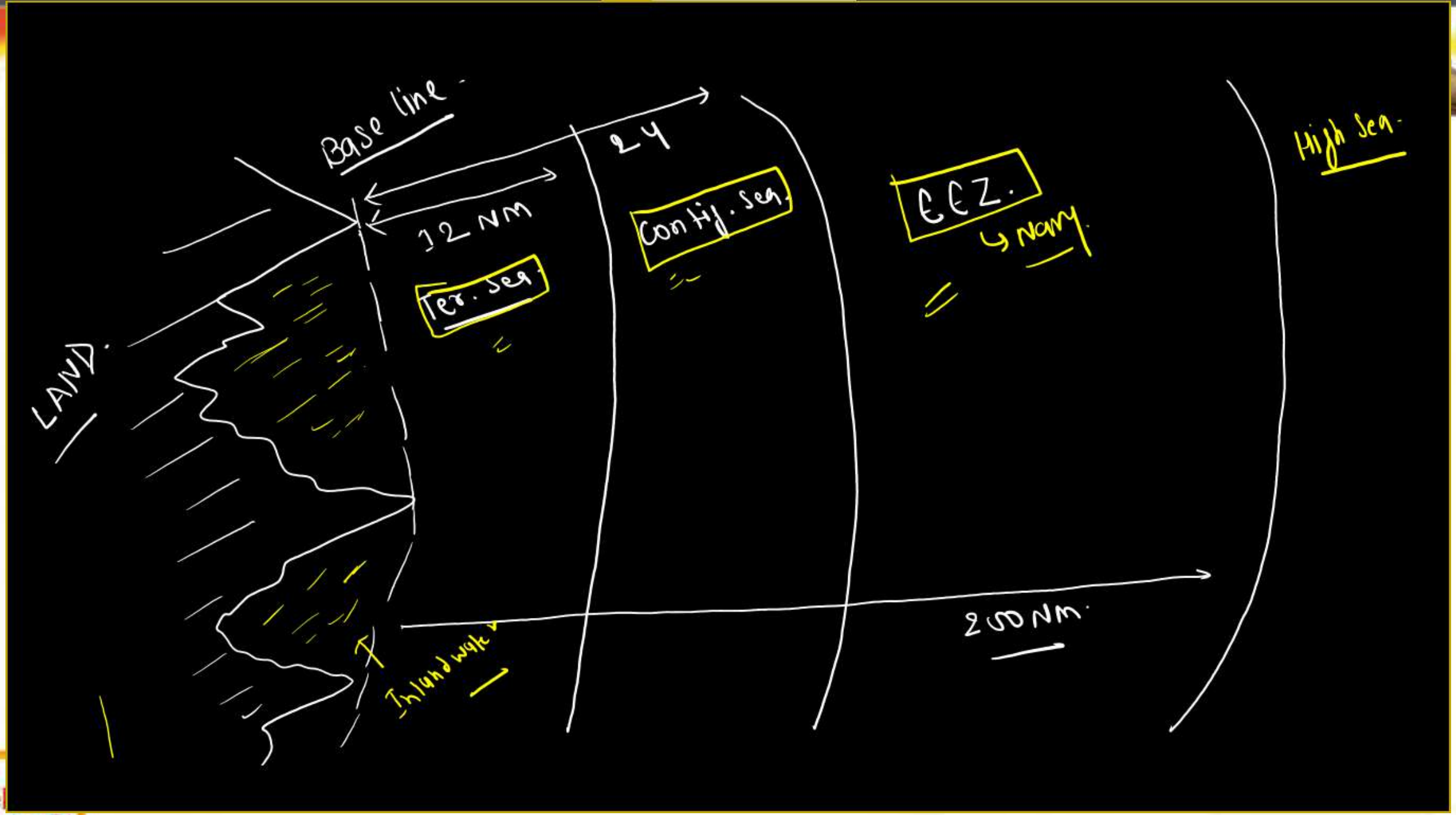




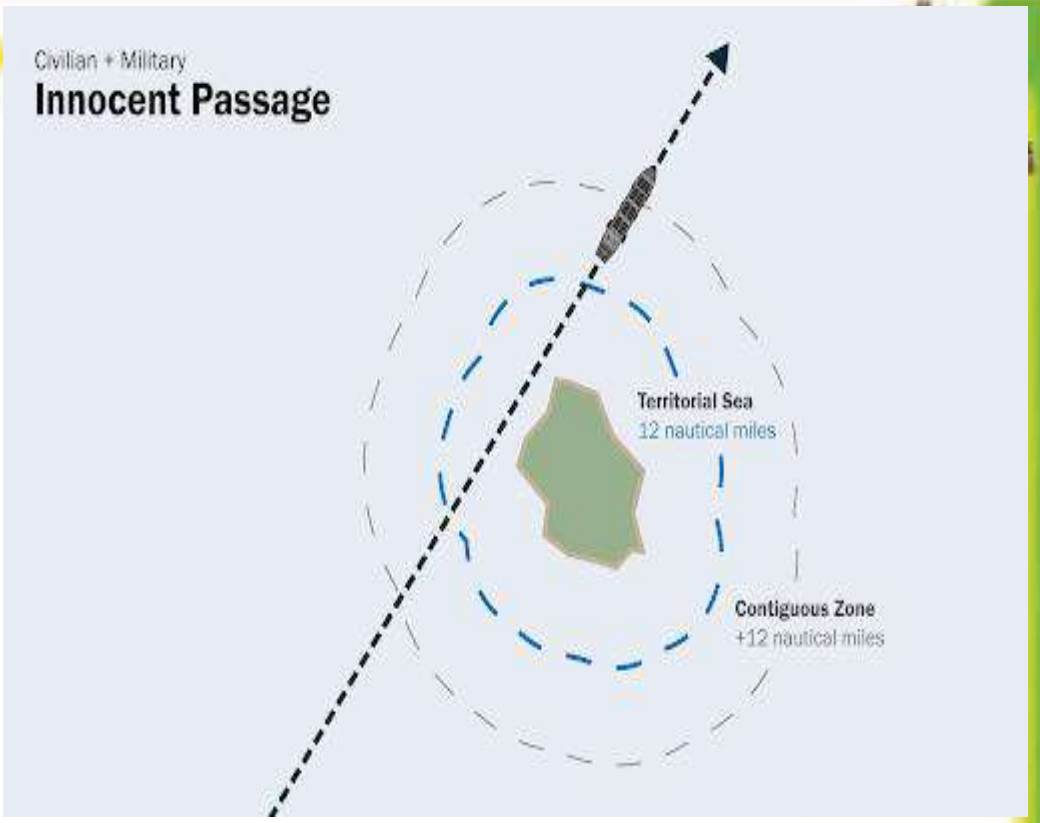


- **United Nations Convention on the Law of the Sea (UNCLOS) 1982**, also known as Law of the Sea divides marine areas into five main zones namely-
  - **Internal Waters,**
  - **Territorial Sea,**
  - **Contiguous Zone,**
  - **Exclusive Economic Zone (EEZ) and**
  - **the High Seas.**
- **(1 nautical mile = 1.1508 land miles or 1.85 km)**


National Airspace
International Airspace
12 NM
24 NM
Archipelagic Waters
Territorial Sea
Contiguous Zone
High Seas
Exclusive Economic Zone
200 NM
ISLANDS OF THE ARCHIPELAGO
May be enclosed in archipelago baselines, all bays & rivers considered internal waters
ARCHIPELAGIC BASELINES
Continental Shelf
(from 200 NM up to 350 NM, depending on special conditions)
International Seabed


Base line.
24
12 NM
Territ. Sea
Contig. Sea
EEZ.
4 Navy.
High Sea.
LAND.
Inland wate
200 NM.

- **Art. 297 of constitution (added by 40th CAA 1976)**
  - provides that , The limits of the territorial waters, the continental shelf, the exclusive economic zone and the maritime zones of India shall be as specified from time to time by or under any law made by Parliament.
- **Territorial Sea Baseline (TSB)**
  - It refers to the line from which the seaward limits of India's Maritime Zones are measured.
- **Internal water**
  - Waters on the landward side of the baseline are internal waters for the purposes of international law.
  - India has full sovereignty over its internal waters **as like its land territory.**
  - Examples of internal waters include bays, ports, inlets, rivers and even lakes that are connected to the sea.
  - There is **no right of innocent passage** through internal waters.
  - The innocent passage refers to the passing through the waters which are not prejudicial to peace and security.



Territorial Sea

- The Territorial Sea is a belt of water not exceeding 12 M in width measured from the territorial sea baseline.
- India's sovereignty extends to the territorial sea, its seabed and subsoil, and to the air space above it.
- The sovereignty over the territorial sea is exercised subject to this Convention and to other rules of international law.
- There is **a right of innocent passage** through internal waters subject to certain restriction.

The **Contiguous Zone**

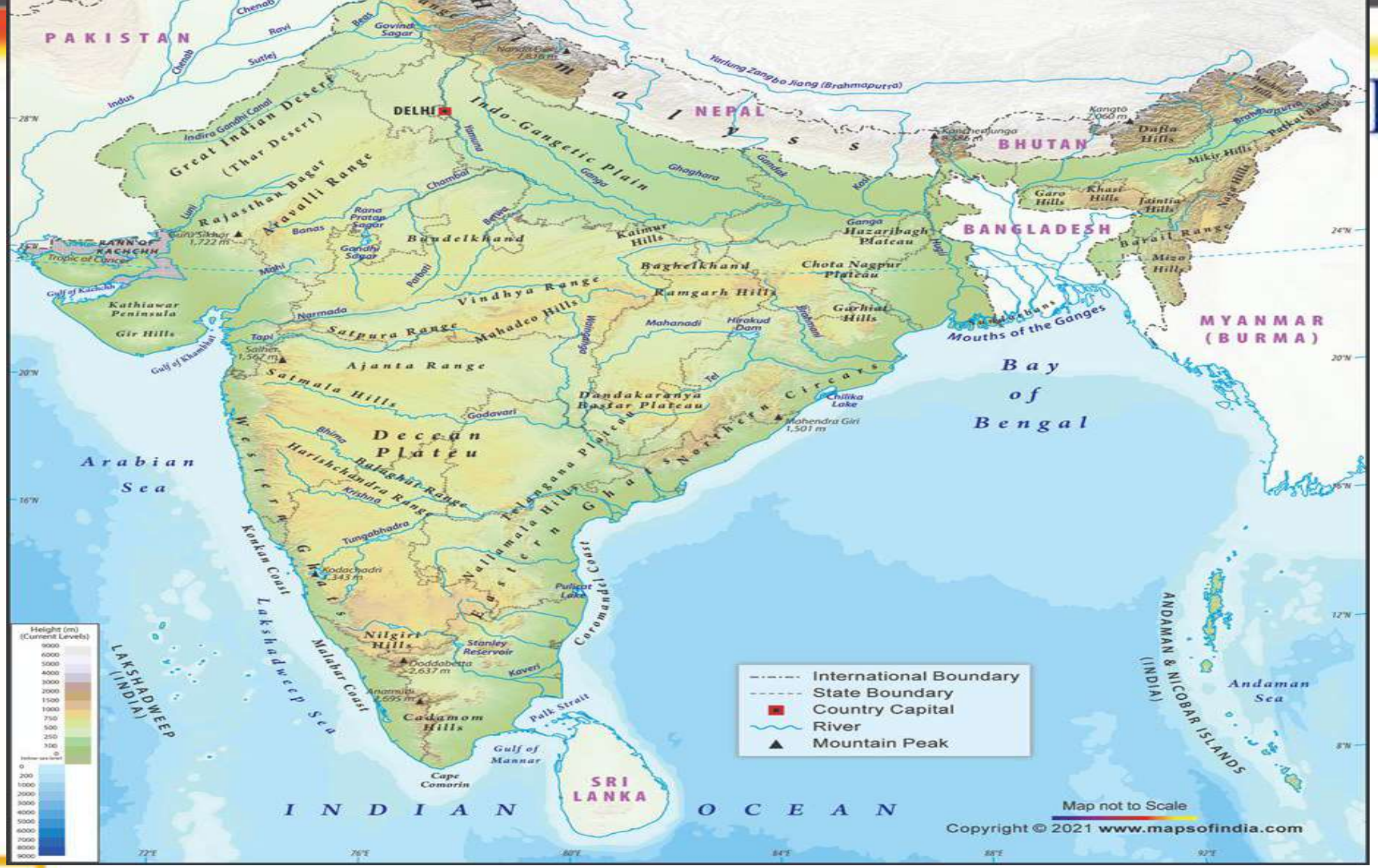
- contiguous zone is the zone contiguous to the territorial sea where a coastal State may **exercise control for preventing and punishing infringement** of its laws and regulations concerning customs, fiscal, immigration or sanitary matters within its territory or territorial sea as well as the removal of archaeological and historical objects found at sea.
- May not extend beyond 24 nautical miles from territorial sea baselines.

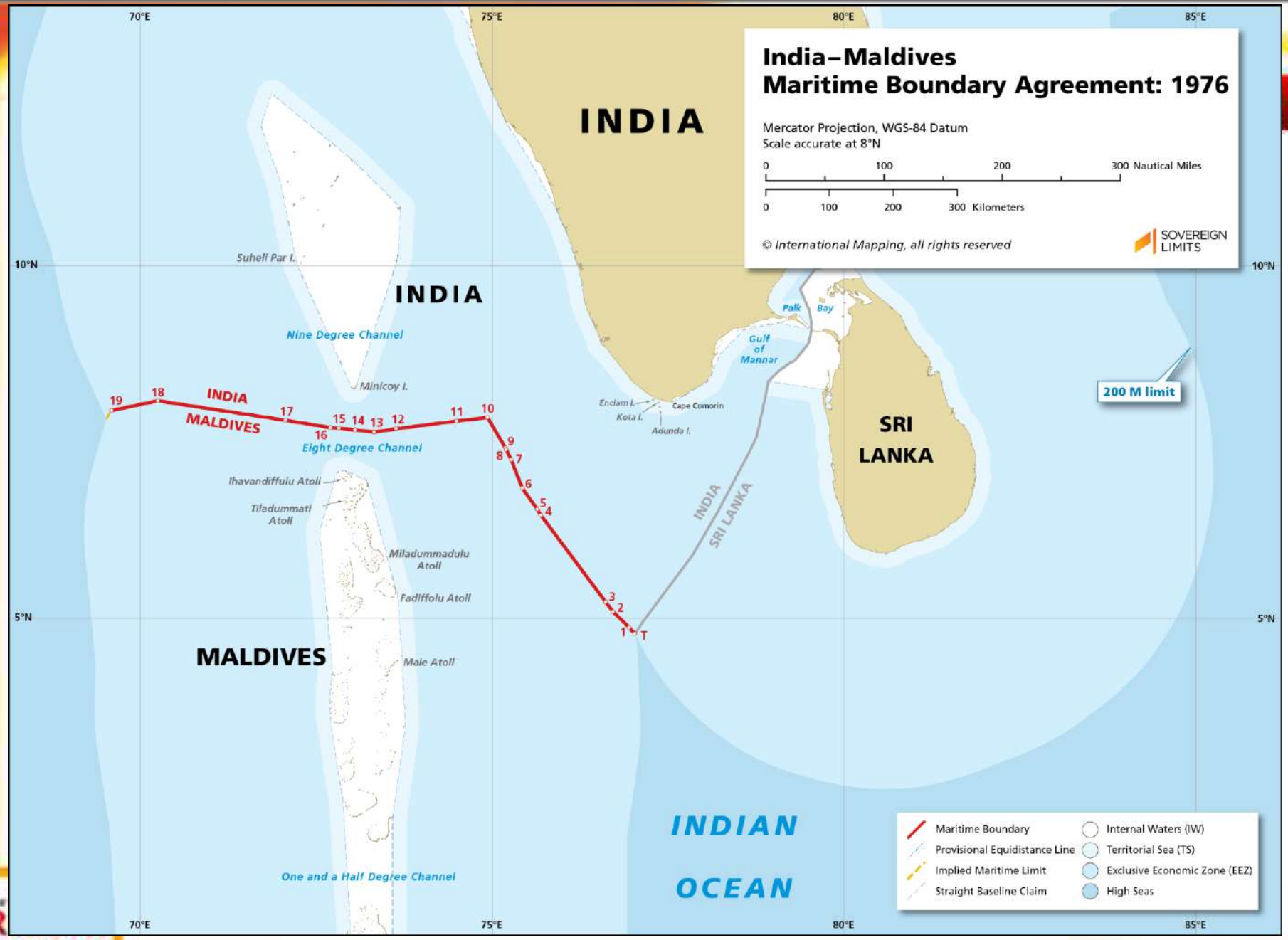
Exclusive Economic Zone (EEZ):

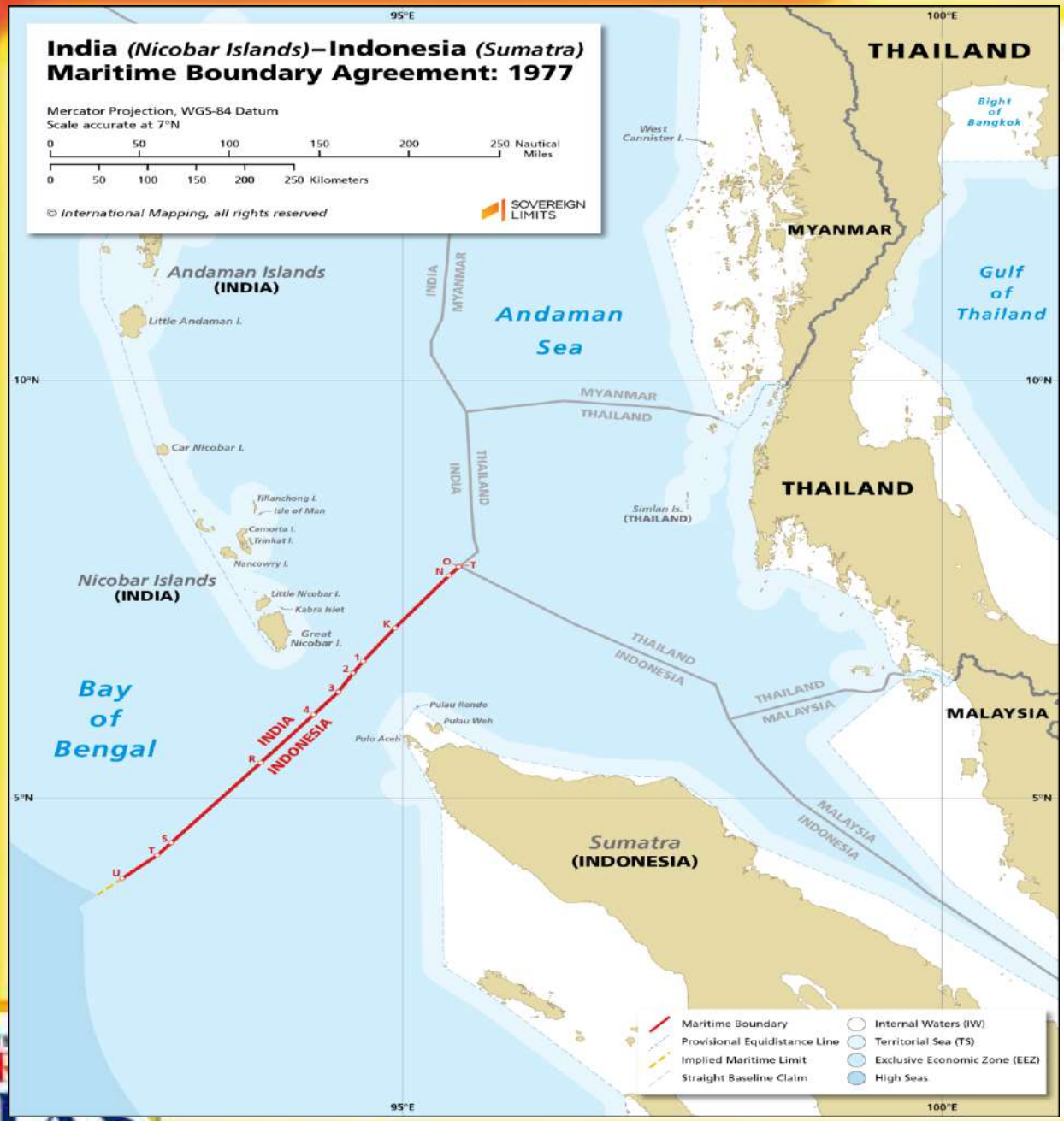
- Each coastal State may claim an EEZ beyond and adjacent to its territorial sea that extends seaward **up to 200 nm from its baselines.**
- Within its EEZ, **a coastal state has:**
  - Sovereign rights for the purpose of **exploring, exploiting, conserving and managing natural resources,** whether living or nonliving, of the seabed and subsoil.
  - Rights to **carry out activities** like the production of energy from the water, currents and wind.
- Unlike the territorial sea and the contiguous zone, the EEZ only allows for the above-mentioned resource rights. It **does not give a coastal state the right to prohibit or limit freedom of navigation or overflight**, subject to very limited exceptions.

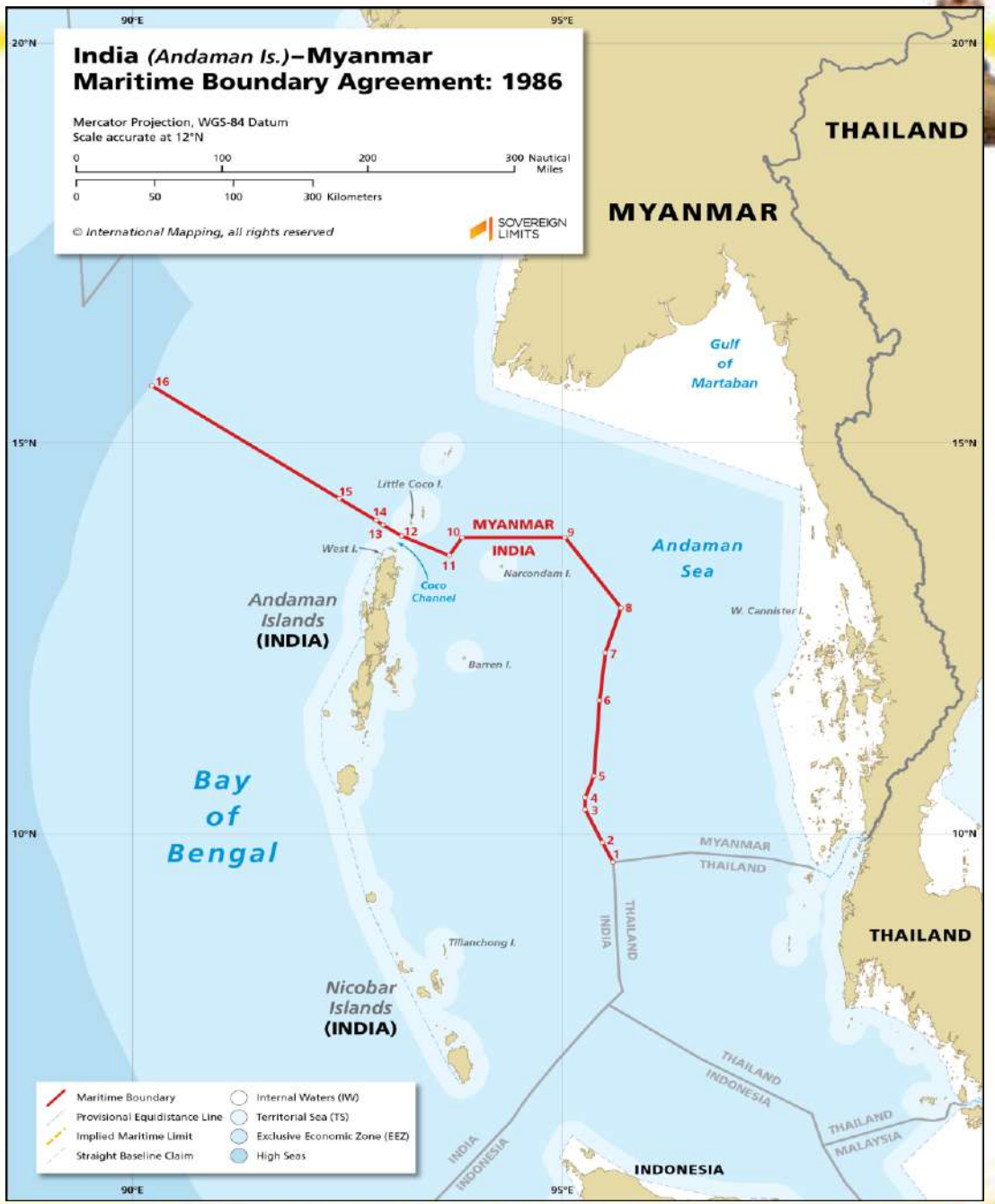
High Seas:

- The ocean surface and the water column beyond the EEZ are referred to as the high seas.
- It is **considered as "the common heritage of all mankind"** and is beyond any national jurisdiction.
- States can conduct activities in these areas as long as they are for peaceful purposes, such as transit, marine science, and undersea exploration.

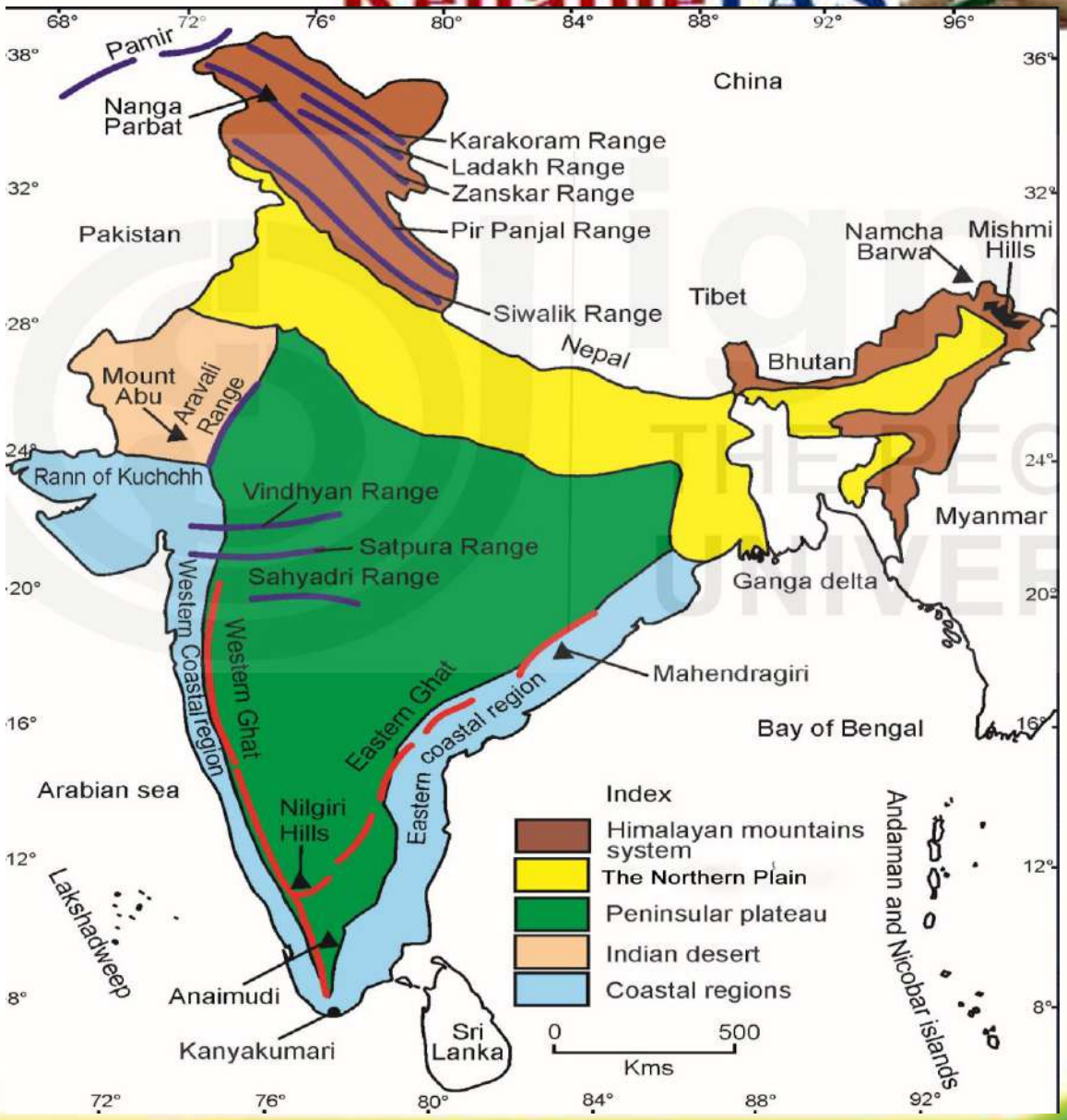








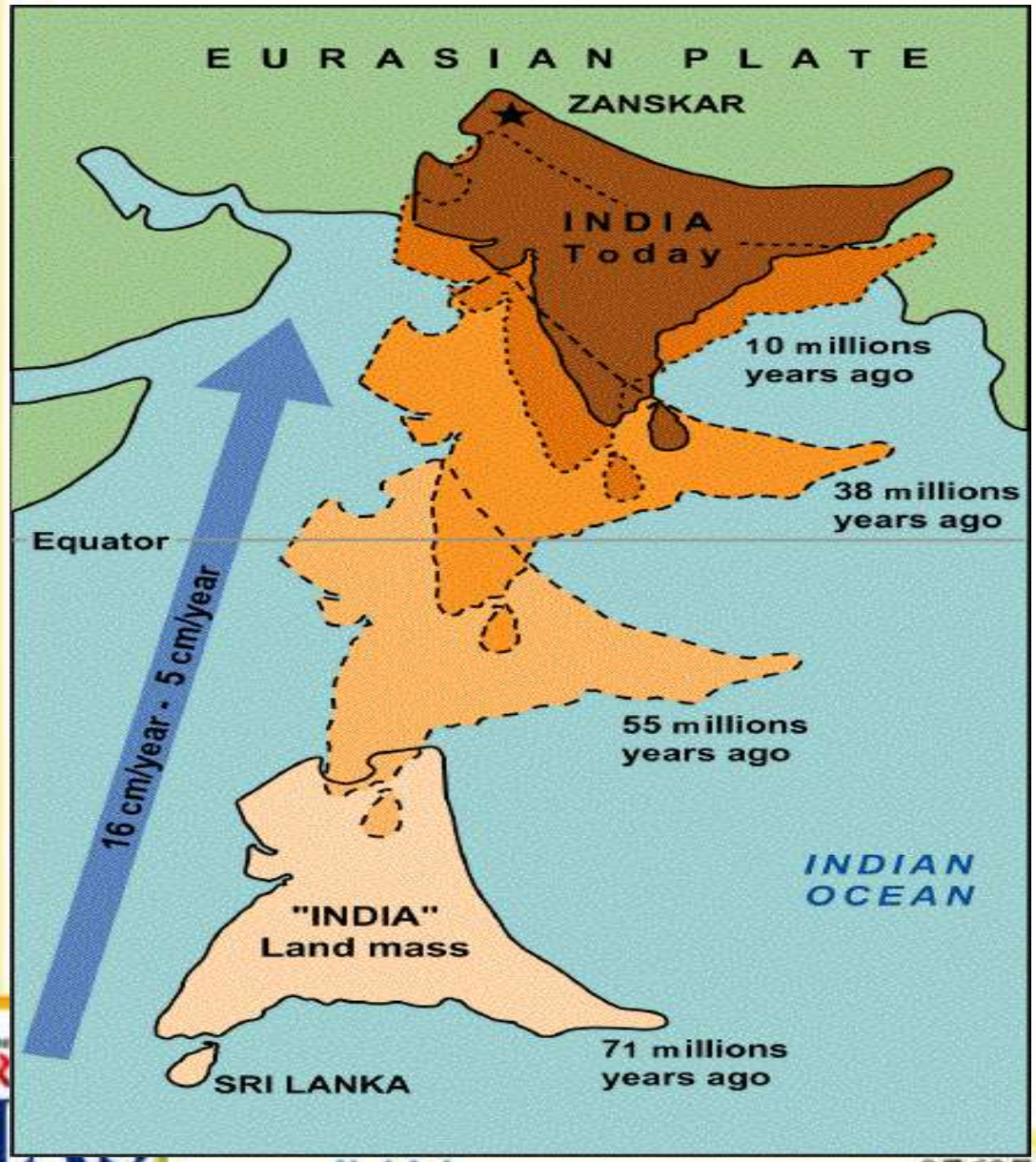
PHYSIOGRAPHIC DIVISIONS



- Physiography, also called physical geography, is the study of the Earth's natural features, such as landforms, climates, soils, vegetation, and water bodies.
- 'Physiography' of an area is the outcome of structure, process and the stage of development.
- Based on these macro variations, India can be divided into the following physiographic divisions:
  1. The Northern and North-eastern Mountains
  2. The Northern Plain
  3. The Peninsular Plateau
  4. The Indian Desert
  5. The Coastal Plains
  6. The Islands.

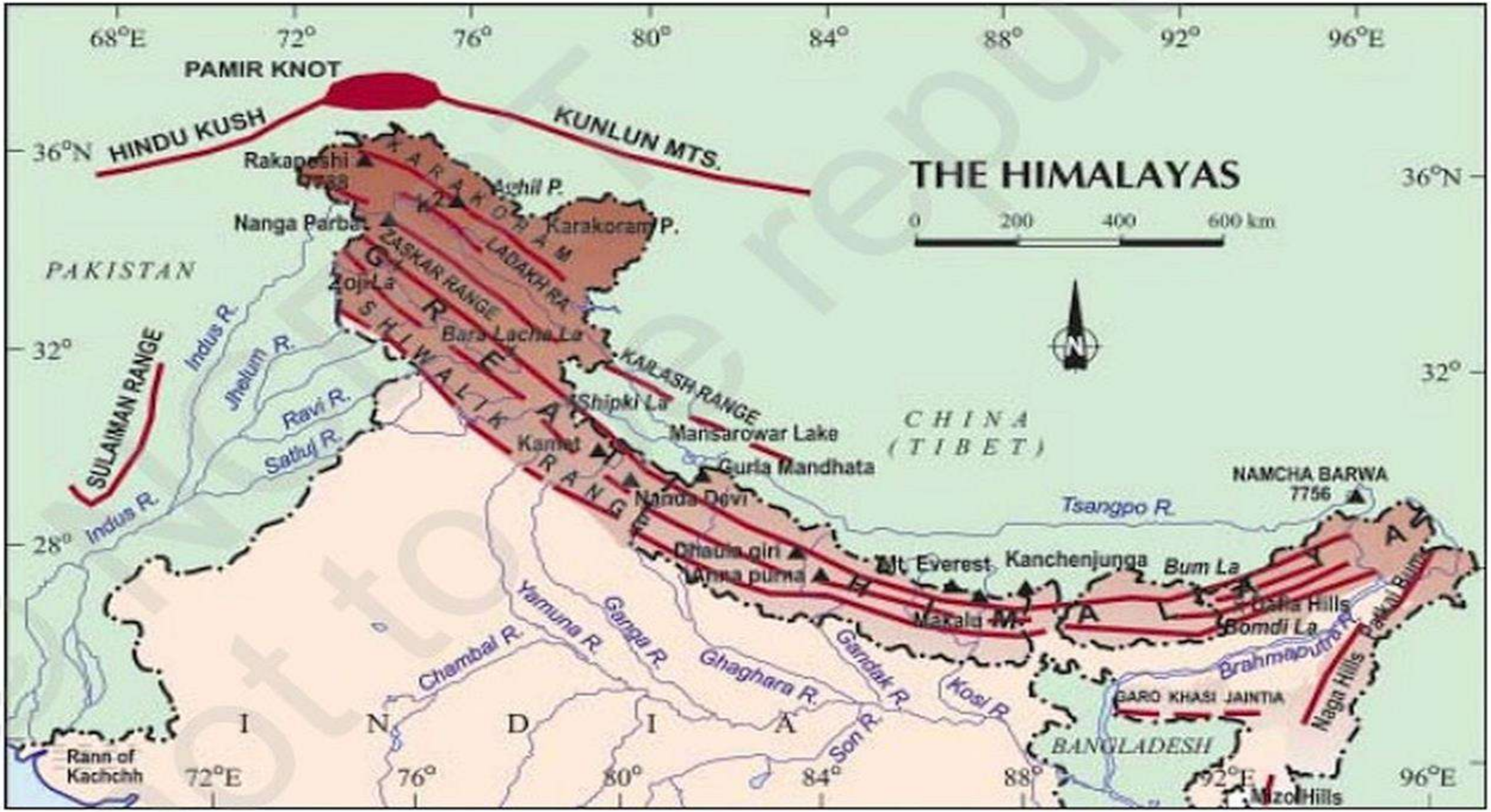
Topography	Extent in %
Mountainous (more than 2135 m above sea level)	10.7
Hilly area (305 – 2135 m above sea level)	18.6
Plateau (305 – 915 m above sea level)	27.7
Plains	43

The Northern and North-Eastern Mountains



The Northern and North-Eastern Mountains

- North and north-eastern region of India is flanked with mighty elevated range called, Northern and North-Eastern Mountains / Himalaya.
- Being built in the third cycle **(Tertiary)** (70-11 million years ago), this area is also known as the Tertiary Mountain Group.
- The entire mountain region of the north is a **new folded mountain** and originated due to the collision of the Indian plate with the Eurasian plate.
- It is the **highest mountain system** in the world and the **longest mountain system** in the world spread from east to west.

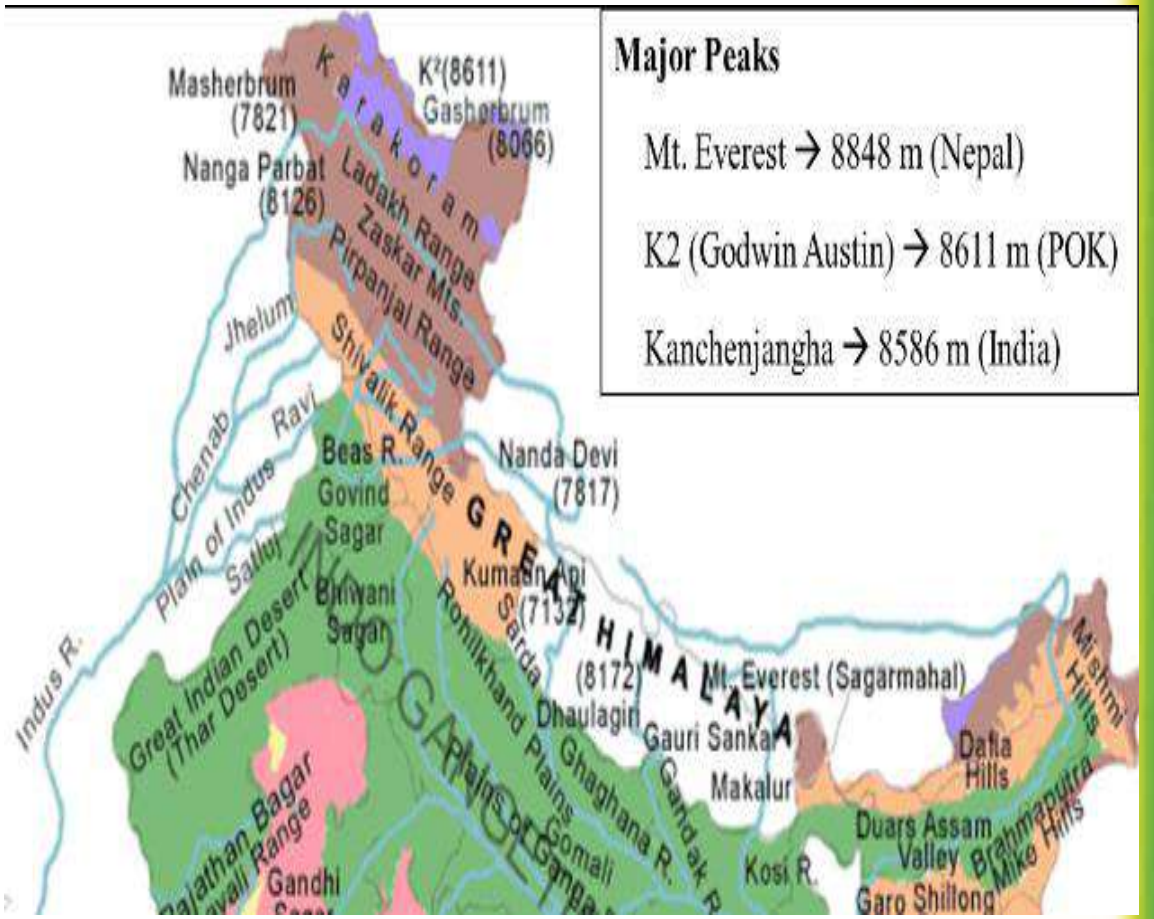

THE HIMALAYAS
0 200 400 600 km
N
68°E
72°
76°
80°
84°
88°
92°
96°E
36°N
32°
28°
PAMIR KNOT
HINDU KUSH
KUNLUN MTS.
PAKISTAN
SULAIMAN RANGE
Indus R.
Jhelum R.
Ravi R.
Satluj R.
Rakaposhi
Aghil P.
Karakoram P.
Nanga Parbat
KARAKORAM
LADAKH RA.
ZASKAR RANGE
Zoji La
GREAT
SHIWALIK
Bara Lacha La
KAILASH RANGE
Shipki La
Mansarowar Lake
Gurla Mandhata
Kamet
Nanda Devi
RANGE
CHINA
(TIBET)
NAMCHA BARWA
7756
Tsangpo R.
Dhaulagiri
Annapurna
Mt. Everest
Kanchenjunga
Makalu
Bum La
Bomdi La
HIMALAYAS
Dafla Hills
Patkai Bum
Brahmaputra R.
Naga Hills
GARO KHASI JAINTIA
BANGLADESH
Mizo Hills
Yamuna R.
Ganga R.
Chambal R.
Ghaghara R.
Gandak R.
Kosi R.
Son R.
I N D I A
Rann of Kachchh
72°E
76°
80°
84°
88°
92°E
96°E

The North and Northeastern Mountains

- Trans Himalaya
- The Himalayas
  - Great Himalaya
  - Middle Himalaya
  - Shivalik range
- The Northeastern hills

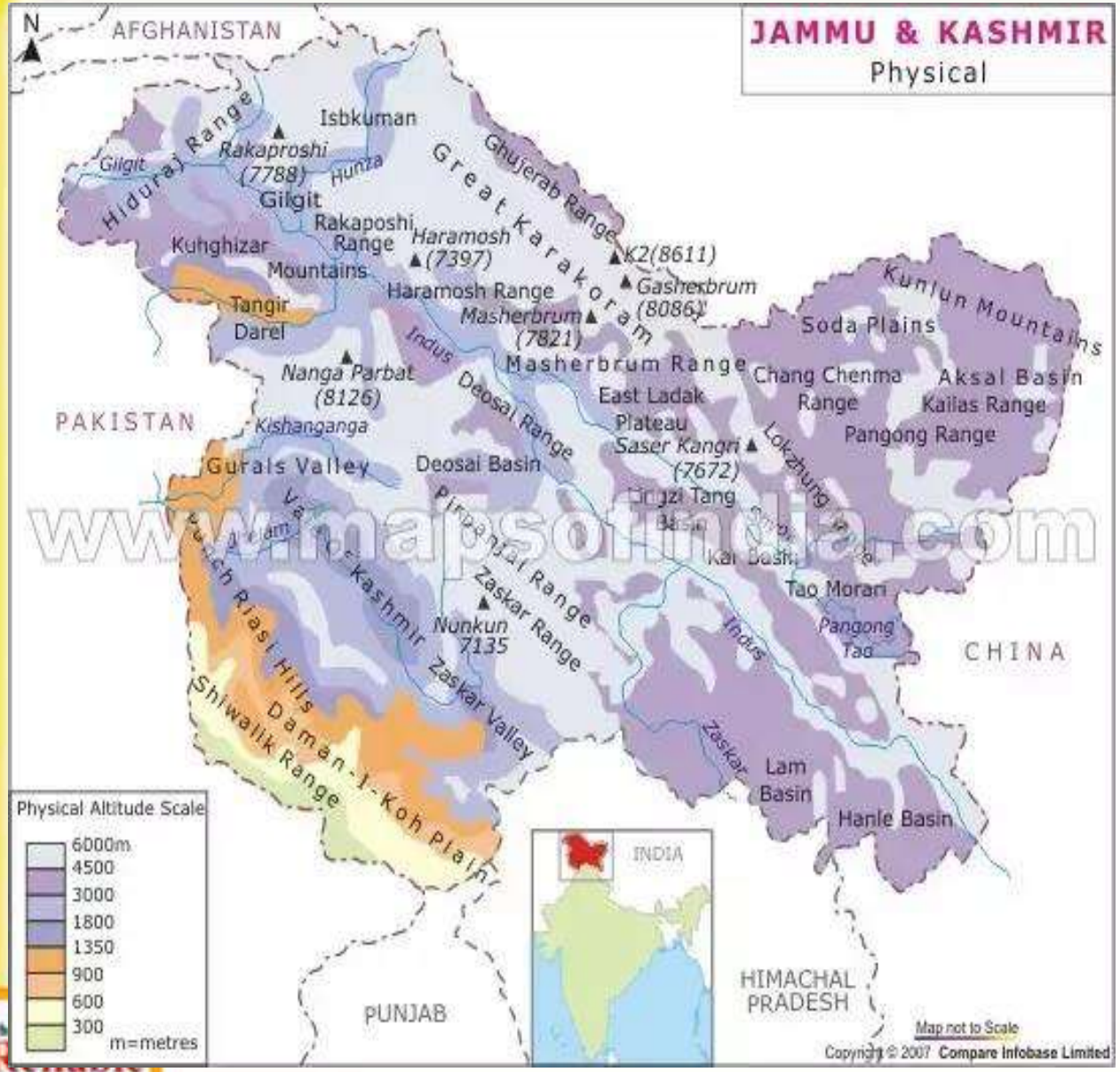
Trans Himalayan Region

- Is the northernmost part of the Himalayas located in Jammu and Kashmir, Ladakh and Tibet.
- Stretches for a distance of about 1,000 km in east-west direction.
- Made up of granite rock mainly.
- Average elevation is 3000 m above mean sea level.
- Average width of this region is 40 km at the extremities and about 225 km in the central part.
- The entire region is located in the **rain shadow region** of the Himalayas, hence **cold desert-like conditions prevails** here.
- It consist of **three parallel range**



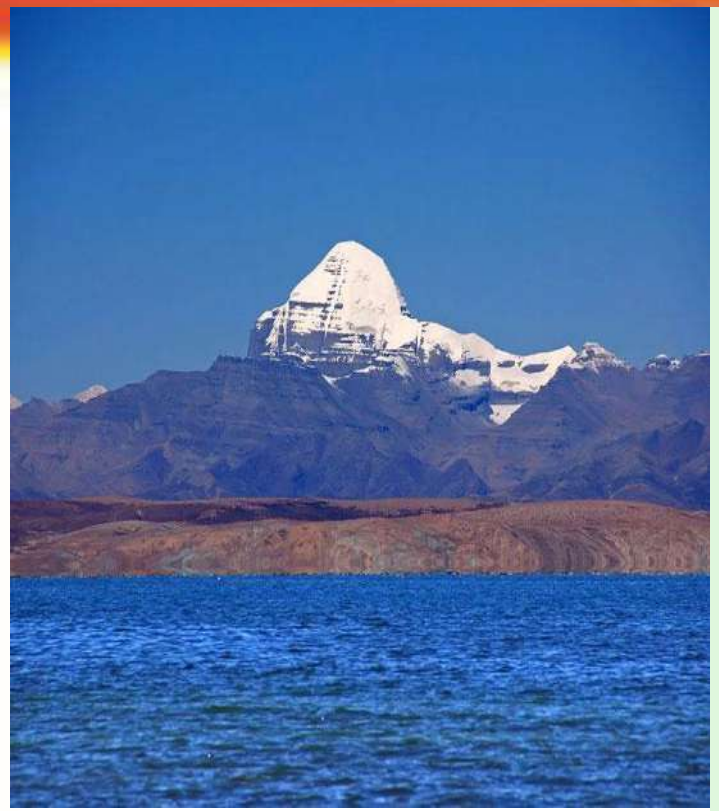
A. Karakoram range

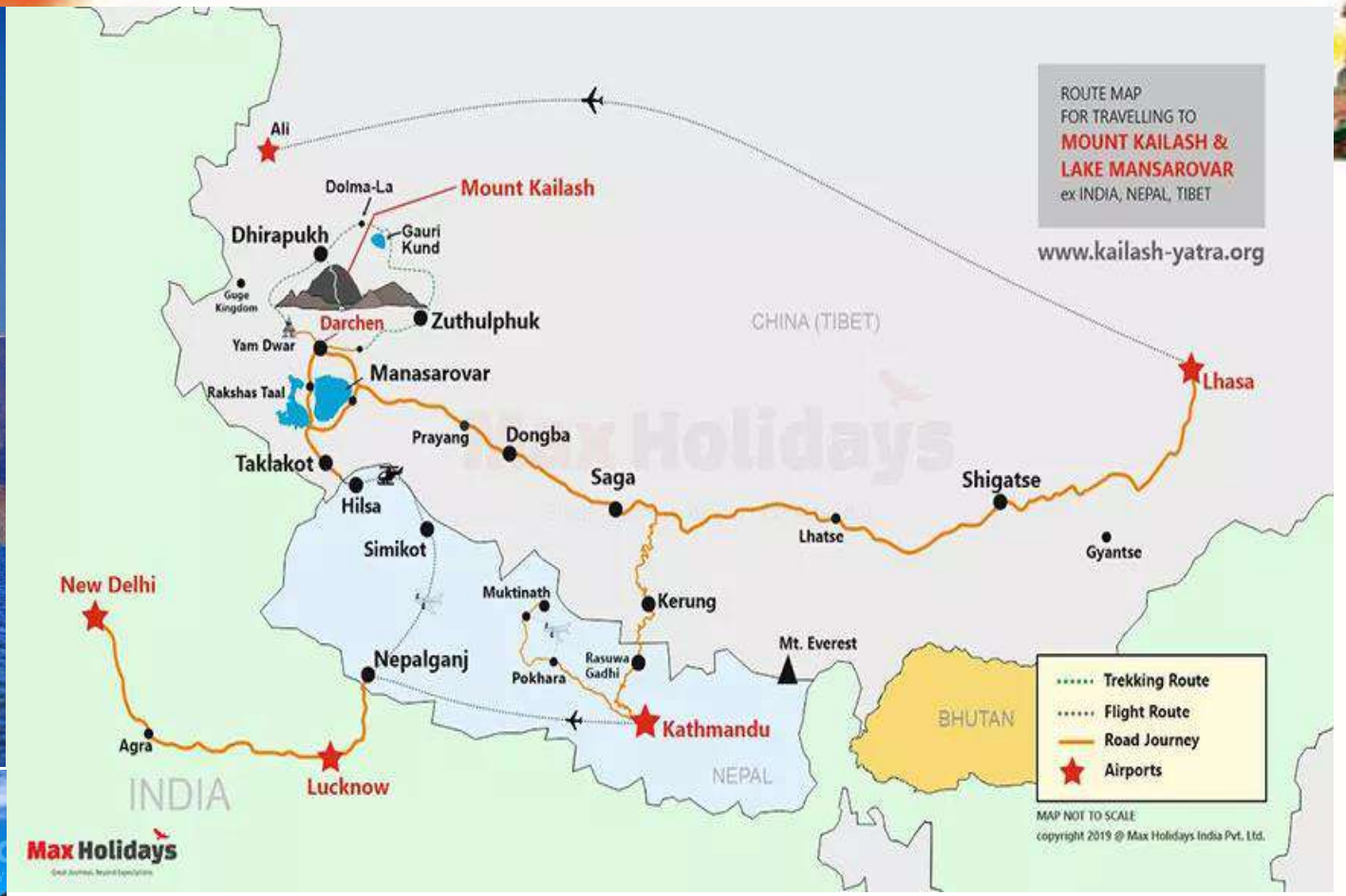
- It is the northernmost range of the Trans-Himalayas.
- It is the longest and highest range of trans Himalayas.
- It is also known **as Krishnagiri and "the backbone of Asia**".
- **India's highest peak,** called **Godwin Austin or K2 or Qogir (8611 m) in this range. It is** the second highest peak in the world as well.
- Siachen, Hispar and Baltora glaciers are located here.
- Siachen Glacier is the largest glacier in India located in the Nubra Valley.

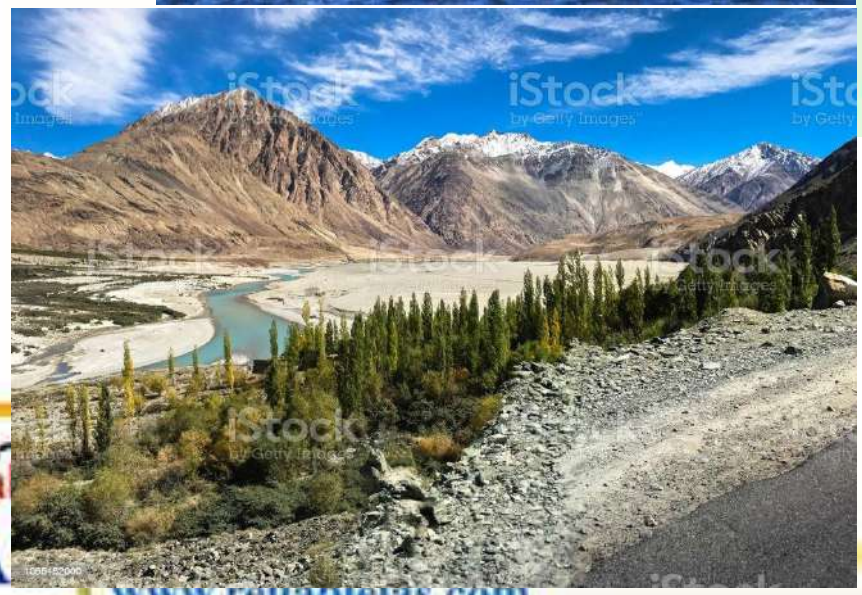


Ladakh range

- Lies south of Karakoram.
- Includes **The Rakaposhi** Haramosh Range (North) Ladakh Range (Central Part) and Kailash range (Eastern Part).
- Highest peak is Kailash.
- Mansarovar Lake in Tibet is located on this range.
- It has been dissected into a number of plains and mountains Soda Plains, Aksai Chin, Lingzi Tang, Depsang Plains and Chang Chenmo.

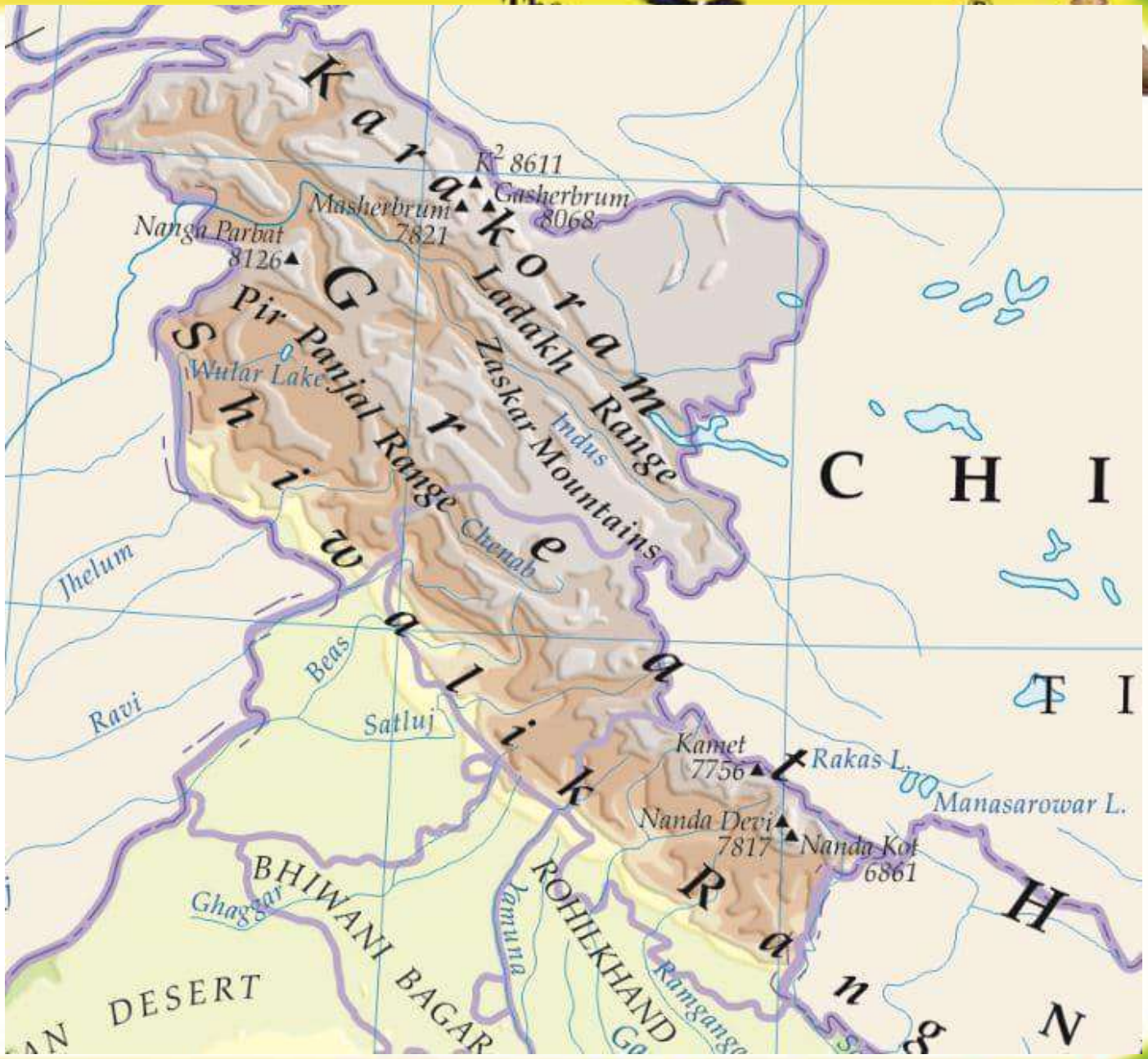






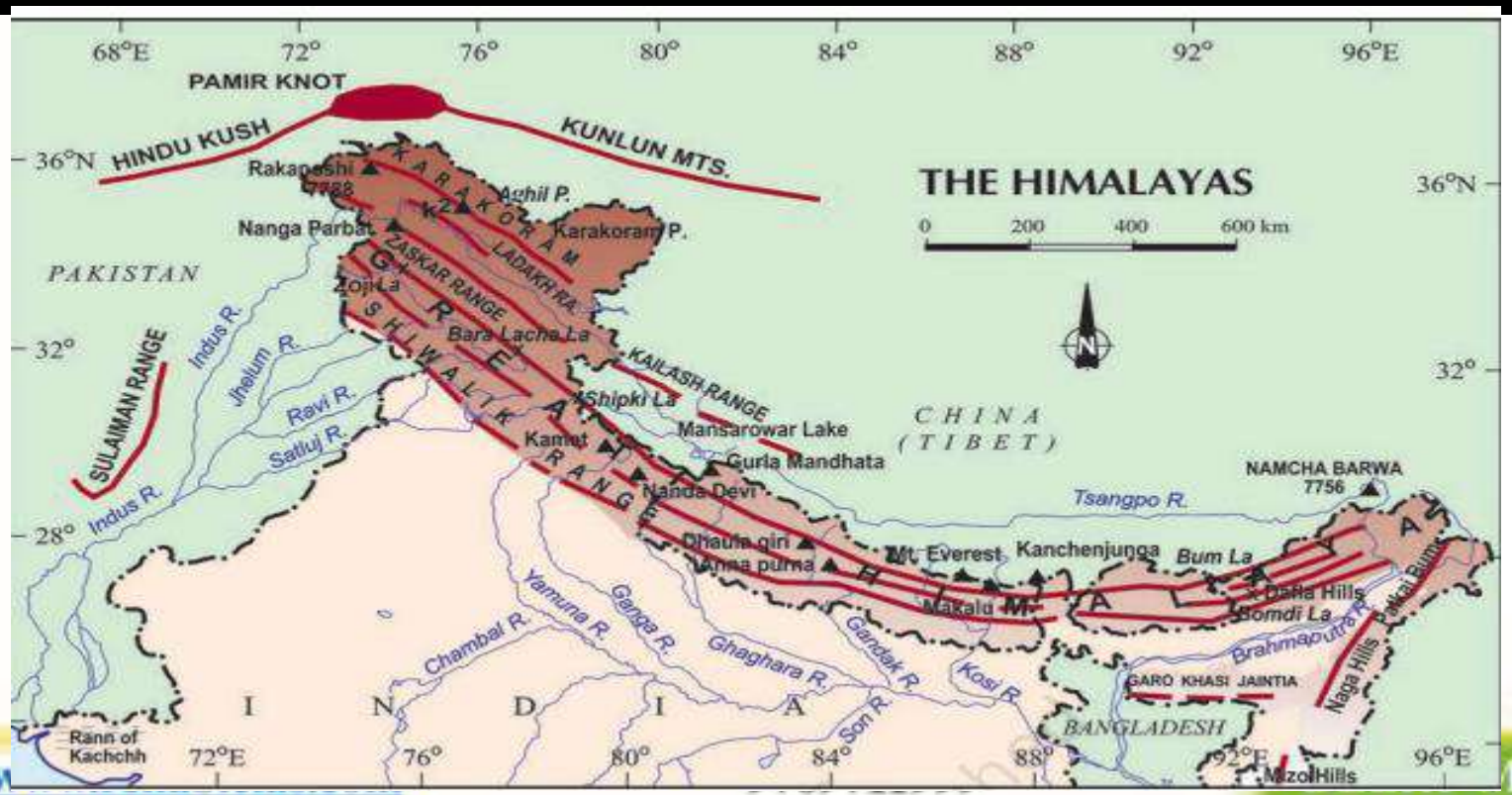
Zaskar range

- It is the southernmost extension of the Trans Himalayas.
- The Indus river flows between the Zaskar and Ladakh ranges.
- The **Nanga Parbat (8126 m),** often referred to as the "Killer Mountain“, lies in the Zaskar Range. Located in Pakistan's Gilgit-Baltistan region, is the westernmost mountain in the Himalaya.



2. Himalayan Mountains

- The bow-shaped Himalaya, is the loftiest mountain system of world, that stretches from Nanga parbar/ diamer in the West (Jammu and Kashmir, India/ Gilgit baltistan, Pakistan) to Namcha Barwa Peak (Tibet, China) in the east.
- It runs about 2400 km as a wall.
- SYNTAXIAL BEND is the striking feature of Himalaya at both the end (Nanga Parbat – Namcha Barwa) , where Himalaya takes hairpin / horse shoes shaped/ U-turn.
- Himalayas are divided into the following three parallel range:

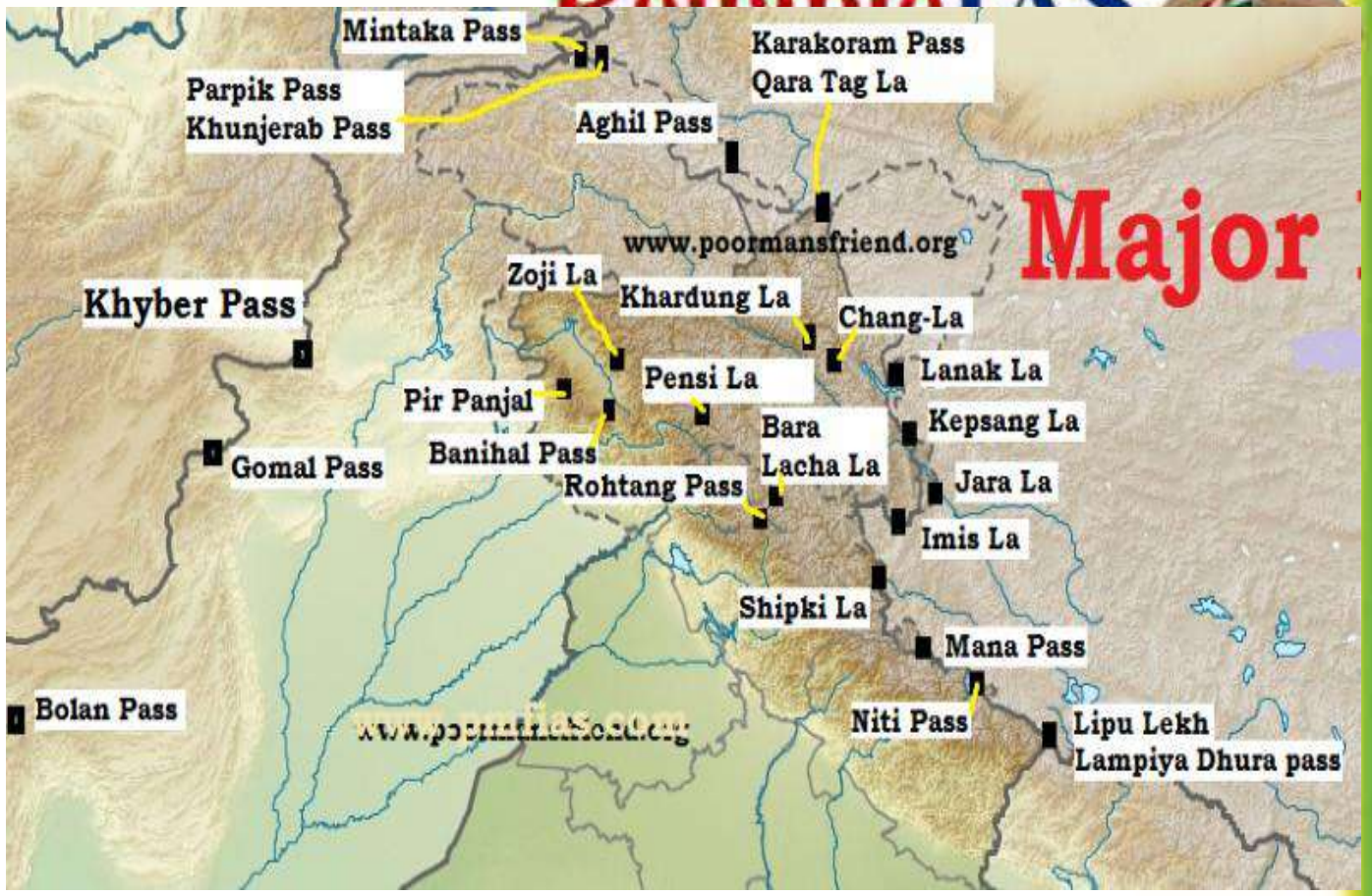


A. Great Himalayas

- It is also known as Himadri, main Himalayas, large Himalayas and interior Himalayas.
- It is the northernmost and highest range in the Himalayas (average height 6000 m).
- It comprises all 14 mt. peak of world above the height of 8000 m.
  - Mount Everest - World's highest peak, height-8848m, located in Nepal [It is called Sagarmatha in Nepal and Chomolangma in China.]
  - Kanchenjunga (Height-8586m) - India's second highest peak, located in Sikkim
- Many glaciers are found in this range- Gangotri, Yamunotri, Pindar Glacier etc.

Peak	Country	Height (in metres)
Mt. Everest	Nepal	8,848
Kanchenjunga	India	8,598
Makalu	Nepal	8,481
Dhaulagiri	Nepal	8,172
Nanga Parbat	Pakistan	8,126
Annapurna	Nepal	8,078
Nanda Devi	India	7,817
Kamet	India	7,756
Namcha Barwa	China	7,756
Gurla Mandhata	Nepal	7,728

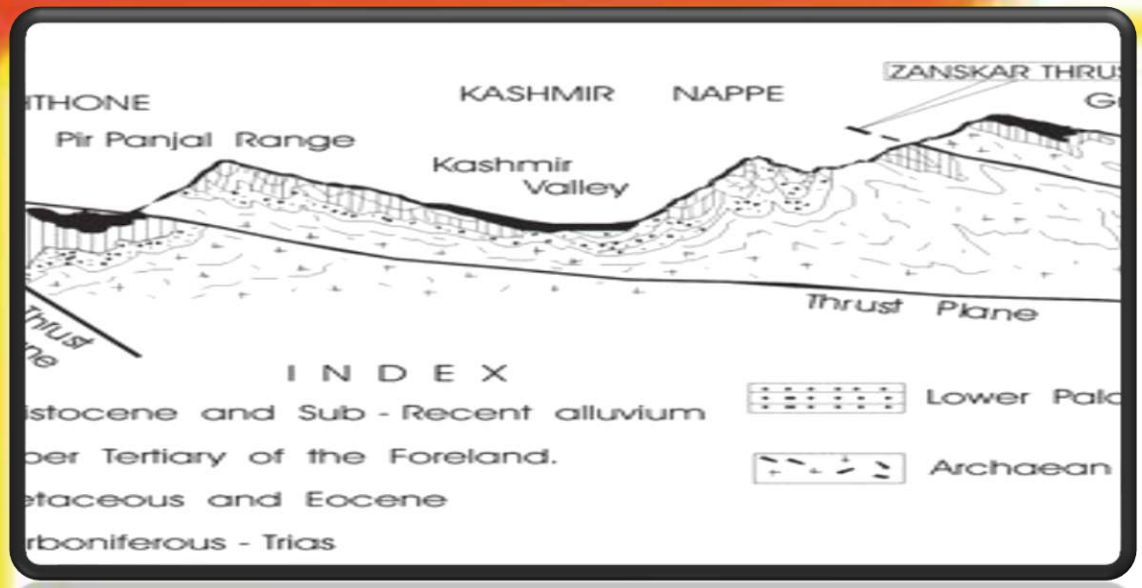
- There are many **passes** in this range which are as follows:
- **1. Burzil Pass** - Connects Srinagar to Gilgit-Baltistan, in the state of Jammu and Kashmir.
- **2. Zojila Pass** - Connects **Srinagar to Leh** , in Jammu and Kashmir.
- **3. Shipki La Pass -** Built by the Sutlej River in Himachal Pradesh, connects India with China.
- **4. Lipulekh Pass -** In Uttarakhand, route to Kailash Mansarovar
- [Mana Pass and Niti Pass - located in Uttarakhand.]
- **5. Nathu la Pass -** In Sikkim, between India and China, route for Kailash Mansarovar.
- **6. Jelep la Pass -** Located in Sikkim, between India and China.



B. Central / Middle / Lessar Himalayas

- It is about 80 km wide with an average height of 4500 metres.
- It is separated from the Great Himalayas by the **Main Central Thrust(MCT).**
- It is not a continuous series rather a discrete chain.
- It is called by different local names such as Pir Panjal (Jammu and Kashmir), Dhauladhar (Himachal Pradesh), Mussoorie and Nagtiba Hill (Uttarakhand) Mahabharata (Nepal), Dokaya (Sikkim) and Black Mountain (Bhutan).
- Many hill stations are located in this range such as Shimla, Ranikhet, Chakrata, Nainital, Almora and Darjeeling.

- The major passes located in this range are:
  - **Banihal Pass -** Located on Pir Panjal Mountain in Jammu and Kashmir, it connects Srinagar to Jammu and passes through **jawahar tunnel**.
  - **Pir Panjal Pass -** Located on Pir Panjal Mountain in Jammu and Kashmir, connects Kashmir with Pak Occupied Kashmir.
  - **Rohtang pass** – connects leh to manali, **Atal tunnel (9.02km**)
- Grasslands in the central Himalayas develop in summer, called Marg **(Gulmarg, Sonmarg)** in Kashmir and Bugyal in Uttarakhand.
- Many valleys are found between the central Himalayas and the larger Himalayas such as the KashmirValley, kullu valley, Kangra valley, etc.
- The temporary lake found in the Kashmir Valley is called **Karewa** Lake. After the water dries up, they are used for cultivation of saffron and rice.


ITHONE
KASHMIR NAPPE
ZANSKAR THRUST
Pir Panjal Range
Kashmir Valley
Thrust Plane
INDEX
stocene and Sub - Recent alluvium
Lower Palc
per Tertiary of the Foreland.
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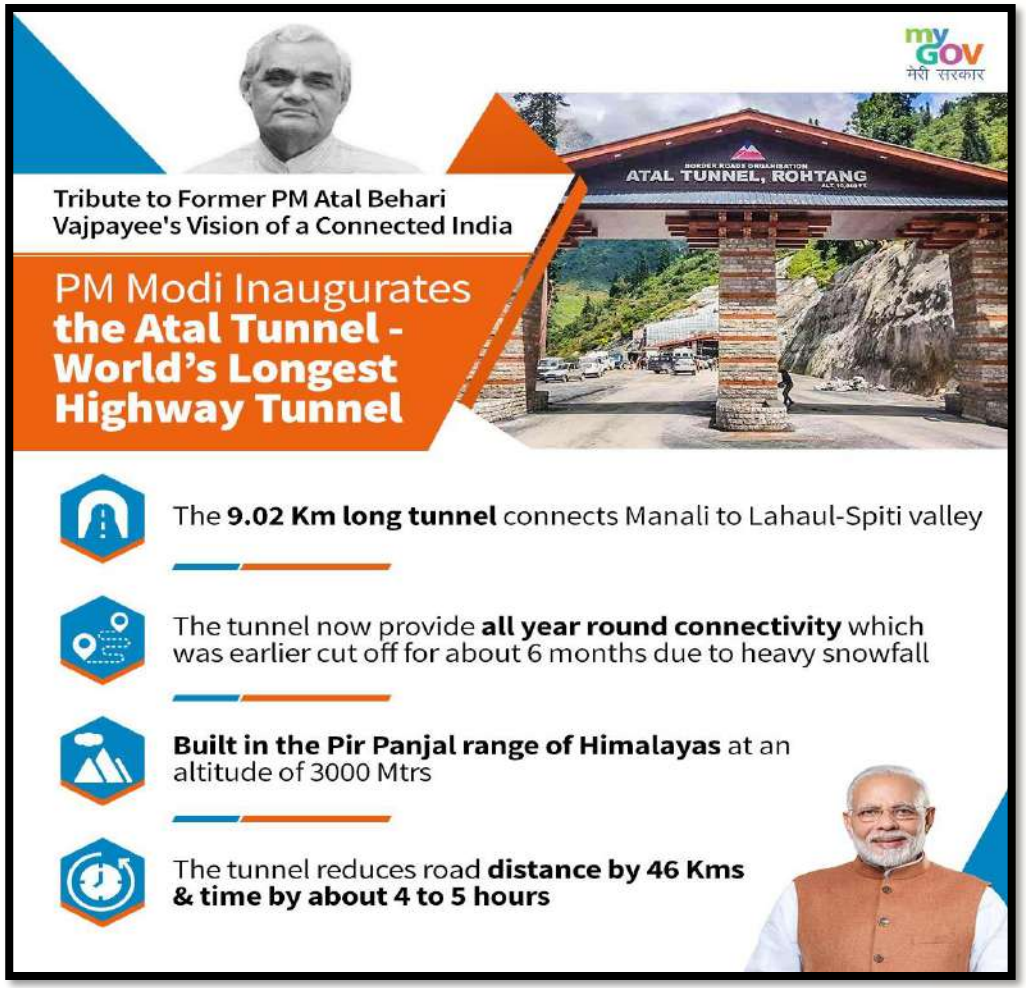
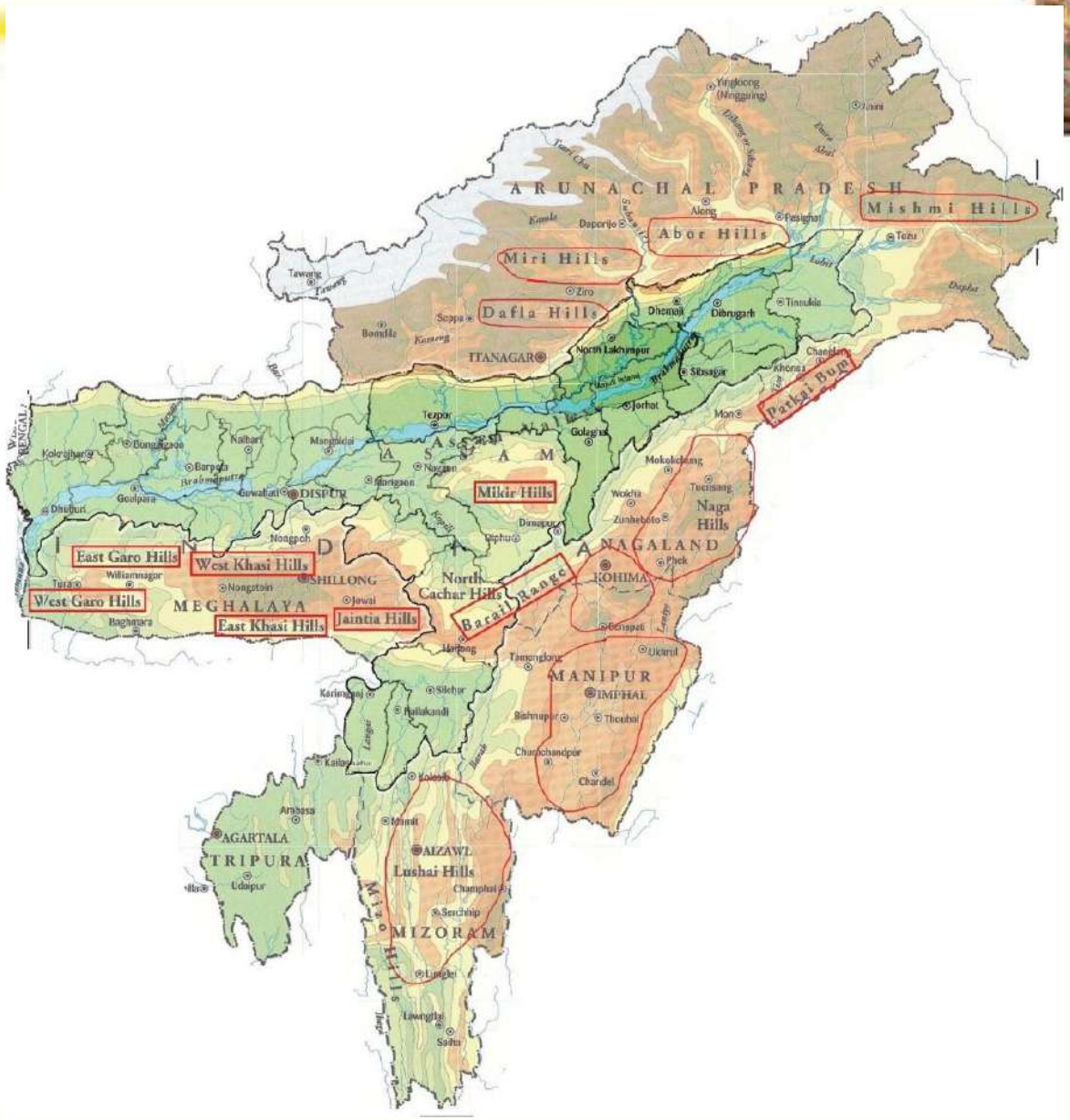

mygov
मेरी सरकार
Tribute to Former PM Atal Behari Vajpayee's Vision of a Connected India
PM Modi Inaugurates the Atal Tunnel - World's Longest Highway Tunnel
ATAL TUNNEL, ROHTANG
The 9.02 Km long tunnel connects Manali to Lahaul-Spiti valley
The tunnel now provide all year round connectivity which was earlier cut off for about 6 months due to heavy snowfall
Built in the Pir Panjal range of Himalayas at an altitude of 3000 Mtrs
The tunnel reduces road distance by 46 Kms & time by about 4 to 5 hours

C. Shivalik

- It is the southernmost range of the Himalayas which is different from the Man Boundary Thrust(MBT) from the Central Himalayas.
- It is a mountain group about 10 to 50 km wide and 900 to 1500 meters high.
- It is not in a continuous chain rather discrete,
- It becomes extinct between the Teesta River and Raidak (about 90 km).

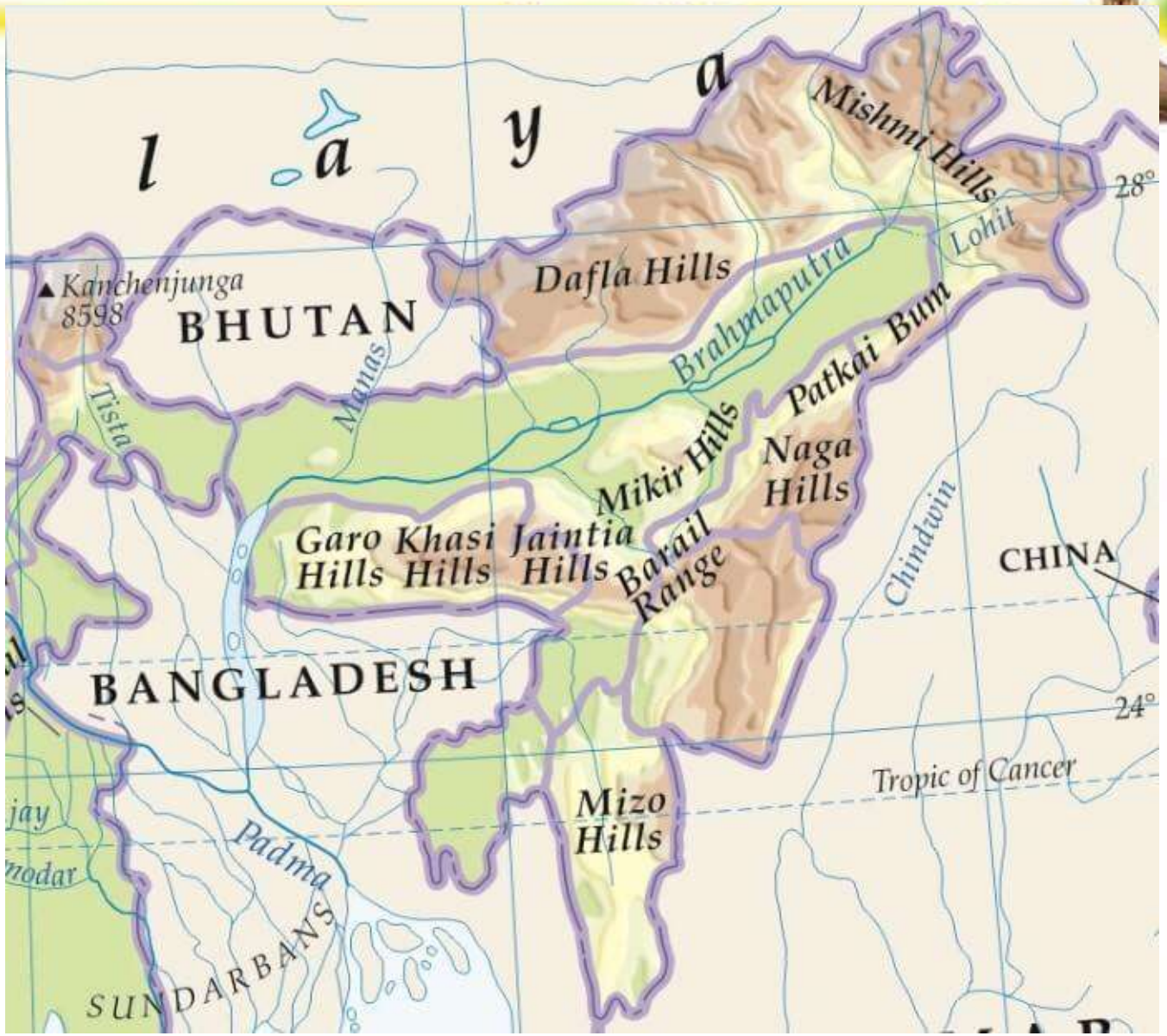
Shivalik Hill Range

- It is also known by many local names such **as Jammu Hill (in Jammu andKashmir), Dudhwa Hill (in Uttarakhand) Churia-Moria Hill (in Nepal), Dafla Mishmi Miri and Abor (in Arunachal Pradesh).**
- There are many vertical valleys in this range **called Doon (Dehradun) in the west and Dwara (Haridwar)** in the east.
- The boundary of shivalik and the vast plain of the north is determined by the Himalayan Front Fault(HFF).



D.Purvanchal Hills

- After Namcha Barwa Mountain, the Himalayas turn south and form many small hills. It extends to the North Eastern States of India, hence it is called the Purvanchal Hills.



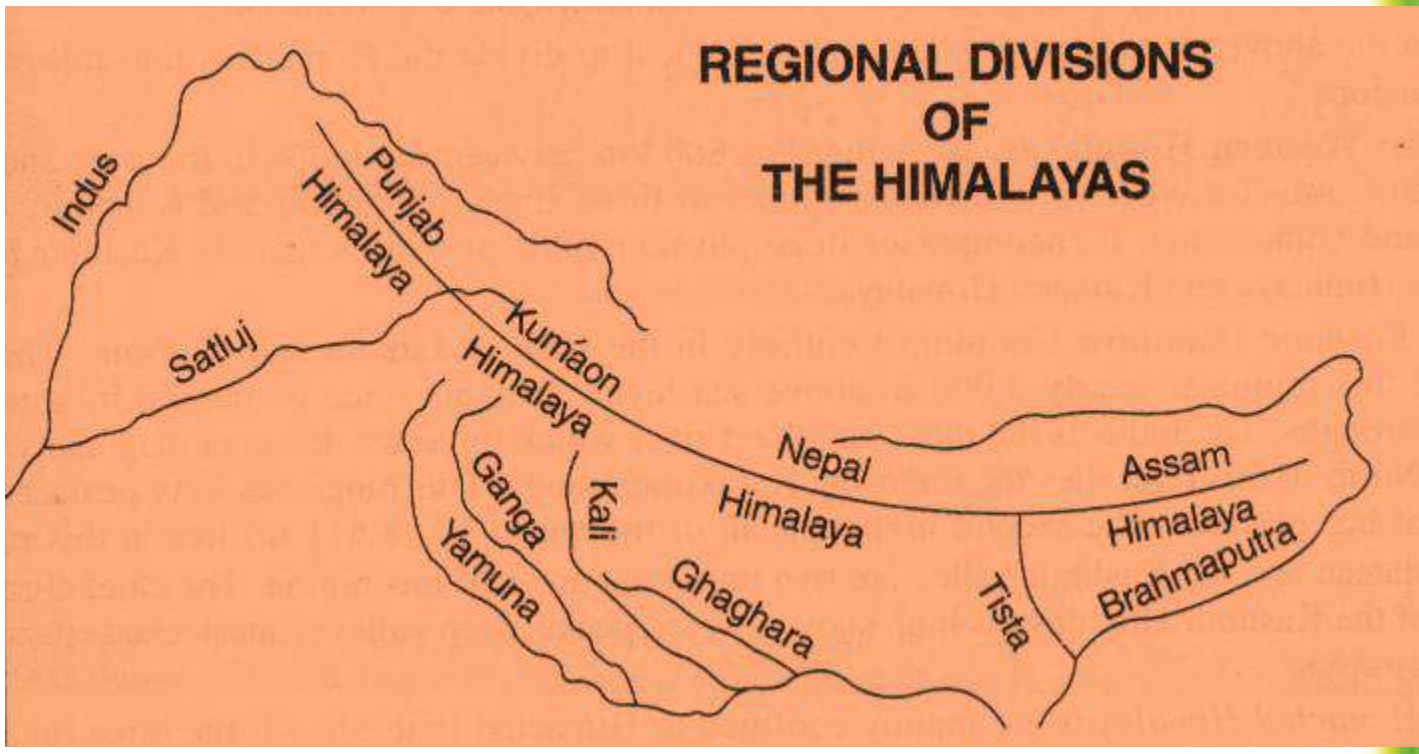
- This includes:
  - Patkai Boom - Arunachal Pradesh
  - Naga hill - Nagaland
  - Saramati peak (Naga hills) – located in Nagaland; forms a natural boundary between India and Myanmar; popularly known as the **Crown of Nagaland**
  - Manipur hill - Manipur
  - Mizo hills / lushai hills- Mizoram
  - Phawngpui, also known as **Blue Mountain**, is the highest mountain peak in the Mizo Hills (Lushai Hills, located in Mizoram with an elevation of 2157 m.
  - Barail range - Assam, Meghalaya, Manipur and Nagaland
- The Himalayas crosses the Indian border and appears as Arakan Yoma in Myanmar. The highest peak of this is Victoria.
- The Purvanchal hills receives heavy rainfall . That is why has been identified as a biodiversity hotspot.


Lhasa
Maizhokunggar
ARUNACHAL PRADESH
Hkakabo Razi 5885m
THIMPHU
BHUTAN
Itanagar
Dibrugarh
Jorhat
NAGALAND
Guwahati
Dispur
Shillong
MEGHALAYA
Kohima
Sylhet
Imphal
Silchar
MANIPUR
Chindwin
Kumon Range
Nmai Hka
Myitkyina
Baoshan
Banmauk
Brahmanbaria
Agartala
Aizawl
Lincang
Comilla
Falam
MYANMAR (BURMA)
Lashio
Barisal
Chittagong
MIZORAM
Chin Hills
Monywa
Sagaing
Pyin-Oo-Lwin
Amarapura
Mandalay
Pakokku
Myingyan
Keng Tung
Taunggyi
Shan Plateau
Arakan Yoma
Sittwe
Minbu
Salween
Ramree Island
NAY PYI TAW
Chiang Rai
Cheduba Island
Thayetmyo
Pyay
Chiang Mai
Irrawaddy
Thandwe
Sittang
Salween
Hinthada
Bago
Thaton
Pathein
Mingaladon
Yangon (Rangoon)
Mawlamyine
Mouths of the Irrawaddy
Kyaikkami
Nakhon Sawan

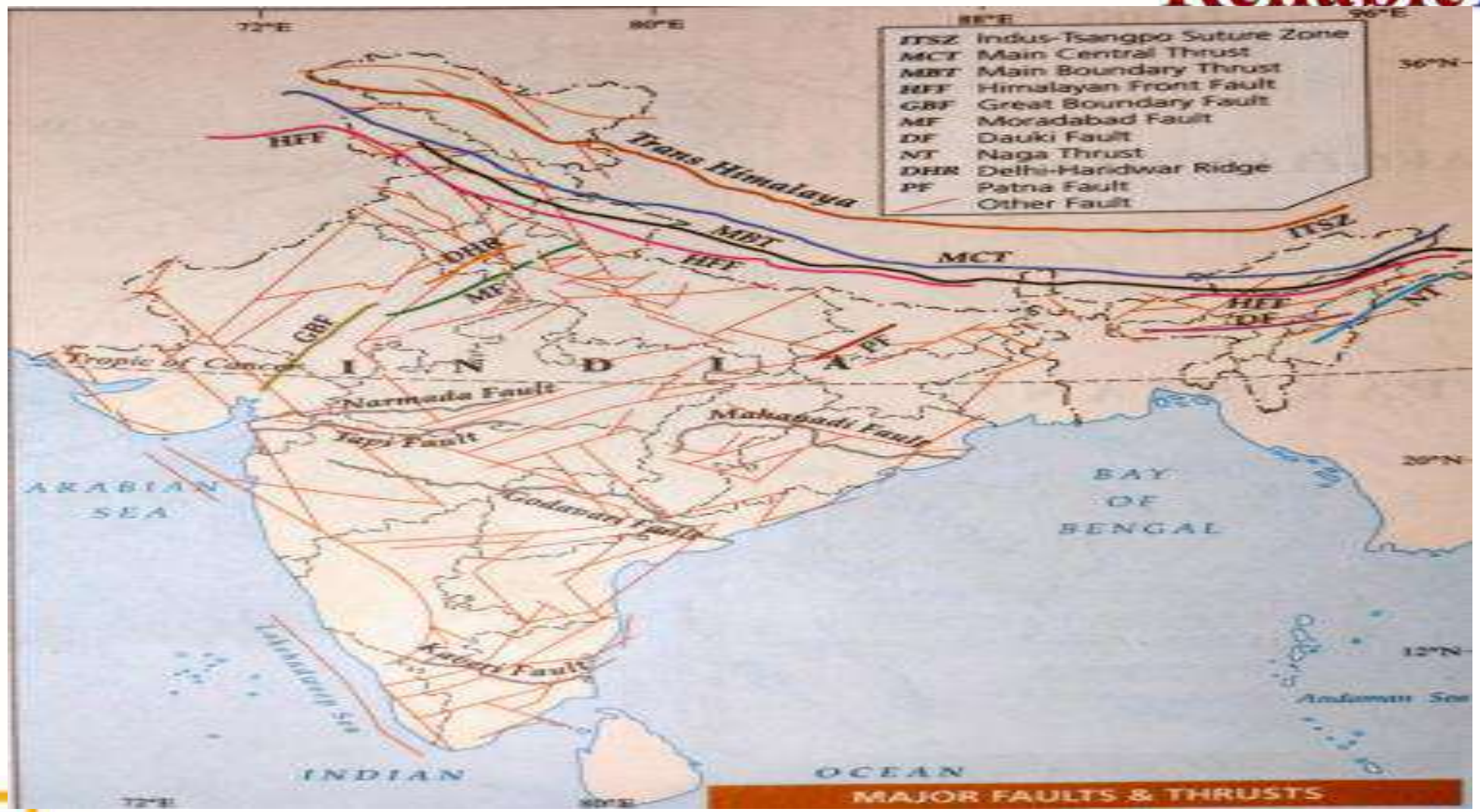
Regional division of Himalayas

According to ***Sir Sidney Burrard***, The rivers flowing before the formation of the Himalayas have divided the Himalayas into many small parts.

- These rivers are called the **antecedent river** (erstwhile rivers).
- The division of Himalayas on this basis is as follows.



- **1. Kashmir or Punjab Himalayas -** Between Indus and Sutlej rivers, length - 560 km
- **2. Kumaon Himalayas -** Between Sutlej and Kali River, Length - 320 km, Shortest
- **3. Nepal Himalayas -** Between Kali and Teesta River, Length - 800 km, Largest
- **4. Assam Himalayas -** Between Teesta to Brahmaputra River, Length - 760 km


ITSZ Indus-Tsanggpo Suture Zone
MCT Main Central Thrust
MBT Main Boundary Thrust
HFF Himalayan Front Fault
GBF Great Boundary Fault
MF Moradabad Fault
DF Dauki Fault
NT Naga Thrust
DHR Delhi-Haridwar Ridge
PF Patna Fault
Other Fault
Trans Himalaya
HFF
MBT
MCT
ITSZ
DHR
MF
GBF
NT
DF
Tropic of Cancer
INDIA
Narmada Fault
Tapi Fault
Mahanadi Fault
Godavari Fault
Kaveri Fault
ARABIAN SEA
BAY OF BENGAL
INDIAN OCEAN
72°E
80°E
88°E
96°E
36°N
20°N
12°N
MAJOR FAULTS & THRUSTS

Fault	Location	Key Features
Indus-Tsangpo Suture Zone (ITSZ)	Collision zone of Indian and Eurasian Plates	Remnants of the Tethys Ocean; major tectonic boundary.
Main Central Thrust (MCT)	Between Great and Middle Himalayas	Responsible for the uplift of the Great Himalayas.
Main Boundary Thrust (MBT)	Between Middle Himalayas and Shivaliks	Zone of active deformation and frequent earthquakes.
Main Frontal Thrust (MFT)	Between Shivaliks and Indo-Gangetic Plain	Most active fault in the Himalayas; seismic activity hotspot.
Kangra Fault	Himachal Pradesh (Middle Himalayas)	Associated with the 1905 Kangra earthquake.

Himalayan glaciers by state

State	Glacier
Jammu & Kashmir (including Ladakh)	Siachen Glacier (Ladakh)
	Baltoro Glacier (Ladakh)
	Drang-Drung Glacier (Ladakh)
	Himkun Glacier (Jammu & Kashmir)
Himachal Pradesh	Bara Shigri Glacier
	Chhota Shigri Glacier
	Bhaga Glacier
	Lady of Keylong Glacier

State	Glacier
Uttarakhand	Gangotri Glacier
	Pindari Glacier
	Milam Glacier
	Dokriani Glacier
	Nanda Devi Glacier
	Satopanth Glacier
Sikkim	Zemu Glacier
	Lhonak Glacier
	Teesta Khangse Glacier
Arunachal Pradesh	Kangto Glacier
	Gya Glacier

Himalayan passes and their respective states:

Pass	State	Description
Zoji La	Jammu & Kashmir (Ladakh)	Connects Srinagar with Leh.
Banihal Pass	Jammu & Kashmir	Connects Jammu to Srinagar.
Khardung La	Jammu & Kashmir (Ladakh)	Connects Leh with the Shyok and Nubra valleys.
Chang La	Jammu & Kashmir (Ladakh)	Key route to Pangong Lake.
Namika La	Jammu & Kashmir (Ladakh)	On the Leh-Kargil road.
Fotu La	Jammu & Kashmir (Ladakh)	Highest point on the Srinagar-Leh highway.
Rohtang Pass	Himachal Pradesh	Connects Kullu with Lahaul and Spiti.
Baralacha La	Himachal Pradesh	Connects Lahaul to Ladakh.
Kunzum Pass	Himachal Pradesh	Connects Kullu and Spiti valleys.
Shipki La	Himachal Pradesh	Connects Himachal Pradesh with Tibet.
Hamta Pass	Himachal Pradesh	Between Kullu and Lahaul valleys.

Pass	State	Description
Mana Pass	Uttarakhand	Near Badrinath, connects India and Tibet.
Niti Pass	Uttarakhand	Near Joshimath, connects India and Tibet.
Lipulekh Pass	Uttarakhand	Connects India with Tibet and Nepal.
Khalia Top Pass	Uttarakhand	Near Munsiyari.
Tungnath Pass	Uttarakhand	Near Kedarnath.
Nathu La	Sikkim	Connects Sikkim with Tibet (part of the old Silk Route).
Jelep La	Sikkim	Connects Sikkim with Bhutan and Tibet.
Chola Pass	Sikkim	Connects Sikkim and Tibet.
Bum La	Arunachal Pradesh	Near Tawang, connects India with China.
Kibithu Pass	Arunachal Pradesh	Easternmost pass in India.
Tawang Pass	Arunachal Pradesh	Near Tawang town.
Dihang Pass	Arunachal Pradesh	Connects Arunachal Pradesh with Myanmar.

The Evolution of the Himalaya

- The origin of Himalaya is explained on the basis of two theories
  - The geosynclinals theory
  - The plate tectonic theory

THE GEOSYNCLINALS THEORY

- It was given by ***James hall and Dana and further developed by Arthur homes, Edward Suess and Khobar.***
- Geosynclines are long , narrow and swallow depression filled with water. It is subject to gradual sedimentation and subsidence.
- As per this theory about 200 million a year ago Tethys was formed. It was a geosyncline between Angara land and Gondwana land.
- Due to continuous deposition of sediment, the bed of Tethys sea started rising during cretaceous period and resulted into Himalaya.
- Later this theory was rejected and declared obsolete.

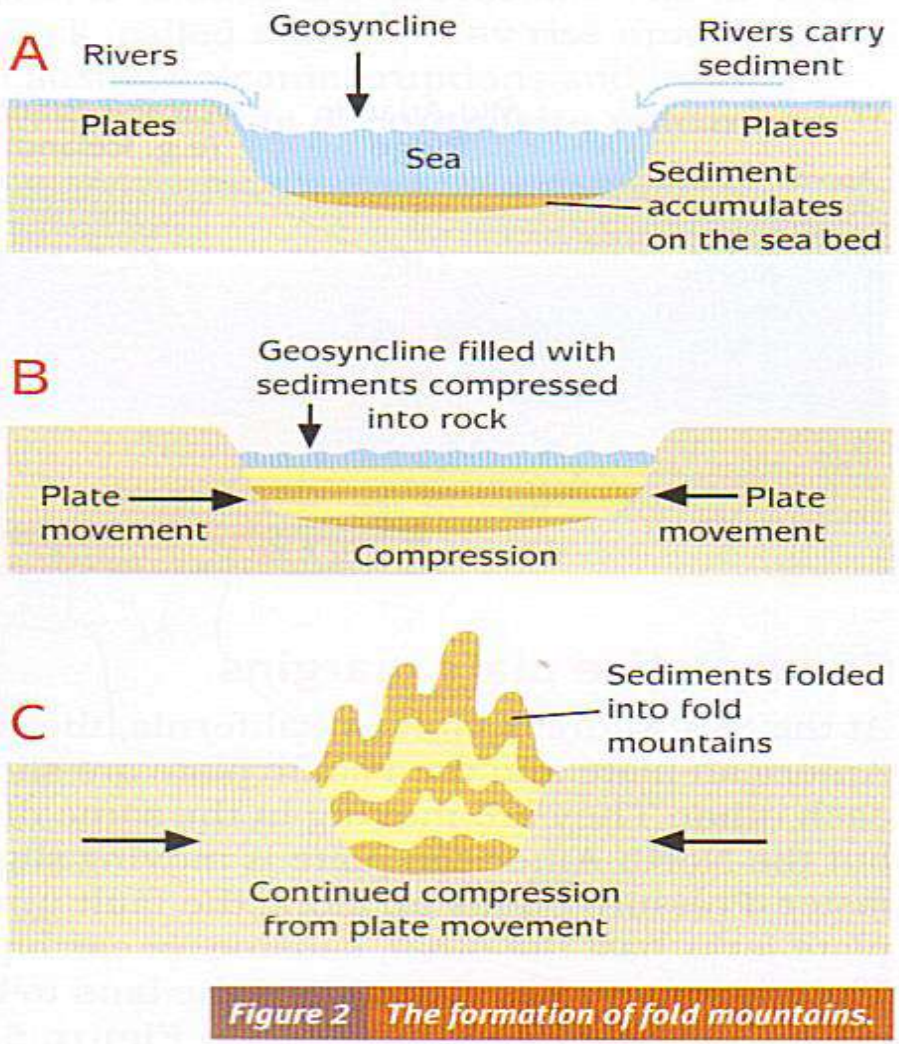
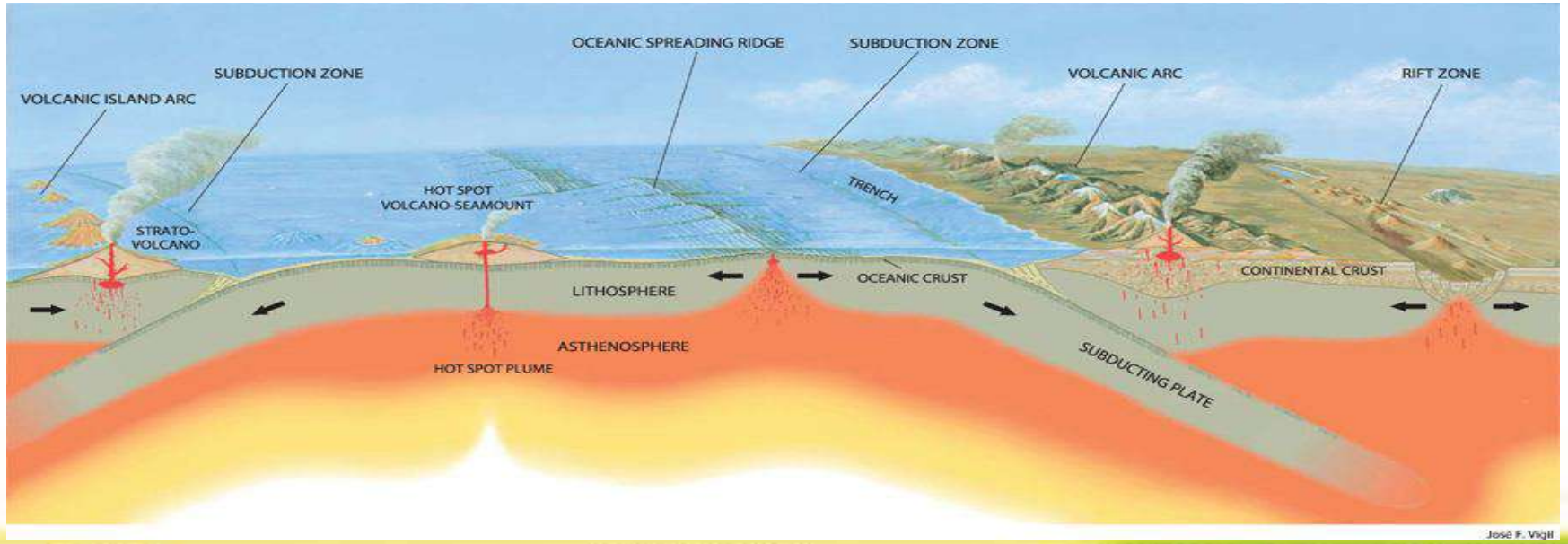
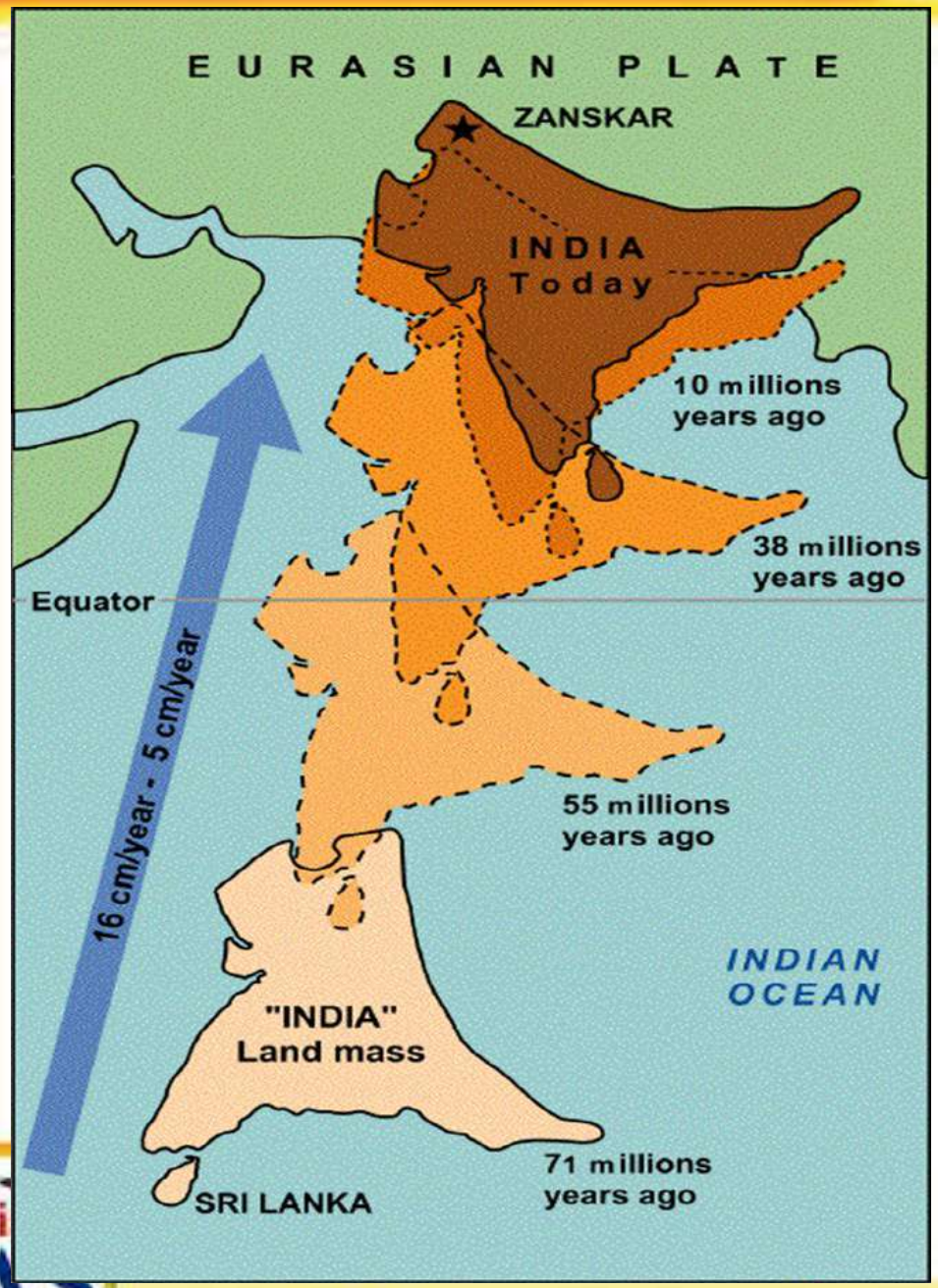


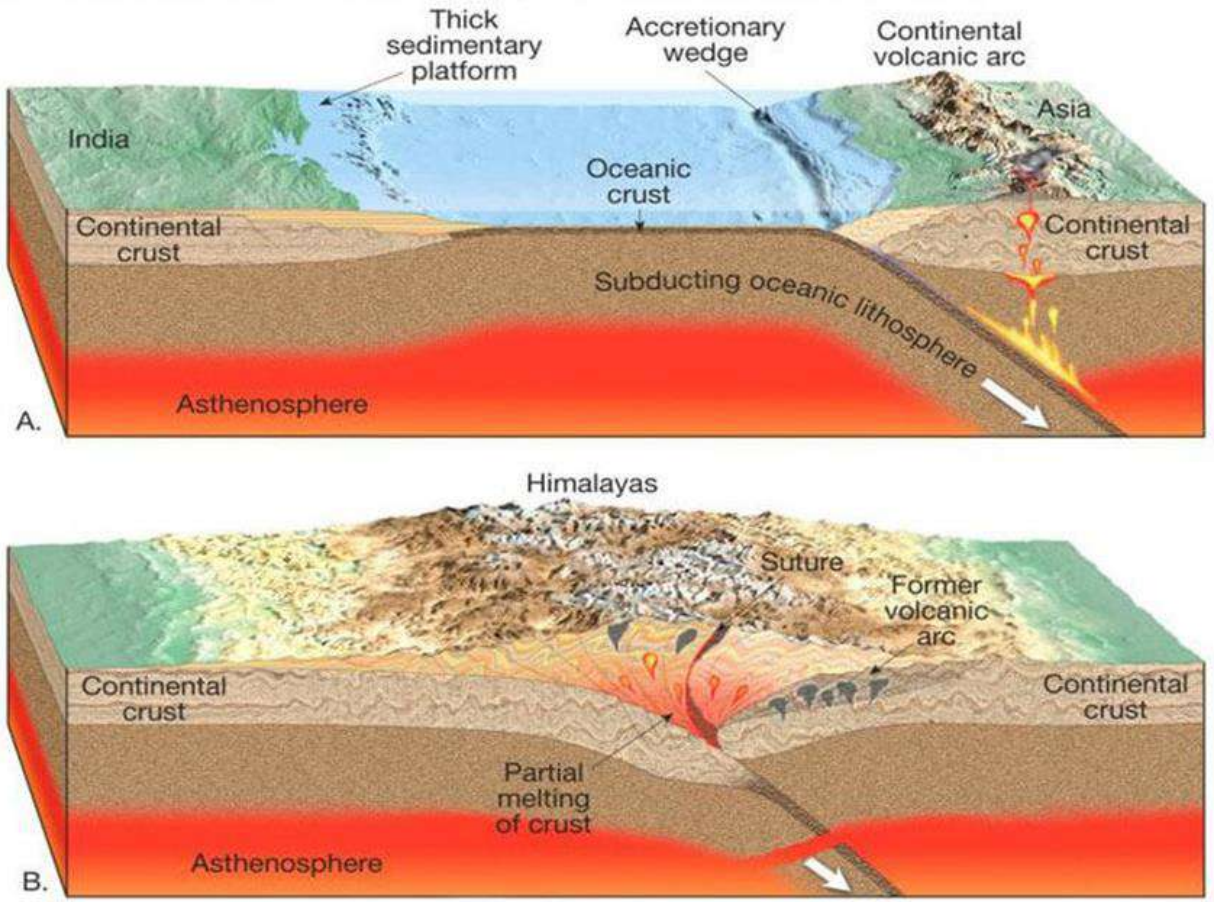
Figure 2 The formation of fold mountains.

2. THE PLATE TECTONIC THEORY

- It is a comprehensive theory which came into the light in 1960's. It is considered as a **"great scientific achievement"** as it is the result of different disciplines.
- Plates are **solid and rigid slabs** of lithosphere which extends from upper crust to upper Mantle. All the continent and oceans of glow Lies over these plates.
- The whole mechanism of plate including evolution, motion destruction and creation is called plate tectonic.
- The term plate was first used by Canadian scientist John **Tujo Wilson in 1965**.
- In 1967 **McKenzie and Parker** provided details about the motion of plates.
- In the year 1968, **W.J. Morgan** propounded the whole concept of plate tectonic in detail.




EURASIAN PLATE
ZANSKAR
INDIA
Today
10 millions
years ago
38 millions
years ago
Equator
16 cm/year - 5 cm/year
55 millions
years ago
INDIAN
OCEAN
"INDIA"
Land mass
71 millions
years ago
SRI LANKA


Thick
sedimentary
platform
Accretionary
wedge
Continental
volcanic arc
India
Asia
Oceanic
crust
Continental
crust
Continental
crust
Subducting oceanic lithosphere
Asthenosphere
A.
Himalayas
Suture
Former
volcanic
arc
Continental
crust
Continental
crust
Partial
melting
of crust
Asthenosphere
B.

Evolution of the Himalayas

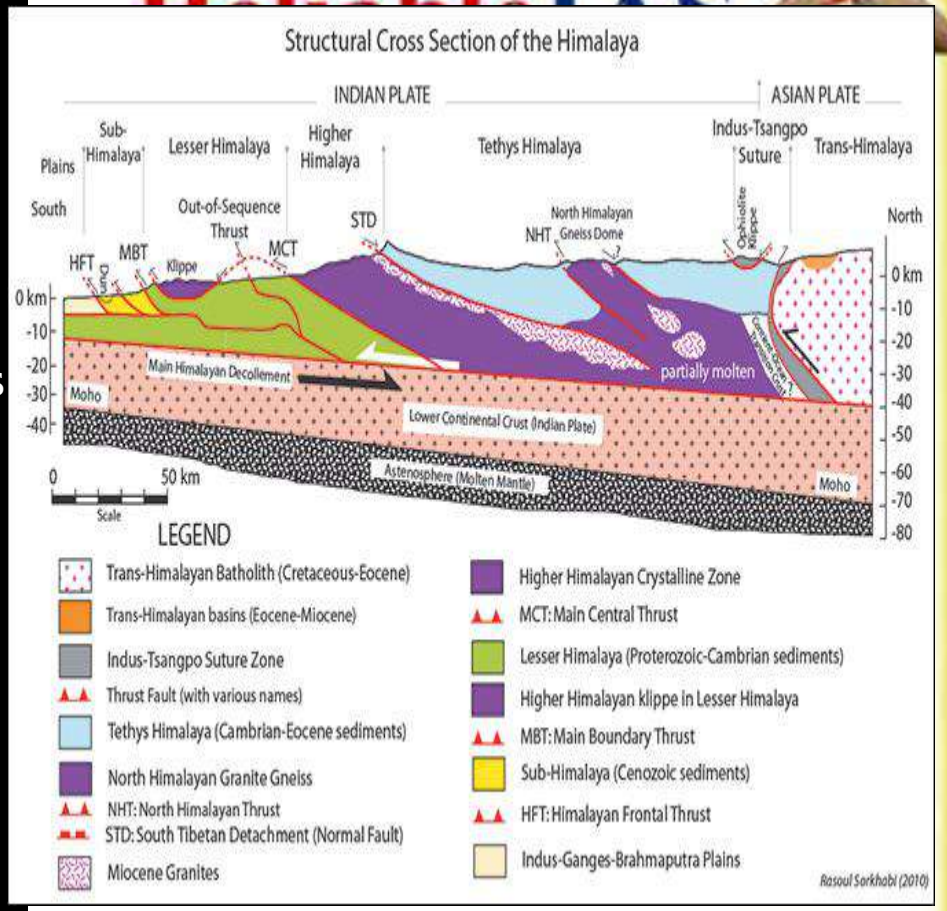
- The Himalayas are the result of **55 million years of tectonic compression and structural deformation**.
- The evolution of this mountain range is primarily due to the **convergence of two major tectonic plates**: the **Indo-Australian Plate** and the **Eurasian Plate**.
- This process has been studied through various geochronologic, structural, petrologic, and sedimentary data.
- The formation of Himalaya underwent through various stages of development.

Phase 1. The Trans-Himalayan Uplift (55-35 Ma)

- Evidences affirms that the first mountain range to emerge was the Trans-Himalayan igneous arc during 55-35 Ma(**Eocene period)**.
- **Geochronologic analyses of granites from the Trans-Himalaya indicate that these rocks rapidly cooled and eroded at about 40 Ma**.
- There are basins in the southern front of the Trans-Himalaya filled with continental sediments (for example, in Kargil, Kailash and Lhasa).
- The Indus and Tsangpo were the first rivers to arise and transport sediments in the **Eocene period.**

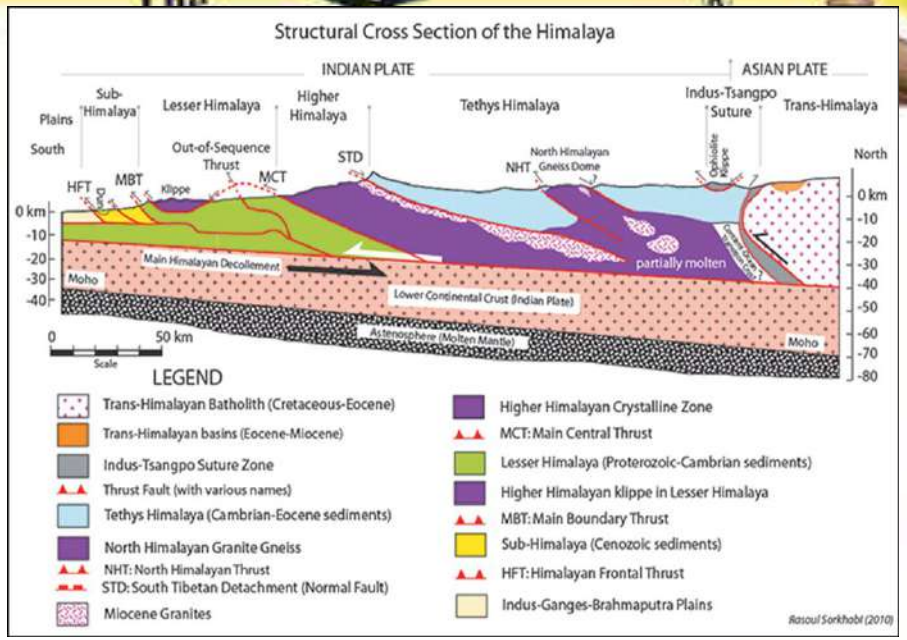
Phase 2. The Higher/great Himalayan Uplift (24-17 Ma)

- There is ample evidence that during the **early Miocene (24-17 Ma), great Himalaya uplifted.**
- The Higher Himalayan rocks, which were then **buried 20-25 km deep, metamorphosed** and **partially melted** under temperatures of 600-800 degrees Celsius and pressures of 6-10 kilobars, **began a rapid uplift along the Main Central Thrust.**
- Moreover, a series of **white granites (leucogranites)** formed during 24-17 Ma were emplaced and rapidly uplifted along the South Tibetan Detachment.



Phase 3. The Lesser/ Middle Himalayan uplift (11-7 Ma)

- During **the late Miocene (11-7 Ma) period,** due to successive thrust exerted by Indo-Australian Plate, upliftment of middle Himalaya accomplished.
- **It** is mainly composed of highly metamorphosed rock kyanite.
- These data indicate rapid erosion of the Himalaya at that time.
- **There is also limited geochronologic evidence from Pakistan that the Main Boundary Thrust began its activity in the late Miocene**



Phase 4. Neotectonics: The Quaternary Phase (2.6-0 Ma)

- Available evidence indicate that **the Siwalik** were formed during ***the upper Miocene to Pliocene epoch*** and are chiefly consist of **clay, sandstones and conglomerates** (Bose, 1972; Vredenburg, 1910).
- This region is well-known for its rich vertebrate faunal deposits, indicating that a rich diversity **of plants would have supported these animals** (Wadia, 1944).
- The **silicified wood or the whole tree trunks can be found in sandstones,** whereas leaf impressions in shales of the same region were also reported, which supports the abundance of vegetation (Vredenburg, 1910; Wadia, 1944)
- To explain the origin of Shivalik **E.G. Pilgrim put forth the idea of an ancient river,** named as the **Shivalik River (by E.G. Pilgrim). E.G. Pilgrim concluded** that the course of the primitive river is occupied by the present day Shivalik hills.
- Likewise, hypothetical ancient river was called the **Indo-Brahm by E.H. Pascoe.**

Era	Period		Epoch (start mya)	
Cenozoic	Quaternary		Holocene	0.01
			Pleistocene	2.6
	Tertiary	Neogene	Pliocene	5.3
			Miocene	23.0
		Paleogene	Oligocene	33.9
			Eocene	55.8
			Paleocene	65.5

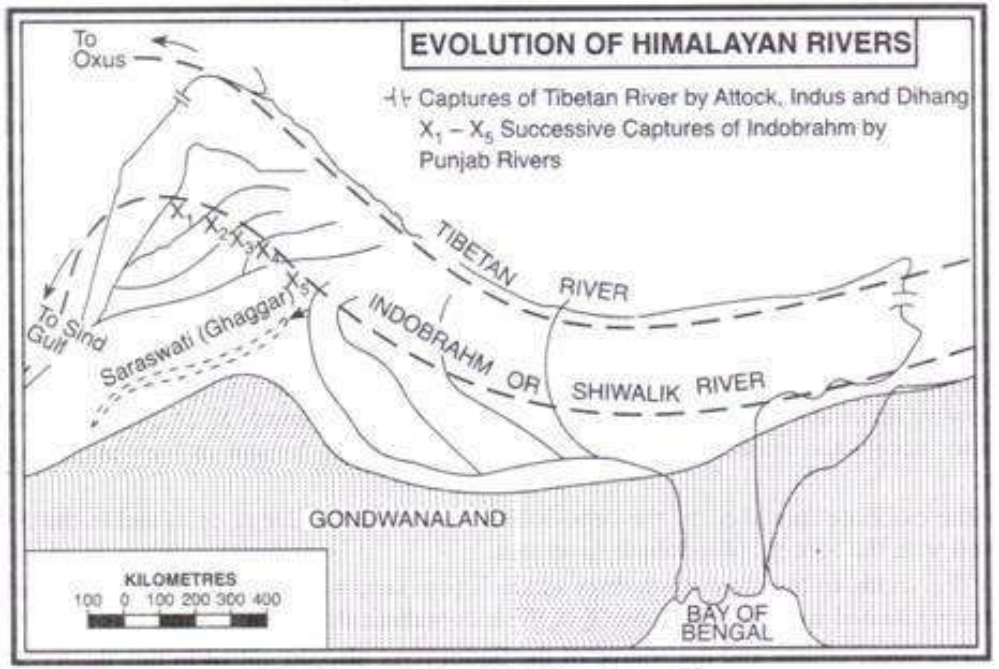
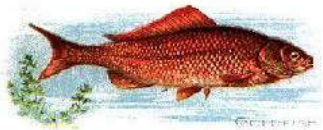


FIG. 4.1. Evolution of the Himalayan Rivers

Vertebrates

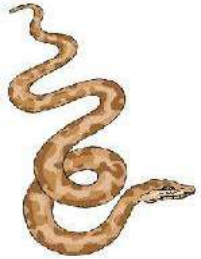
Animals with backbones



Fish

Birds

Mammals



Reptile

Amphibians

Ongoing Evolution (Present-Day)

- **Tectonic Compression**:
  - The **Indian Plate** continues to converge with the **Eurasian Plate**, causing the Himalayas to rise at an average rate of **5 mm per year**.
- **Seismic Activity**:
  - The region remains tectonically active, with frequent **earthquakes, landslides**, and other geological events shaping the landscape.
- **Erosion and Sedimentation**:
  - The region's climate, characterized by **monsoon rains** and **glaciation**, accelerates **erosion**, contributing to the continuous transformation of the terrain.

IMPORTANCE OF HIMALAYA

- It acts as a **natural barrier** to cold polar wind and prevents India from undergoing a severe climate condition.
- In summer, it receives large amounts of **solar radiation** that leads to formation of the **easterly jet stream** that further induce Indian monsoon.
- It creates Mountainous obstacle to the path of monsoon wind that leads to rainfall in Northern India during the rainy season (Orographic rainfall).
- Due to the greater elevation it is the **abode of hundreds** of glaciers from where most of the perennial river originates.

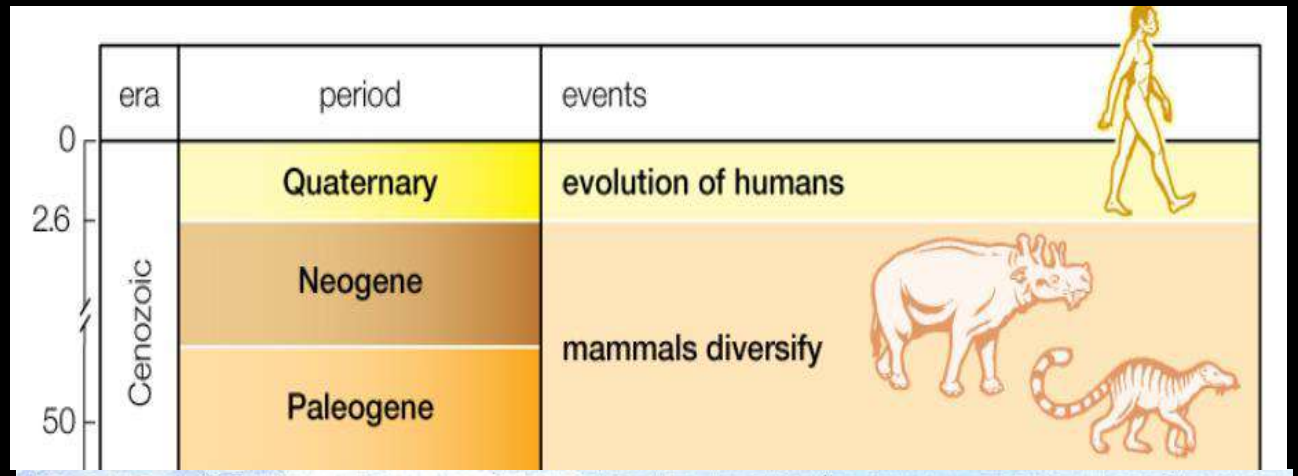
- Due to the unique shape and greater elevation, Eastern Himalaya receives higher land rainfall and becomes suitable for plantation of tea.
- In contrast, Western Himalaya receives less rainfall. Still with greater elevation it becomes suitable for apple and saffron farming.
- The Spectacular mountains and Valley of Himalaya attracts millions of people every year and it is regarded as a **tourism hot spot**.
- With thousands of deep gorge there is immense potential **for hydro electricity** generation in Himalayan range.

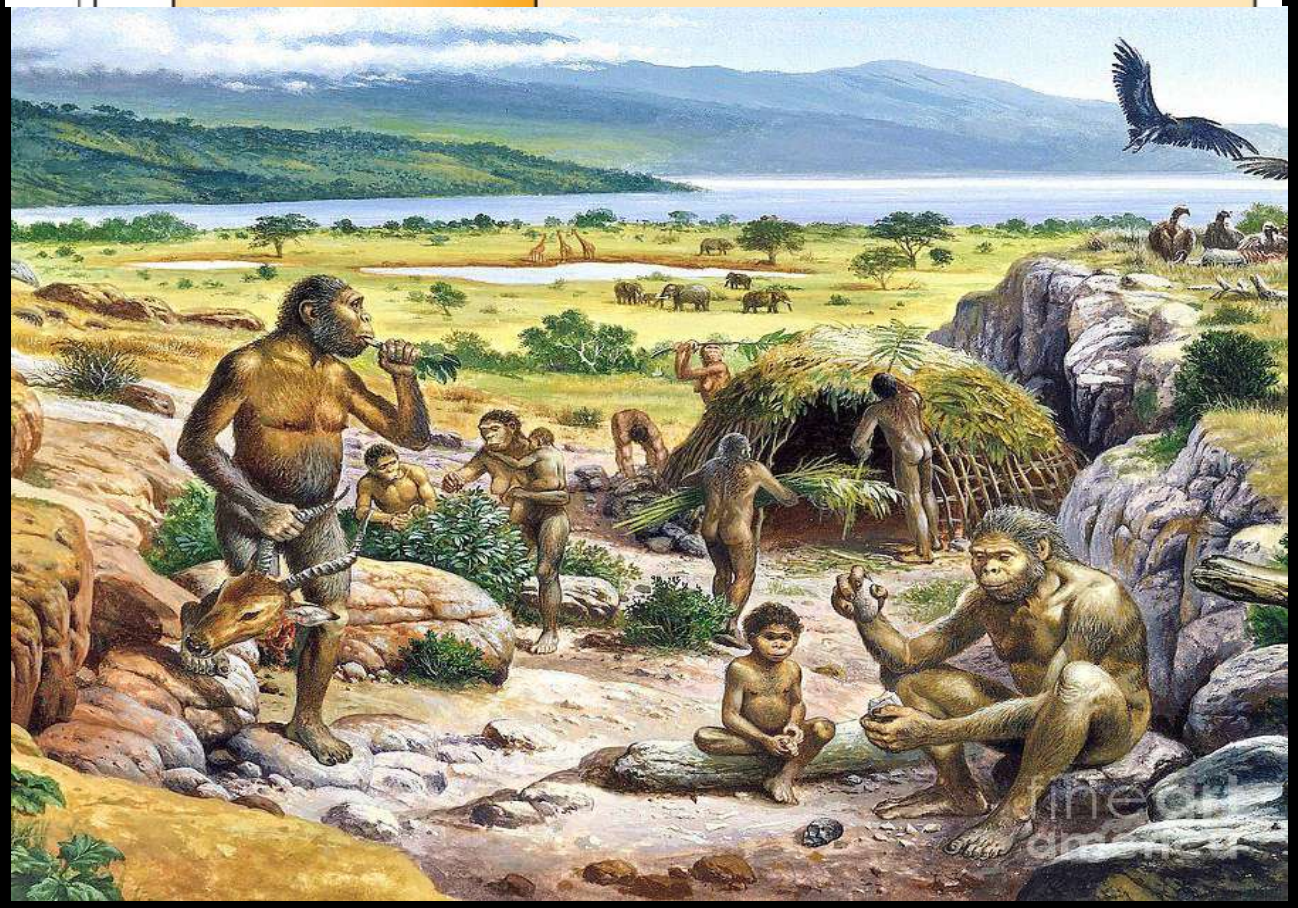
THE NORTHERN PLAIN

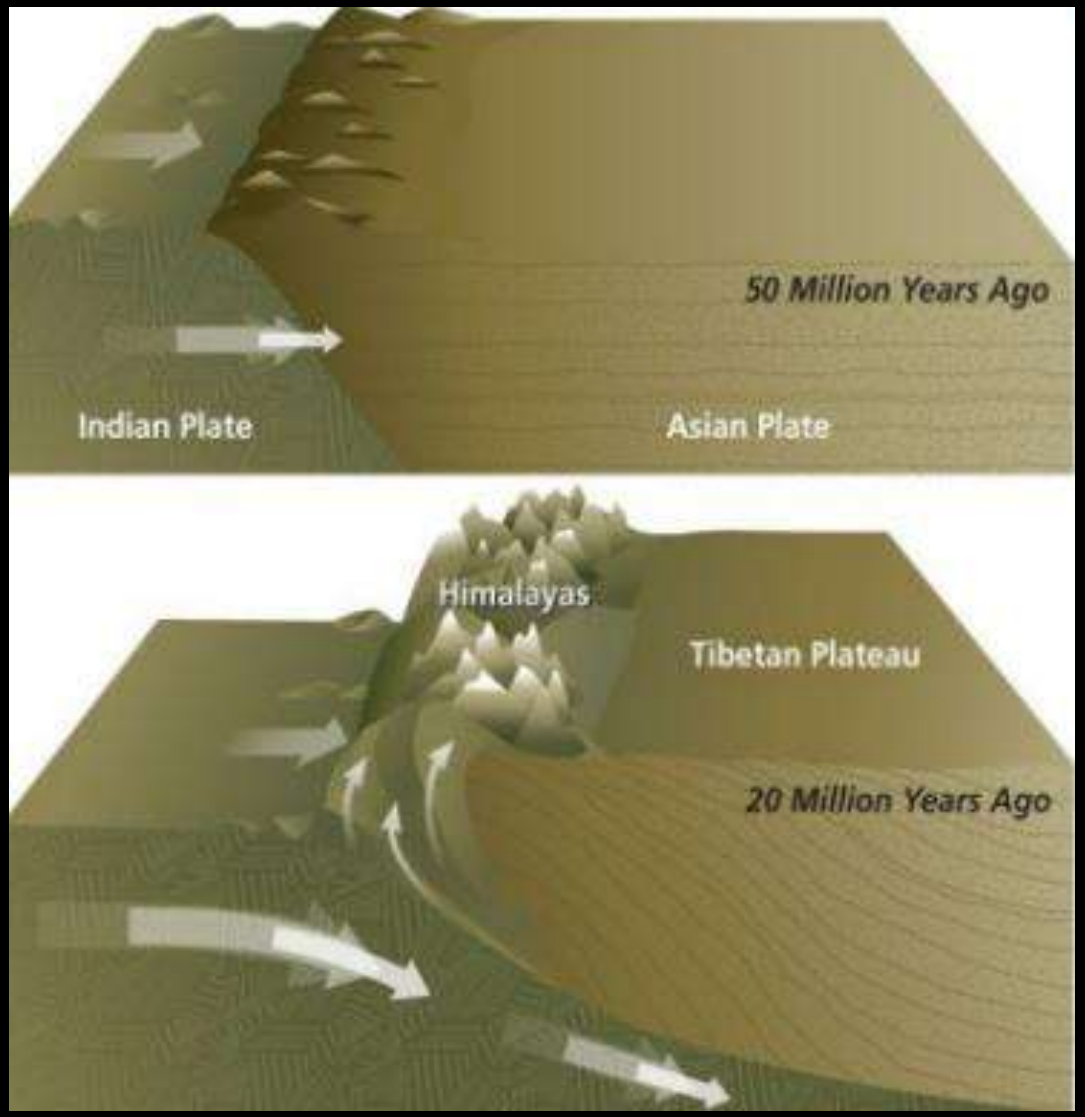
- Is the largest alluvial region of the world
- Covers about 7 lakh square kilometers.
- It formed by the alluvial deposits brought by the rivers – the Indus, the Ganga and the Brahmaputra.
- The plains extend approximately 3,200 km from the east to the west.
- It stretches in India, Bangladesh and Pakistan.
- The average width of these plains varies between 150-300 km.
- The maximum height of the ground is 185 meters.
- The maximum depth of alluvium deposits varies between 1,000-2,000 m.
- It is the newest physiographic region of India
- Formed during **QUATERNARY period**.







era
period
events
0
2.6
50
Cenozoic
Quaternary
evolution of humans
Neogene
mammals diversify
Paleogene



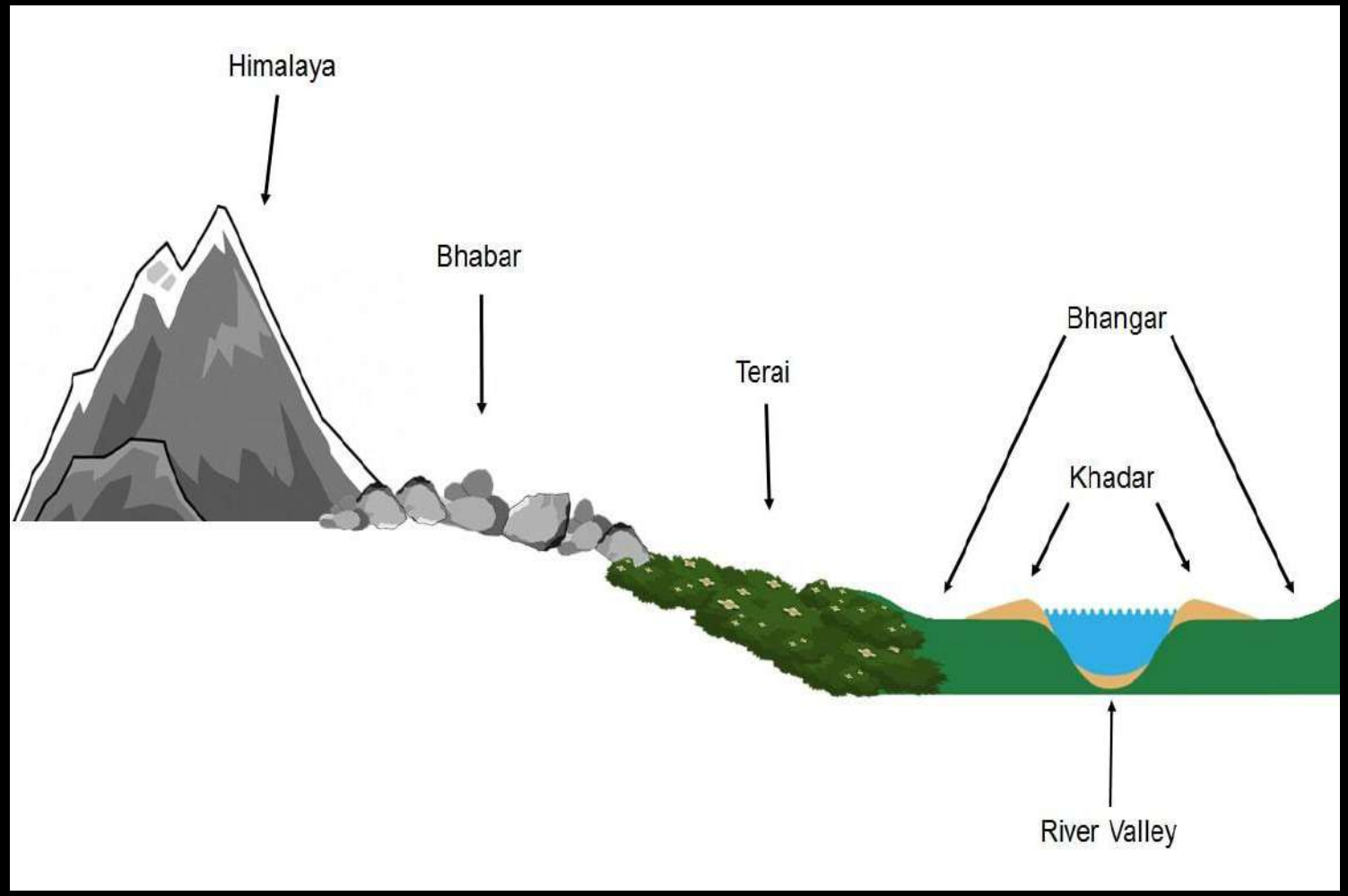

50 Million Years Ago
Indian Plate
Asian Plate
Himalayas
Tibetan Plateau
20 Million Years Ago

THE NORTHERN PLAIN

PHYSICAL DIVISION

REGIONAL DIVISION

PHYSICAL DIVISION OF THE NORTH PLAIN

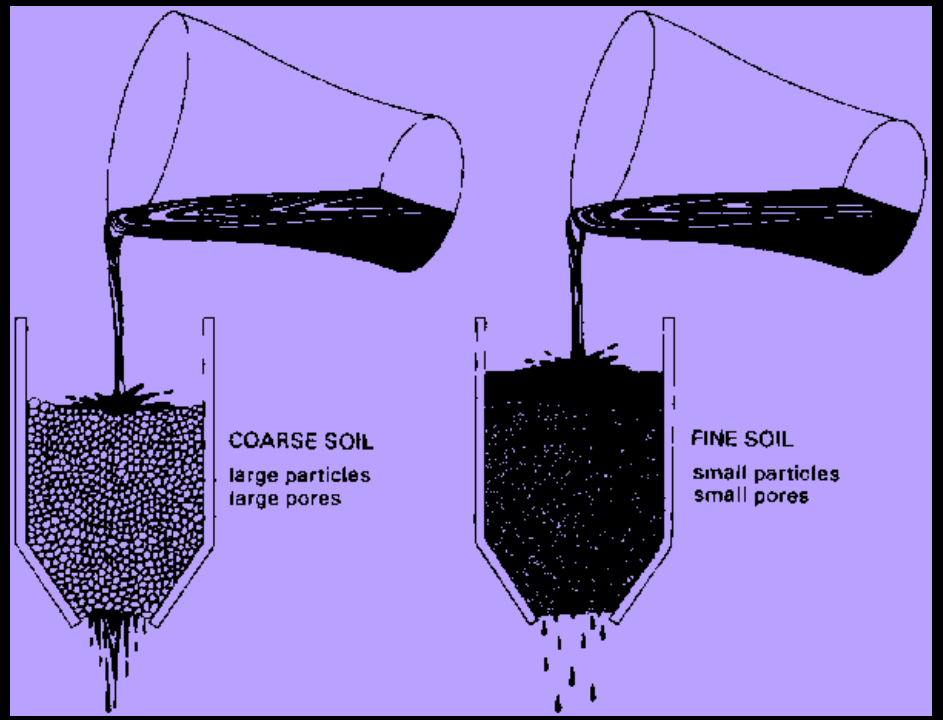


1. Bhabar Region

- It lies south of Shivalik with the width of about 8 to 16 km.
- It mainly composed of coarse pebble and stones.
- The water of the rivers flows under these stones. So, the rivers seem to be extinct.
- This region is an area of "alluvial cone"
- Is not useful for agricultural purposes.

2. Terai Region

- It is 15 to 30 km. wide tract lies south of the Bhabar plain.
- The area is structurally "alluvial fan ".
- There is a deposit of fine particles brought by rivers.
- The extinct rivers of the Bhabar region appear to be coming back to the surface in the region.
- The region is rich in humidity and marred with water logging, which develops the "malaria climate" and creates an ideal condition for mosquito breeding.
- The terai region is suitable for sugarcane cultivation.

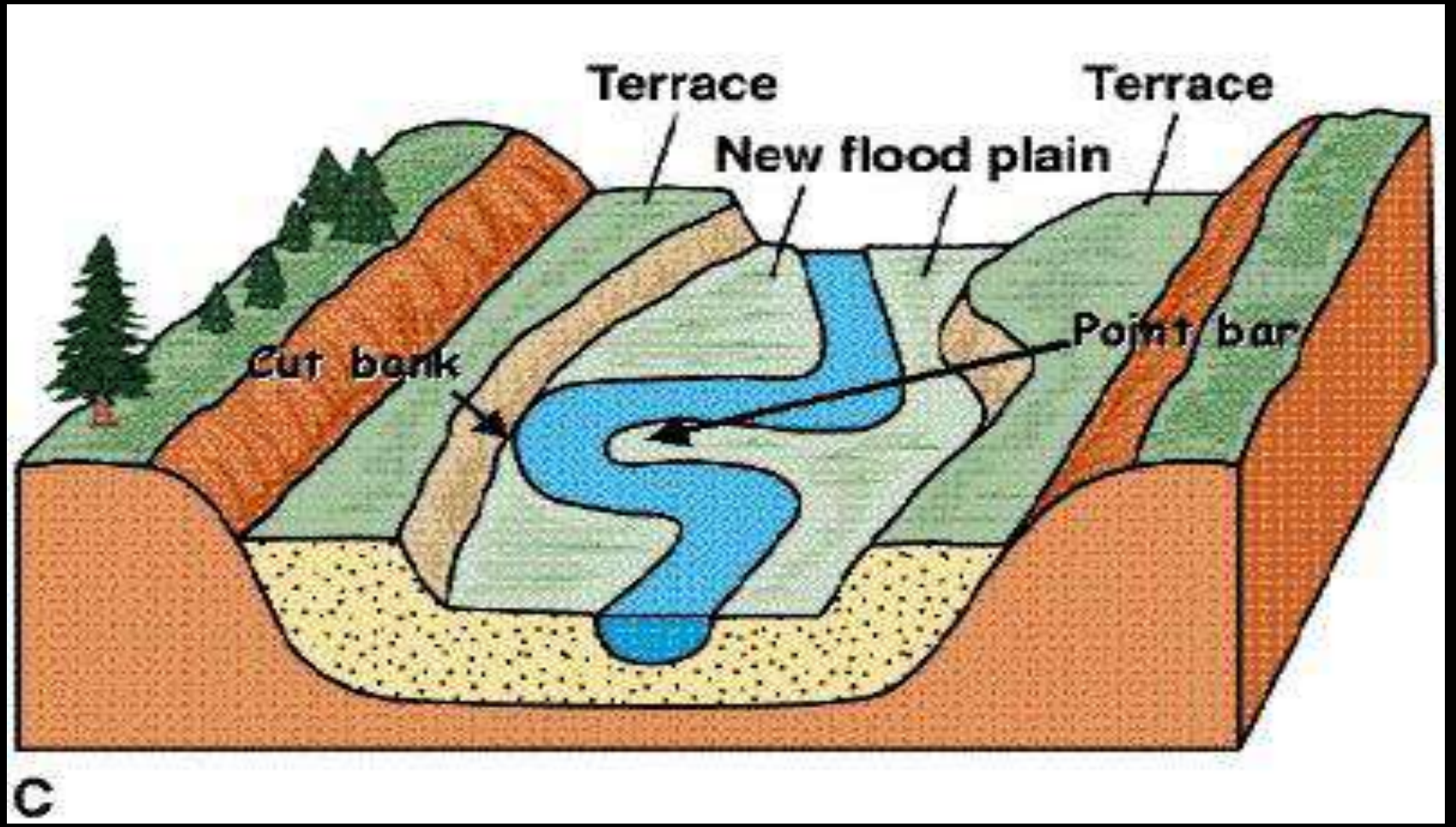

COARSE SOIL
large particles
large pores
FINE SOIL
small particles
small pores

3. Bangar

- It is an old alluvial plain found mainly in Rajasthan, Haryana and western Uttar Pradesh.
- The region is made up of dry and coarse particles.
- Hence the water- retention capacity (water holding capacity) of the soil is very low.
- So, this area is a less fertile area.

4. Khadar

- It is a new alluvial plain which mainly found in eastern Uttar Pradesh, Bihar and Bengal.
- The river deposits new alluvial in this area every year, so this area is a very fertile area.
- It composed of very fine particles and suitable for several crops.
- In Punjab, it is called Be land.


Terrace
Terrace
New flood plain
Point bar
Cut bank
C

- **5. Delta**
- It is an extension of the Khadar plain which mainly stretches in West Bengal.
- It is an extremely fertile tract however subject to annual flooding.
- Fine particles have been brought by Ganga and Brahmaputra in this area and this area is also very fertile.

6. Reh / kallar/ saline soil

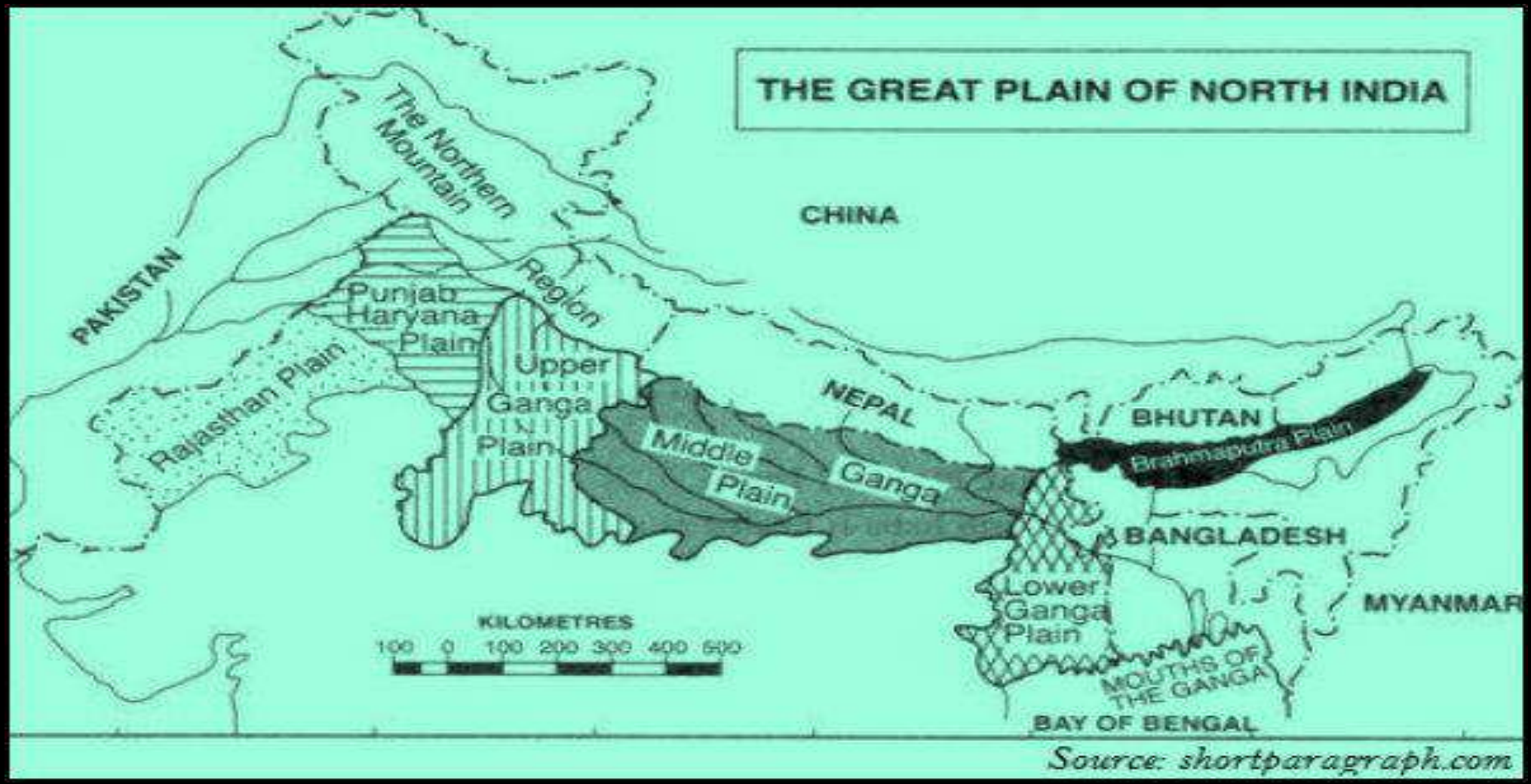
- It is a contaminated soil which found in the area irrigated with canal.
- Due to the capillary action(capillary action), salts of rock, dissolved in water and come to the surface.
- Finally the thin layer of salt accumulates as a white sheet above the soil.
- However, it can be reclaimed / treated by mixing **Gypsum and lime** into soil.
- It is mainly found in western Uttar Pradesh and Haryana.

7. Bhur

- In the Bangar region, when the upper surface of the soil is destroyed due to erosion, the lower surface with pebbles and stone appears which is called brown soil.
- It is mainly found in the **Ramganga river and upper ganga river area.**


Figure 10

Regional division of the vast plains of the north

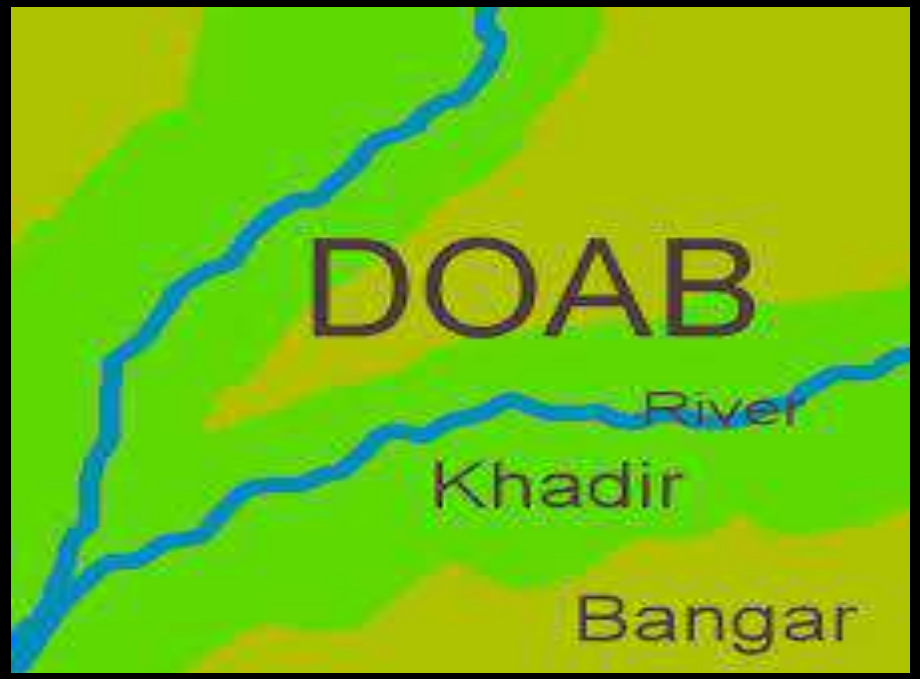


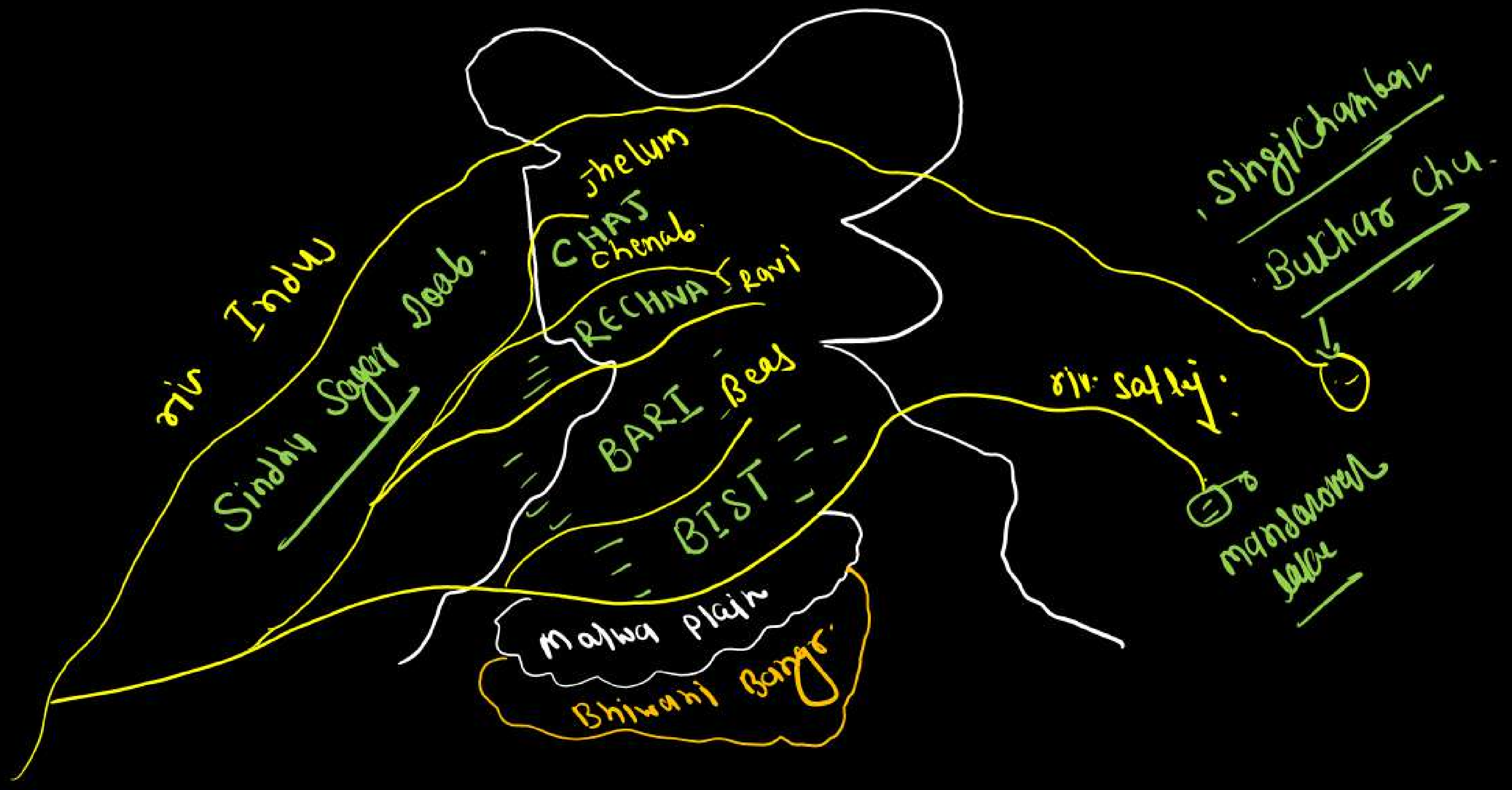
1. Trans Ganga Plain/ Punjab Haryana plain

- The plain is located west of Delhi- Ambala ridge and is constructed from the Indus and its tributaries.
- There have been several doab areas (deltaic part between two rivers) developed here:
  - ❖1) Bist Doab - Between Sutlej and Beas River
  - ❖2) Bari Doab - Between Vyas and Ravi River
  - ❖3) Rechana Doab - Between Ravi and Chenab River
  - ❖4)Chaj Doab - Between Chenab and Jhelum River
  - ❖5) Sindhu sagar Doab - Between Jhelum and Indus River

➢ Malwa plain is located south of the Sutlej river in Punjab and Haryana region.

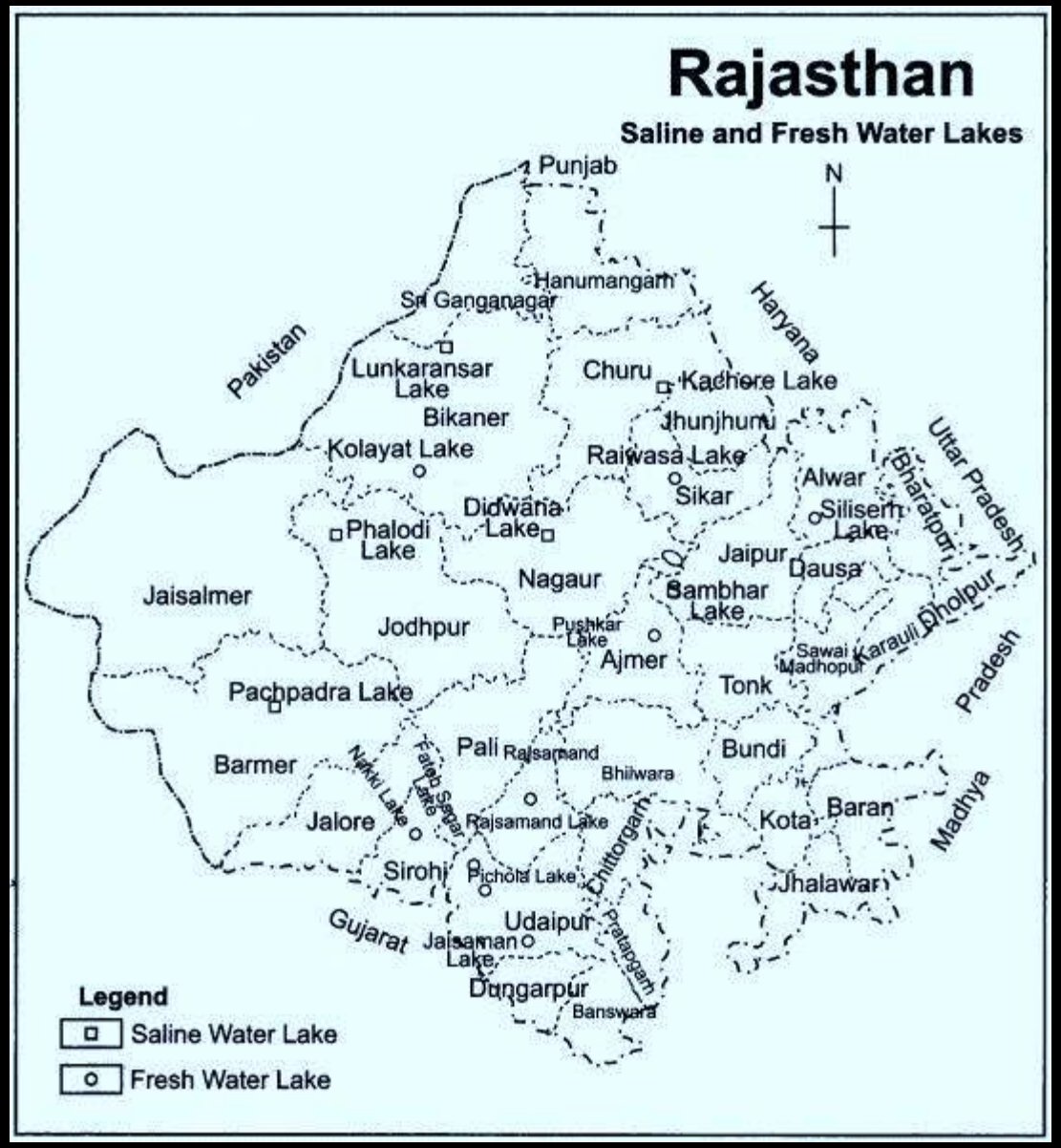
➢ Haryana Bhiwani bangad is located south of malwa plain.




r/r Indus
Sindhu Sagar Doab.
Jhelum
CHAJ
Chenab.
RECHNA
Ravi
BARI
Beas
BIST
Malwa plain
Bhiwani Bangr.
r/r. satluj
Singi/Chamban
Bukhar Chu.
mansarovar lake

2. Rajasthan Plain

- The area is divided into two clear parts - Desert and Rajasthan Bangar.
- Isohyet line of 25 cm divides both the regions.
- The desert is extended in about 1.75 lakh sq. km. and called as Thar desert.
- There is evidence of the retreat of the ocean in this region, hence many salt water lakes like Sambhar Lake, Pachpadra Lake, Lunkaransar Lake, Deedwana Lake etc. exits.
- The Bangad region of Rajasthan is situated between a isohyet line of 25 to 50 cm. It is mainly spread to the east and north of Mount Aravalli. It is a semi-dry area.



पश्चिम
रेतीला
मैदान
बीकानेर
जैसलमेर
बाड़मेर
जोधपुर
पाली
जालौर
सिरोही
नागौर
सीकर
झुंझुनू
चूरू
हनुमानगढ़
भारतीय महा मरुस्थल
राजस्थान
अरावली
प्रदेश
पूर्वी
मैदान
अलवर
जयपुर
दौसा
भरतपुर
करौली
टोंक
सवाई माधोपुर
अजमेर
भीलवाड़ा
राजसमंद
चित्तौड़गढ़
उदयपुर
प्रतापगढ़
बूंदी
हाड़ौती
बारां
कोटा
का
पठार
झालावाड़
Prahlad Saran

3. Ganga Plain

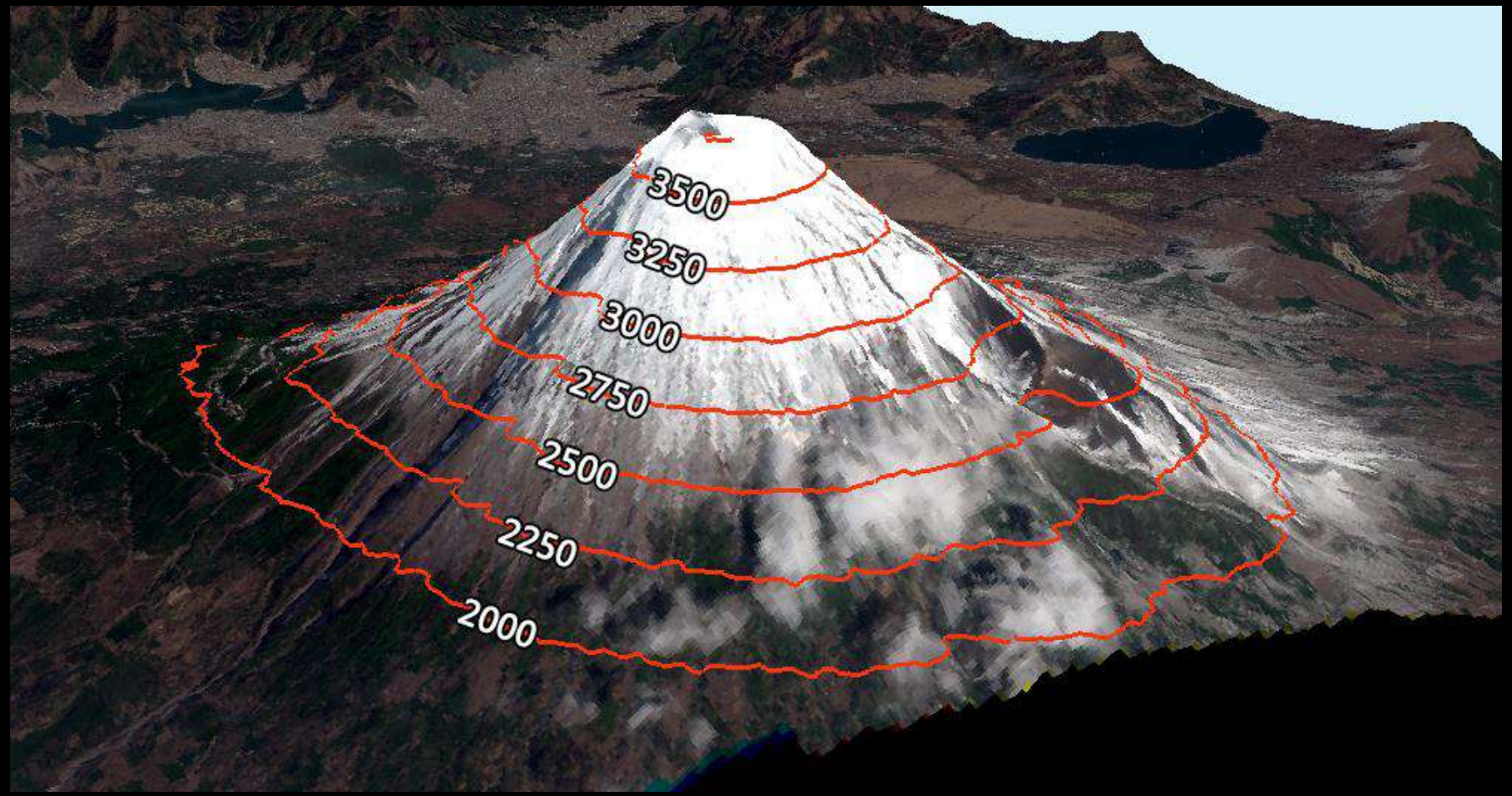
- It is divided into the following 3 sub-plains:
  - 1. Upper Ganga Plain –
    - It extends from Delhi Ambala Cuttack to **100 cm level rainfall line (Isohyet)(100 m contour line).**
    - The area is mainly irrigated by the Ganga, Yamuna, Ramganga and Gomti rivers.
    - The ruhel khand plain, the Awadh plain and the Ganga Yamuna Doab are located here.
  - 2. middle Ganga Plain –
    - It is wide in eastern Uttar Pradesh and Bihar.
    - Its eastern boundary is determined by **a isohyet line of 150 cm/ 75 m contour line.**
    - There are many plains in this area such as ganga ghaghra plain, saryu par plain, mithila plain, kosi plain, magadha plain and anga plain.
  - 3. Lower Ganga Plain –
    - Extends to West Bengal and has a slope of less than 2 cm/km.

4. Brahmaputra Plain

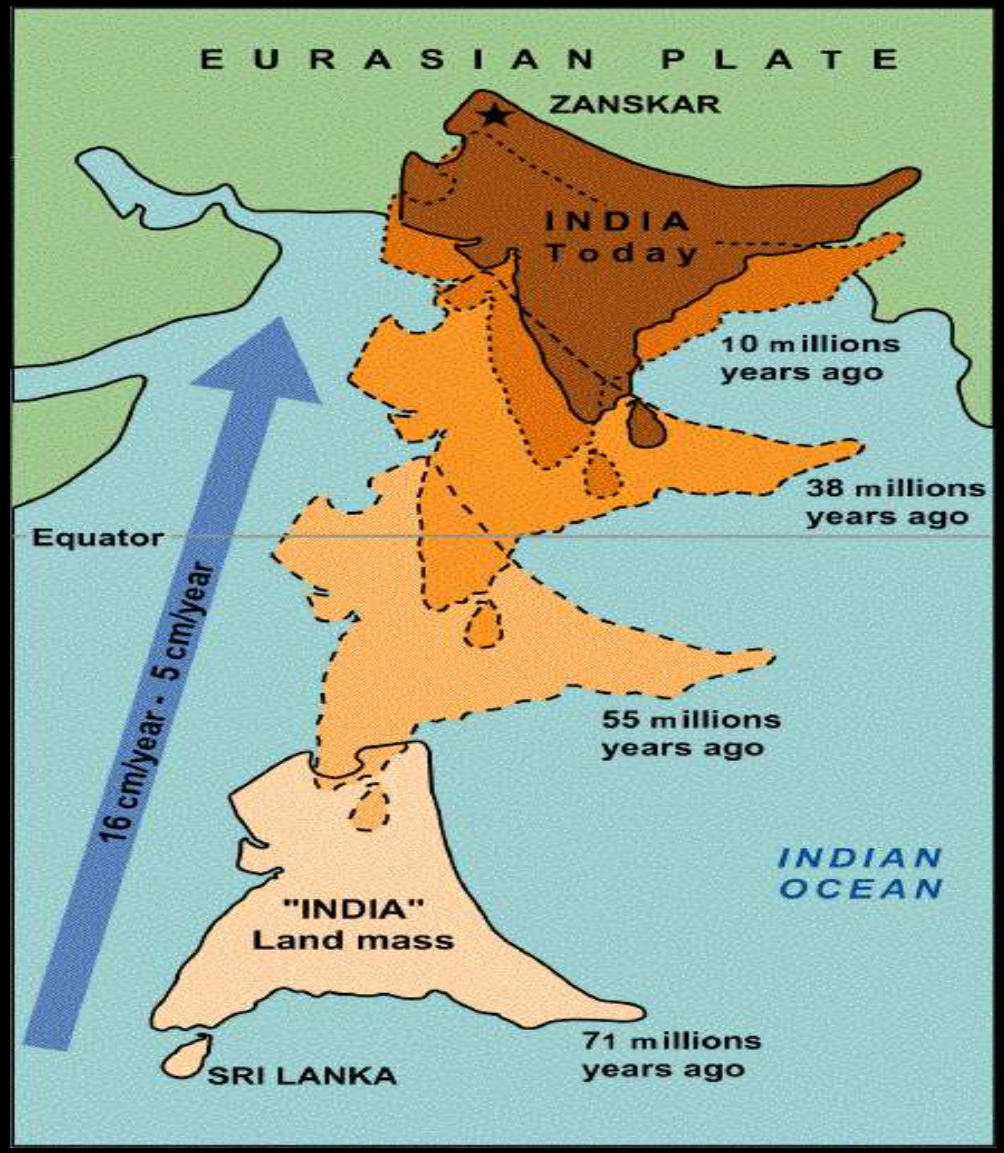
- It is spread over a length of about 720 km from Sadia to Dhubri in Assam.
- It has a width of only 80 kilometers.
- It is also known as "Plain of Assam".
- It is bounded by the Eastern Himalayas in the north, the Patkai Hills to the east, the Garo-Khasi Hills in the south, and the Bhutanese Himalayas to the west.
- The region is prone to frequent flooding due to heavy monsoon rainfall and the high water levels of the Brahmaputra River.
- The fertile soil supports extensive cultivation of rice, tea, and jute, making Assam a key agricultural state.

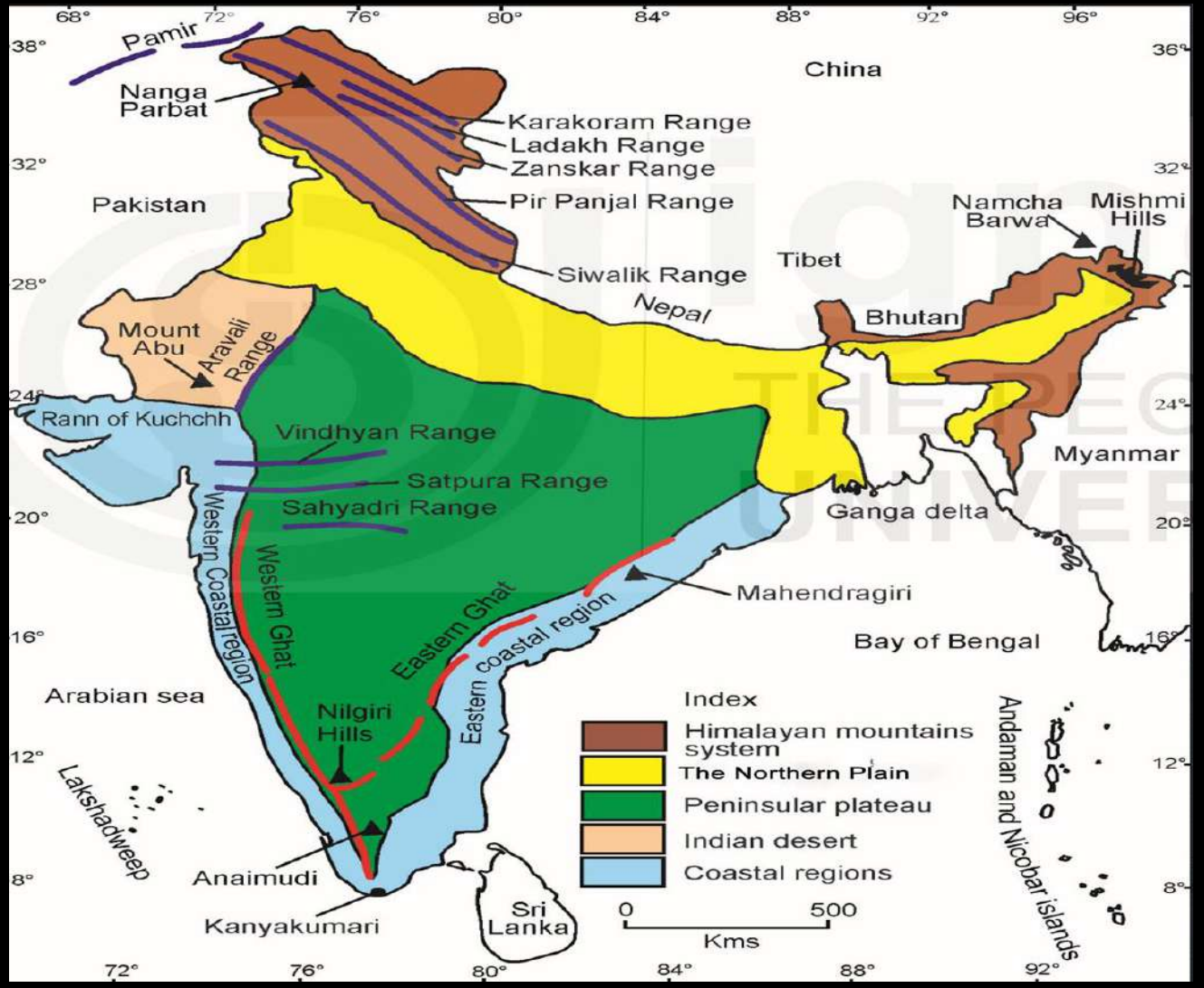
Importance of the Great Plain of India

Agricultural Center:	• Fertile alluvial soil, major crops like rice, wheat; known as the **"Granary of India"**.
Dense Population:	• Backing high population with major cities like **Delhi**, **Kolkata**, and **Lucknow**.
Economic Growth:	• Supports agriculture, industries, and urban development; major highways and railways.
Tourism & Culture:	• Home to historical landmarks and pilgrimage sites like **Varanasi**, **Taj Mahal**, and **Prayagraj**.


3500
3250
3000
2750
2500
2250
2000

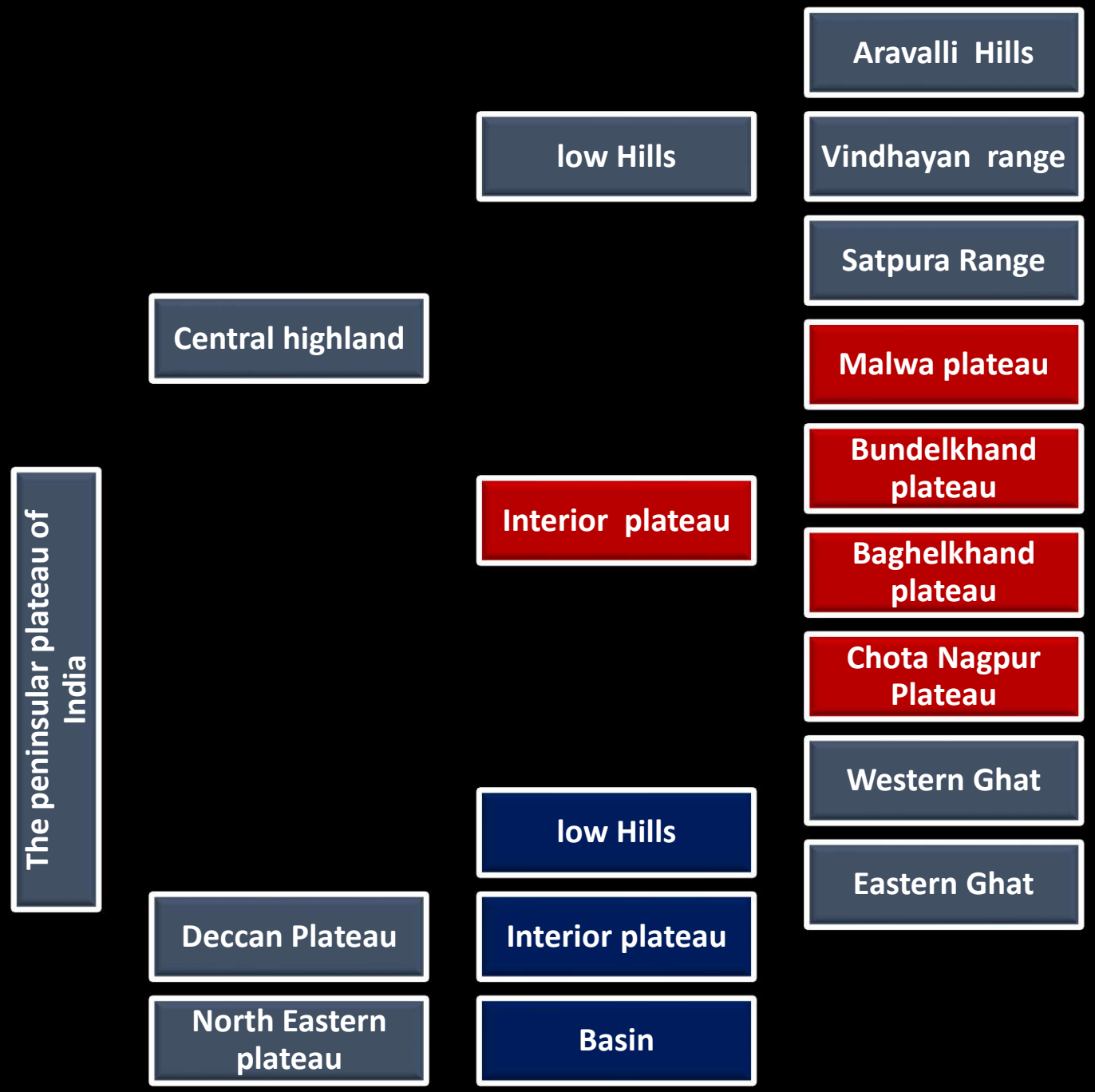
PENINSULAR INDIA





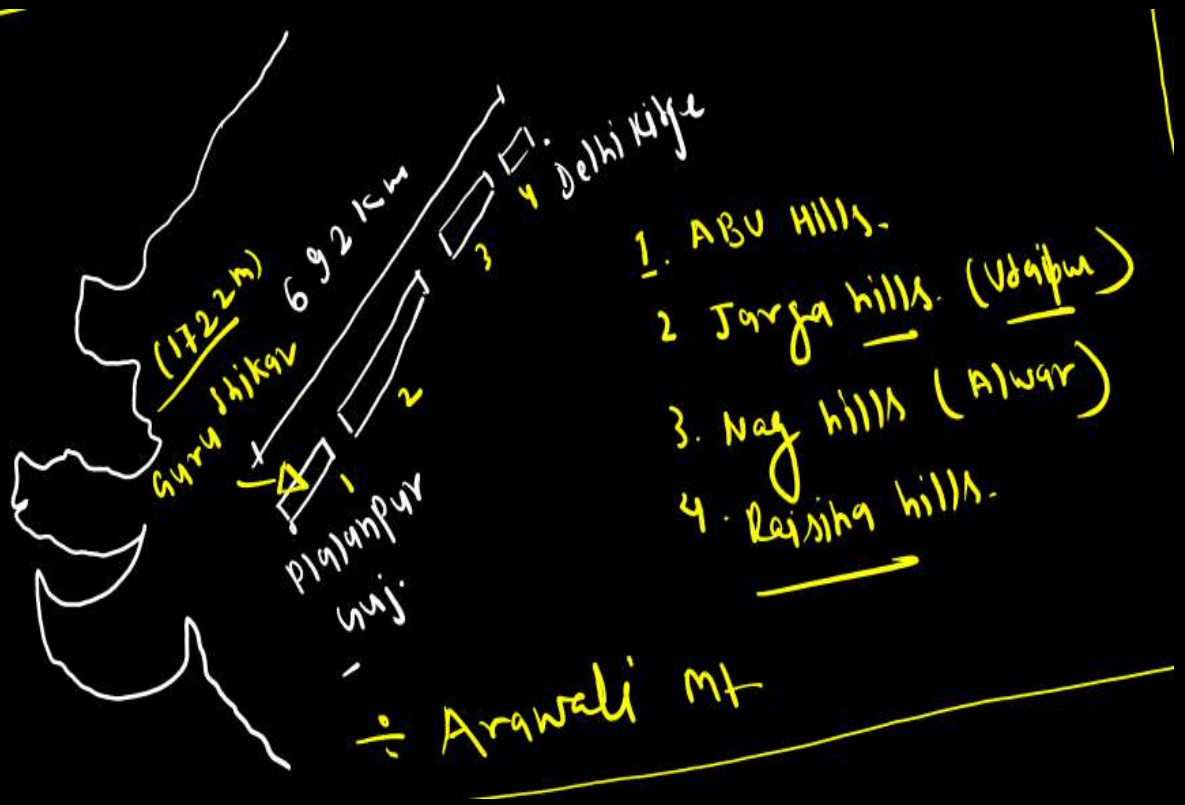
- Is the largest tract of India,
- Stretches over an area of about 16 lakh square kilometers.
- Is the oldest and most stable physiographic region of India.
- Is a tableland
- Composed of the old crystalline, igneous and metamorphic rocks
- Is part of the ancient Gondwana Land which was built in the Aryan era.
- The area was never submerged after its origin.
- Is triangular shaped.

- The Narmada, Tapi, Sone and Damodar rivers, which flow through the rift valley, divided peninsular India into two parts.
- While the Shillong plateau has been separated from the peninsular plateau due to malda fault/gap.
- On this basis peninsular India is divided into 3 regions:
  1. Central high land
  2. Deccan plateau
  3. Shillong Plateau/ North Eastern Plateau



Central high land

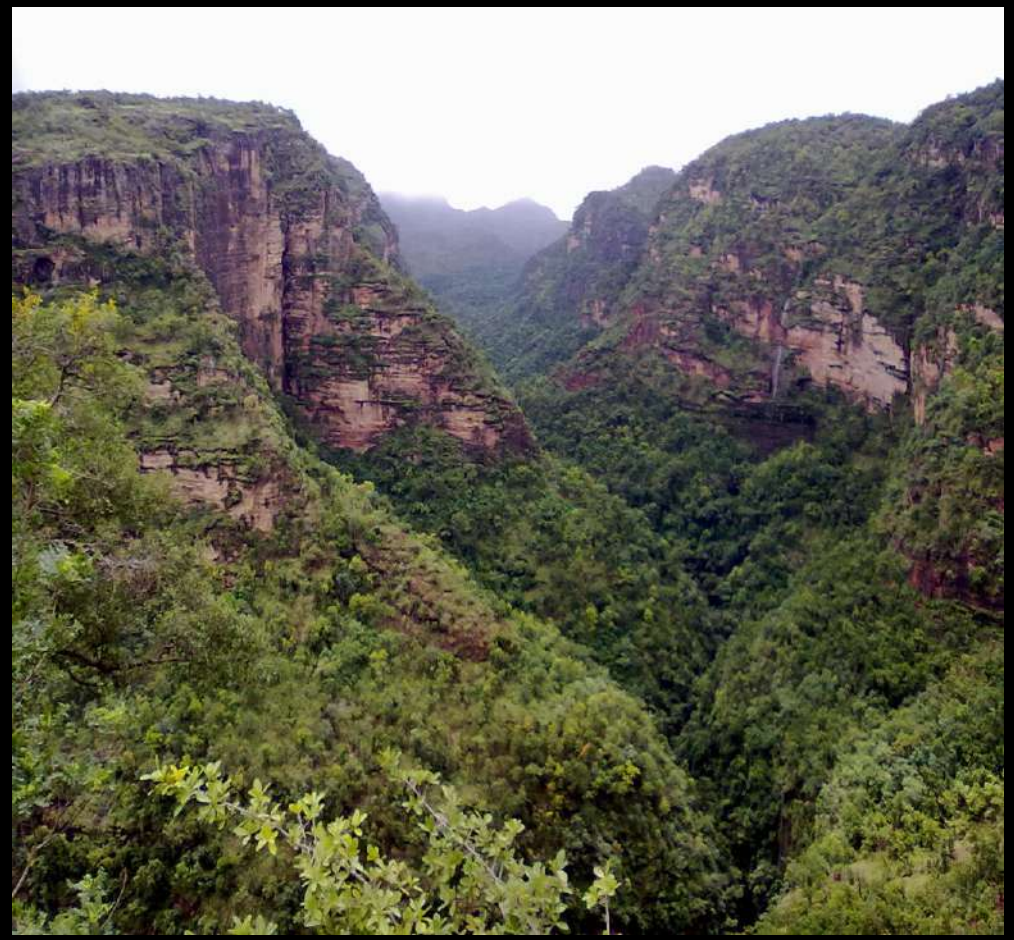
- It is the northern part of peninsular India lies north to riv. Tapi.
- It mainly composed of granite, nice, marble and limestone rocks.
- The major land forms here are :-
- **A. LOW HILLS**
- **Aravalli Mountain-**
- It is spread over a distance of **about 692 km** from Palanpur in Gujarat to raisina hills ,Delhi.
- It is an example of residual/ relict mountain and an ancient folded mountain.
- Its highest peak is **Guru Shikhar(1722 m)** which is located in Sirohi district of Rajasthan. This peak is located near **Mount Abu**, which is a famous hill station.
- From south to north it include - Abu hills, Jarga(Udaipur) Nag hills (Alwar) and Raisina hills.
- The Aravalli mountain acts as a water divide and a cultural divide (Marwar/Mewar).

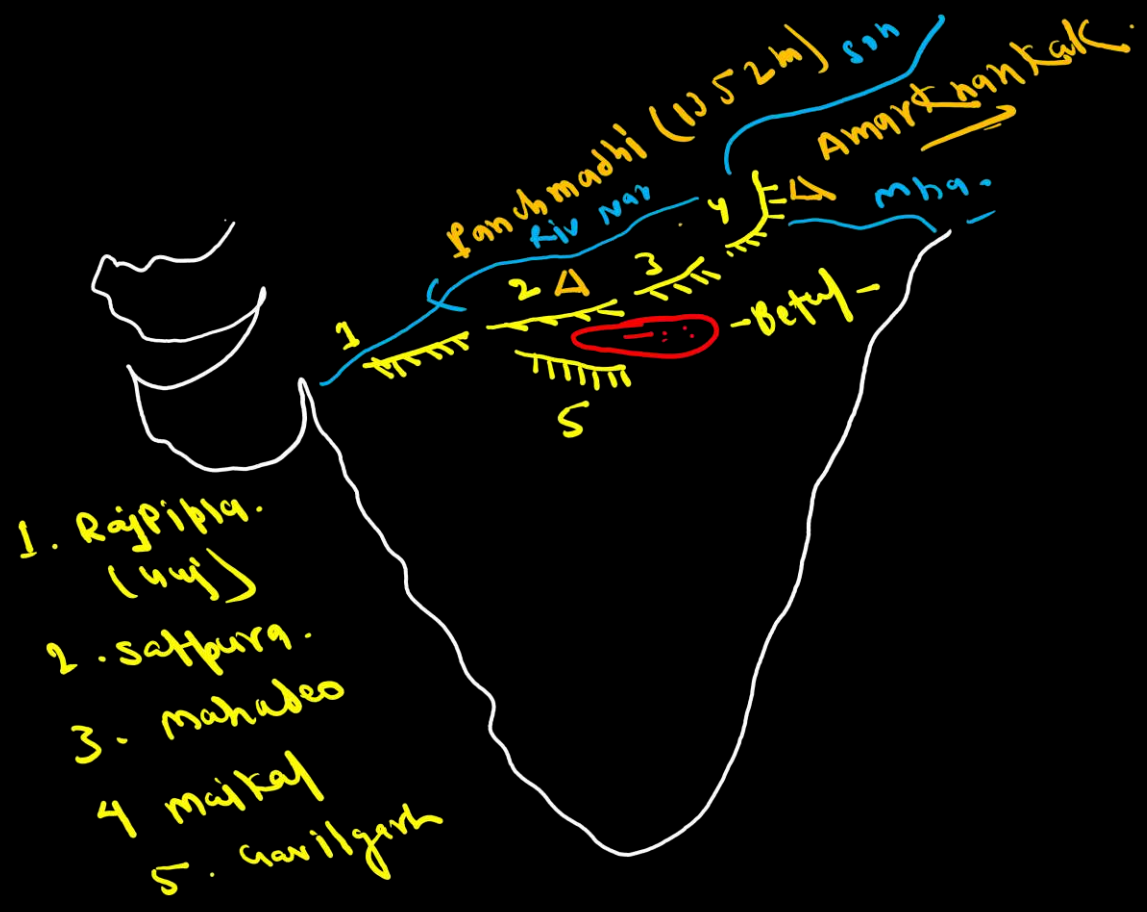


1. ABU Hills.
2 Jarga hills. (Udaipur)
3. Nag hills (Alwar)
4. Rajsing hills.

∴ Arawali Mt

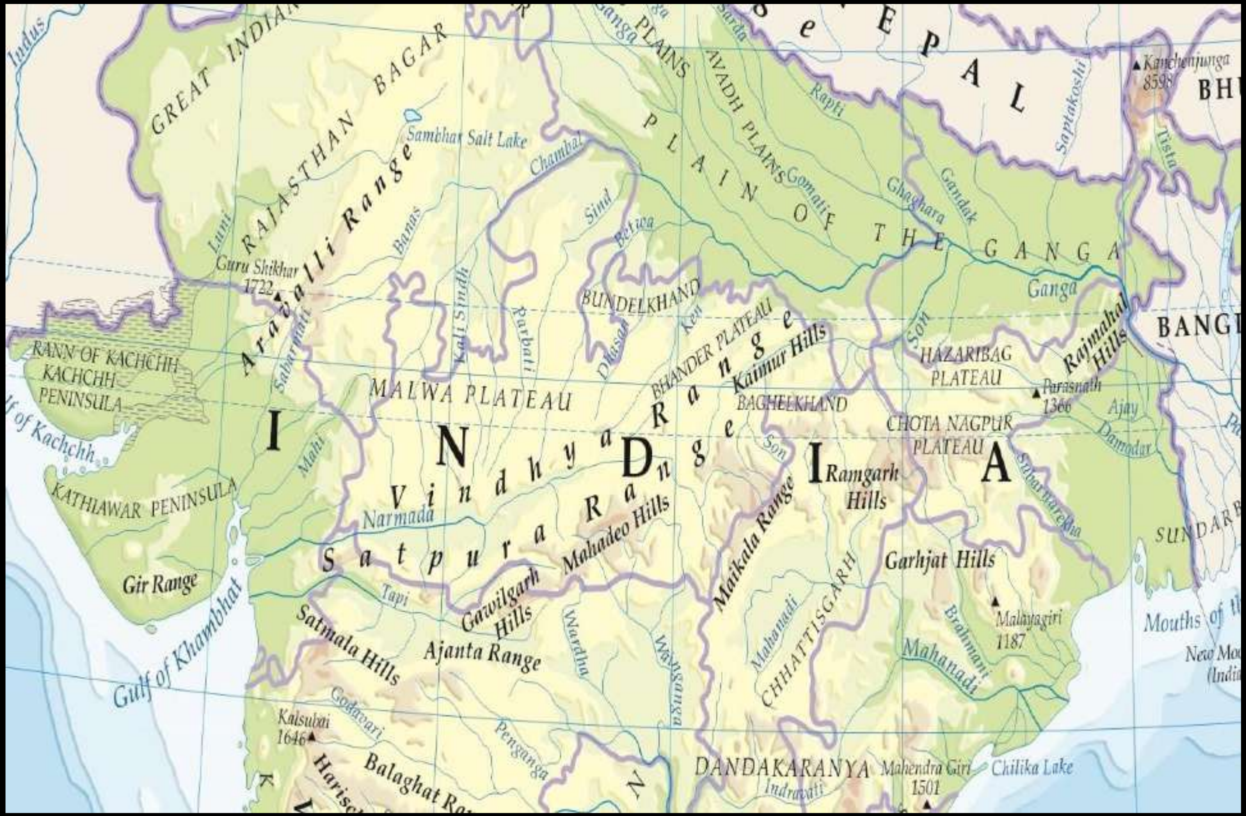
- **Vindhya Mountain –**
- It is an ancient fault/block mountain with an average height of about 600 metres.
- It stretches as Vindhyas, bhandar and kaimur mountains as a series.
- Its highest peak is **Sadbhavana Shikhar (752 m)** located in Damoh district of Madhya Pradesh.

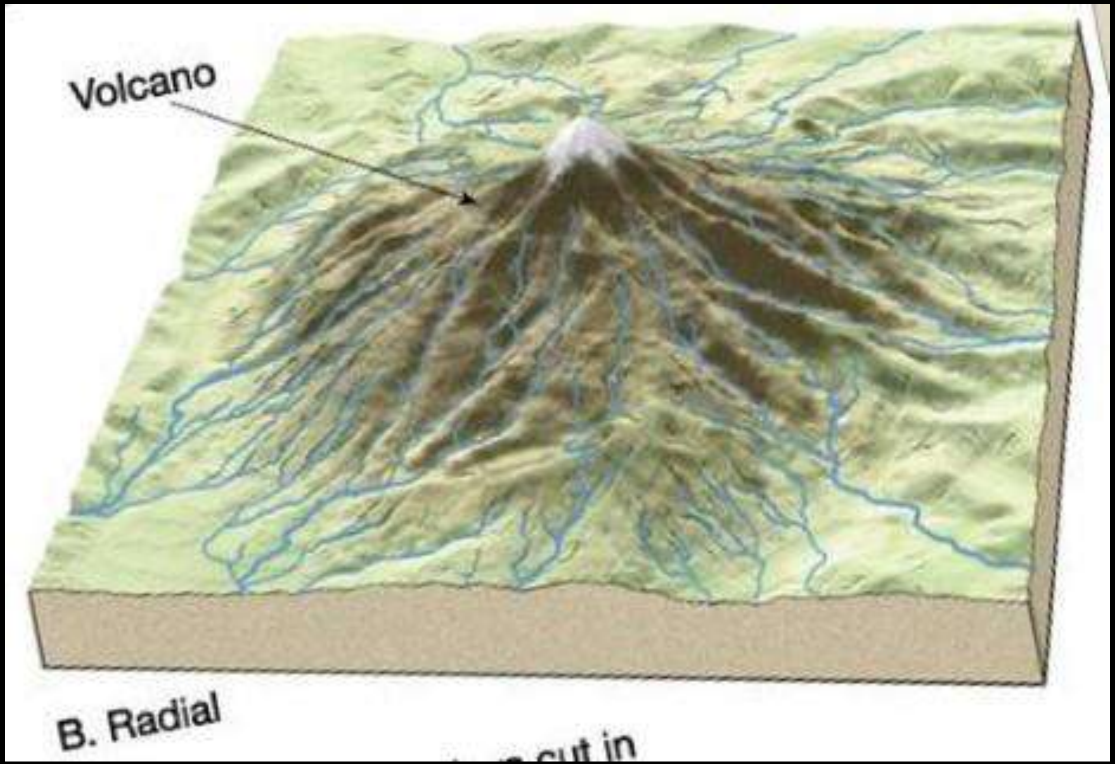




Satpura Mountain –

- It is also an ancient fault / block mountain which extends as a chain.
- This includes Rajpipla, Satpura, Mahadeo, Maikal and Gawilgarh mountains.
- The highest peak of Satpura(Mahadeo) is Dhoopgarh (1352 m) located in Pachmarhi, Hoshangabad district of Madhya Pradesh.
- The Maikal range extends from north to south and its highest peak is Amarkantak, from where 3 rivers - Sone Narmada and Mahanadi – originate(Radial drainage pattern).


NEPAL
GREAT INDIAN
BAGAR
RAJASTHAN
Aravalli Range
Sambhar Salt Lake
Guru Shikhar 1722
PLAIN OF THE GANGA
AVADH PLAINS
BUNDELKHAND
BHANDER PLATEAU
Kaimur Hills
BAGHELKHAND
HAZARIBAG PLATEAU
CHOTA NAGPUR PLATEAU
Rajmahal Hills
Parasnath 1366
RANN OF KACHCHH
KACHCHH PENINSULA
MALWA PLATEAU
INDIA
Vindhya Range
KATHIAWAR PENINSULA
Narmada
Satpura Range
Mahadeo Hills
Maikala Range
Ramgarh Hills
Garhjat Hills
Gir Range
Gulf of Khambhat
Satmala Hills
Gawilgarh Hills
Ajanta Range
CHHATTISGARH
Malayagiri 1187
Mahanadi
Kalsubai 1646
Balaghat Range
DANDAKARANYA
Mahendra Giri 1501
Chilika Lake
Kanchenjunga 8598
Ganga
Tapi
Godavari

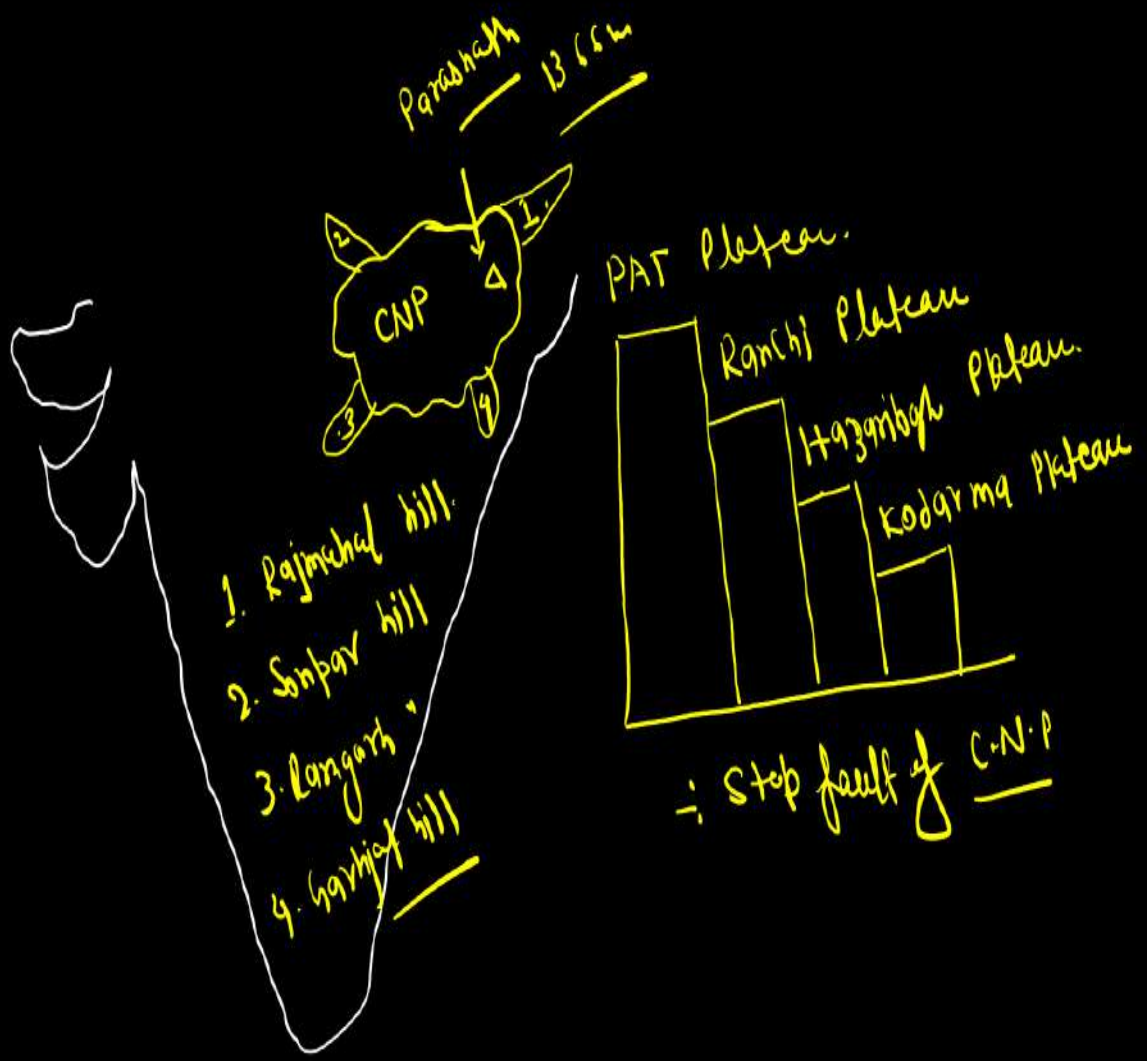

Volcano
B. Radial

Chhota Nagpur Plateau –

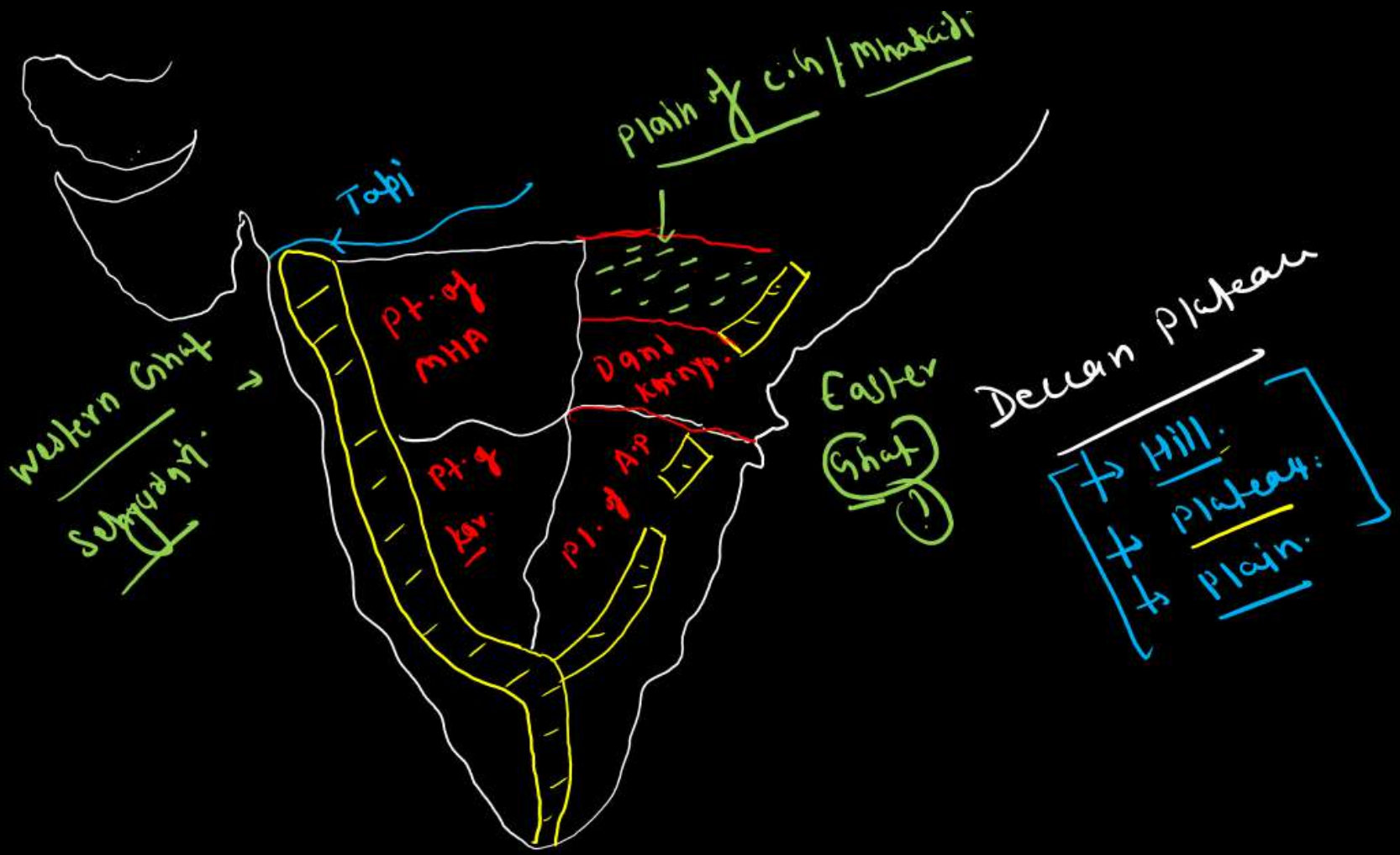
- It is also known as **The Ruhr (**Germany) **of India.**
- It is endowed with huge deposit of coal.
- Step fault has occured here - Pat Plateau, Ranchi Plateau, Hazaribagh Plateau and Koderma Plateau.
- Mica, bauxite, copper and iron also found in abundant.
- Its highest peak is Parasnath (1370 m), located in Giridih district of Jharkhand.

Other Plateau –

- Malwa Plateau (between Aravalli and Vindhya Mountain),
- Bundelkhand Plateau (Madhya Pradesh and Uttar Pradesh),
- Baghelkhand Plateau (Madhya Pradesh)



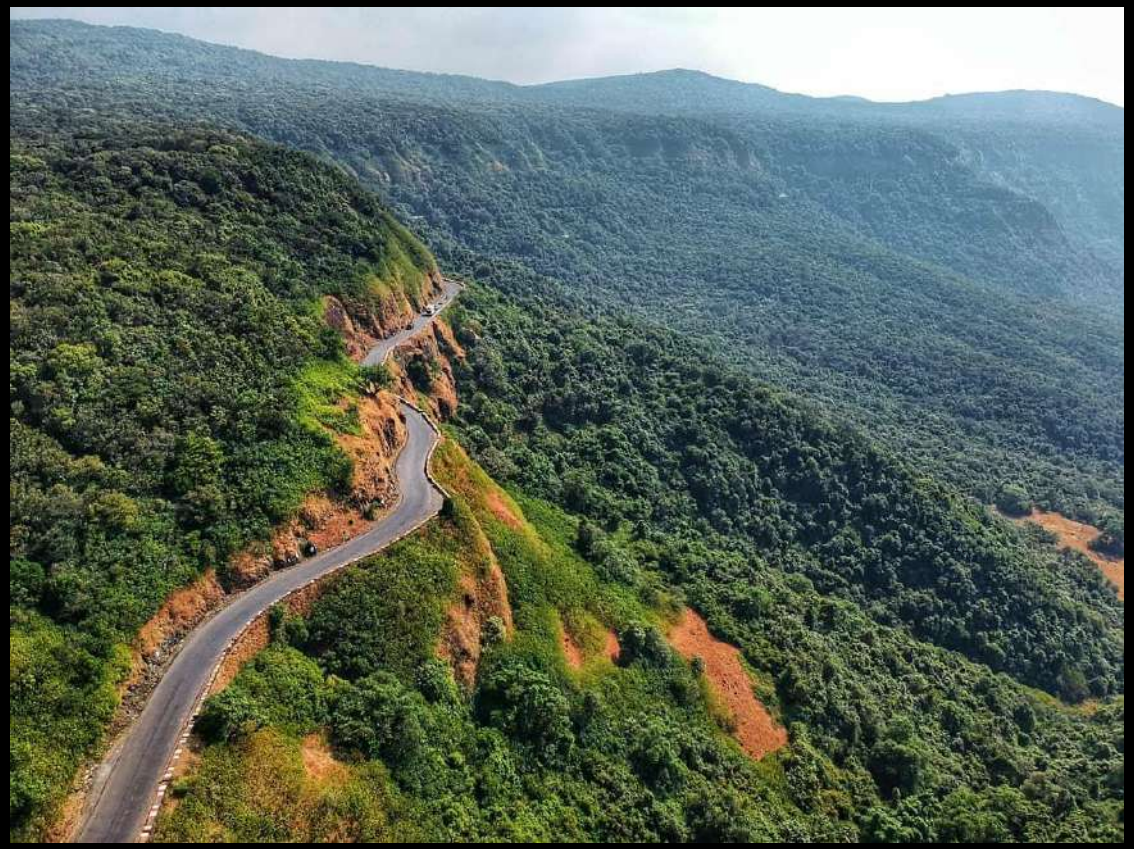
DECCAN PLATEAU



- The major land tract here are:
- **1. Western Ghats :-**
  - Also known as **Sahyadri** which is spread over an area of about 1600 km from Tapi river to Kanyakumari.
  - It is divided into 2 parts:-

A. North Sahyadri-

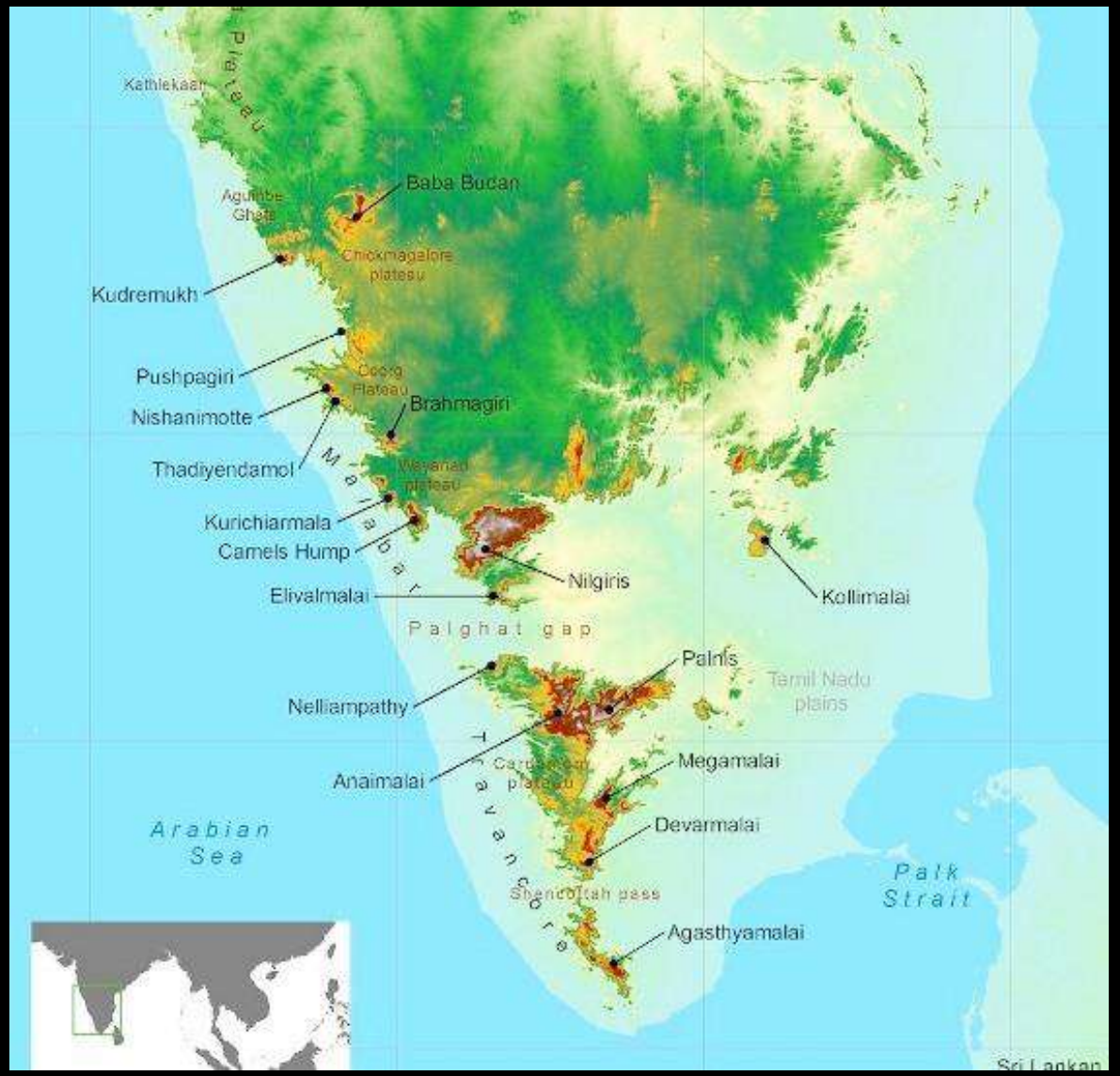
  - It extends from river Tapi to 16 degree North Latitude (Goa).
  - It is composed with Basalt rock mainly.
  - The highest peak here is **Kalsubai(1646 m)** from where the **Godavari river** originates.
  - **Mahabaleshwar peak** is the second major peak from where the Krishna river originates.
  - Notably, southern part of this region is best known for **Alphonso Mango**. It is being cultivated in Konkan region particularly in Sindhudurg and Ratnagiri of Maharashtra.(also in Valsad and Navsari of Gujarat.)
  - There are two passes:
    - **Thal Ghat Pass -** connects Mumbai to Nashik/Nagpur.
    - **Bhorghat Pass -** connects Mumbai to Pune.



2. South Sahyadri -

- It extends from Goa to Kanyakumari.
- It mainly composed of granite & gneiss rocks.
- It is iron ore rich region.
- In Karnataka **Kudremukh peak** (1892m) on the hill of Baba Budan, is the major peak in the region which is famous for iron ore.
- **Nilgiri Mountain** –
  - It is a **mountain knot** where the Eastern Ghats and the Western Ghats meet.
  - Its highest peak is Dodabetta (2637 m) located at Ooty (Udhagamandalam) in Nilgiri district of Tamil Nadu.
  - The area is inhabited by the Toda tribe, famous for peculiar Buffalo culture.
  - Notably Ooty is the only hill station of south India located in T.N.

- **Palghat Pass /Palakkad Gap–**
  - It separates the Nilgiri mountain from the Annamalai mountain in the south.
  - It connects Kozhikode in Kerala to Coimbatore in Tamil Nadu.
- **Anaimalai Hills**
- Also known as **Elephant mountain**
- Anai mudi Peak (2695m), is the highest peak of it and also it is the highest peak of South India, located in Idukki district of Kerala.
- The northern slopes of the hills in Tamil Nadu is the chief region of coffee and tea plantations
- The Western Ghats and Anaimalai Sub-Cluster, including the Anaimalai Hills, have declared UNESCO World Heritage Site.
- Palini hills in east and cardamom hills and varushnad in south originates from it.



- **Cardamom Hill /Yela Mala**
  - Mainly located in Idukki district, Kerala it is famous for cardamom and pepper .
  - The crest of the hills form the boundary between Kerala and Tamil Nadu
- **Varushanad hills**
  - Lies b/w **cardamom hills**
  - Located in TN
  - Vaigai river originates from here
- **Senkota Pass**
  - It is located between Cardamom Hill and Nager coil Hill.
  - The route connecting Thiruvananthapuram in Kerala with Madurai / Tuticorin in Tamil Nadu passes through it.
- **Nager coil Hill**
  - It is the southernmost mountain range in India which is located near Kanyakumari


72°
76°
80°
84°
88°
16°
12°
8°
Ahmadnagar
Mumbai (Bombay)
Pune
DECCAN PLATEAU
Godavari
Brahmapur
Mahendra Hill 1501 m
Solapur
INDIA
Hyderabad
Visakhapatnam
Sangli
Bhima
Kolhapur
WESTERN GHATS
EASTERN GHATS
Eluru
Vijayapura
Krishna
Guntur
Hubballi-Dharwad
Anantapur
Bay of Bengal
ARABIAN SEA
Kommamur Canal
Ballari
Davangere
Jog Falls
KARNATAKA PLATEAU
Kadapa (Cuddapah)
Shivamogga (Shimoga)
Tirupati
Palar
Chennai (Madras)
MALABAR COAST
Kaveri
Bengaluru (Bangalore)
LAKSHADWEEP (INDIA)
Puducherry
COROMANDEL COAST
Palakkad
Coimbatore
Tiruppur
Palghat Gap
Thanjavur
Anai Peak 2695 m
Dindigul
Palk Strait
Kochi
Madurai
Kollam
Tuticorin
Thiruvananthapuram
Tirunelveli
Nagercoil
Cape Comorin
SRI LANKA
Eight Degree Channel
MALDIVES
INDIAN OCEAN
0 100 200 mi
0 150 300 km
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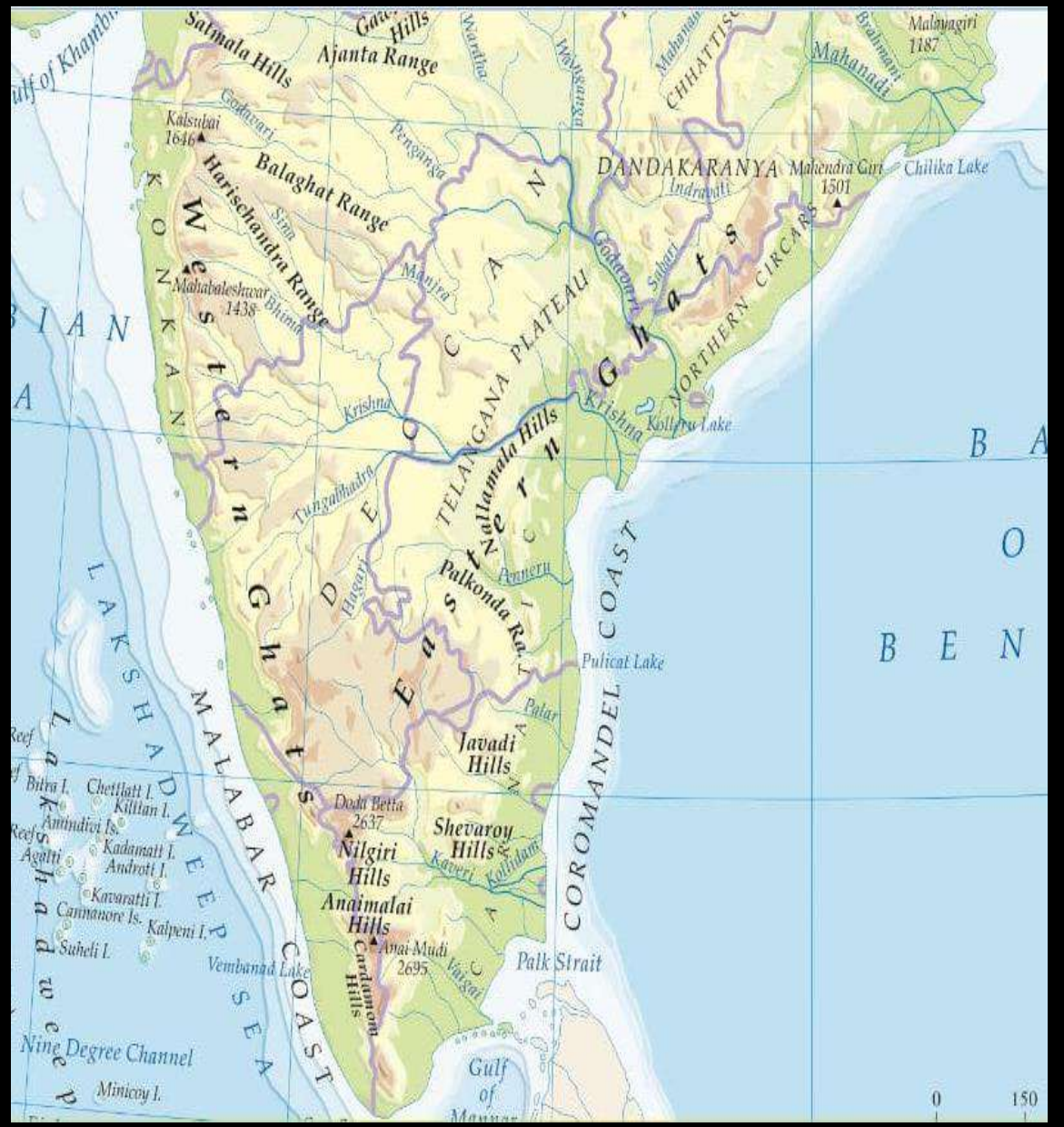
- **Eastern Ghats –**
- It is a chopped and low altitude mountain area with an average height of about 900 m.
- Its highest peak is **jindagada Peak(1690 m)** which is located near Araku Valley in Andhra Pradesh. / Mahendra Giri (1501 m)
- E.G is called
  - **Northern mountain** in the north,
  - **Cuddapah hill** in the middle and
  - **Tamil Nadu hill** in the south.
- Other peaks and extensions of this range are as follows:
- Orissa- Mahendra Giri (1501 m) and Malay Giri
- **Andhra pradesh – Erramala, Nalla malla hills, Velikonda range, Palconda range ,aroyakunda peak , deodi munda peak ,(S->N)**
- **Tamil Nadu- Nagari hills , Jawadi Hill, Shivarai Hill, Panchmalai Hill, (S->N)**



View from MahendraGiri Top

- **Deccan Plateau –**
  - It is divided into several small plateaus on a regional basis, which is as follows:
    - Plateau of Maharashtra (Pt of vidharbha)
    - Plateau of Karnataka (Pt. of Bengaluru; Seshachalam hills- Red sandal)
    - Plateau of Andhra Pradesh (Plateau of Telangana and Rayalaseema)
    - Plateau of Dandakaranya (In Bastar district of Chhattisgarh, highest peak Bailadila, iron ore area)
- **The plain of Chhattisgarh-**
  - It is made up of alluvium brought by the Mahanadi river and its tributary and is a very fertile area. It is also known as the rice bowl of India.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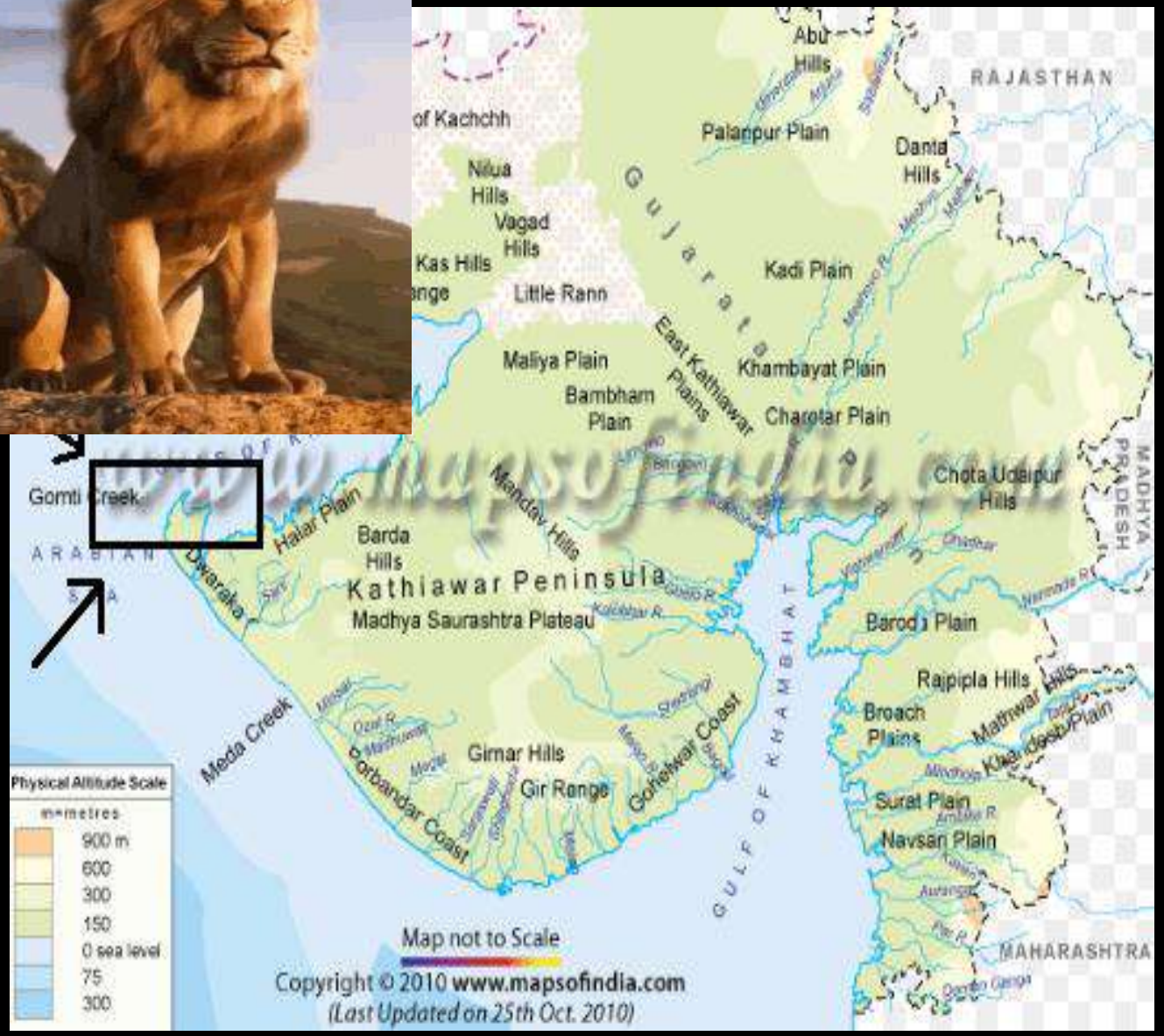
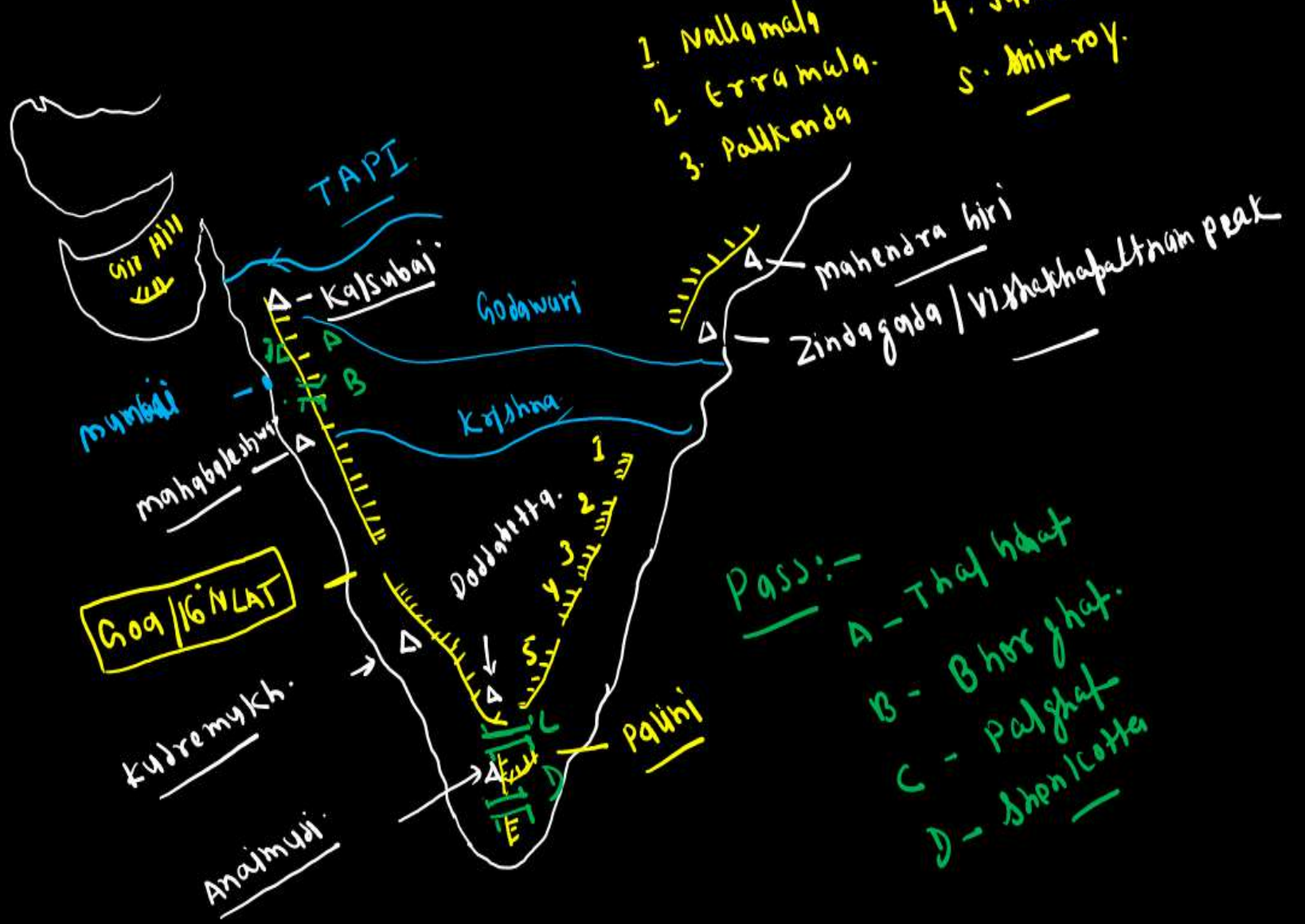
3. Shillong Plateau/Shillong Purvanchal Plateau

- It is an extension of the Plateau,
- Locally known as
  - the Garo,the Khasi and the Jaintia Hills in the Meghalaya,
  - Mikir hills, Rengma hills, Karbi-Anglong Plateau and North Cachar Hills in Assam.
- It is separated by a fault called Malda gap from the Chotanagpur Plateau.
- Garo Khasi and Jayantia hill are funnel shaped, receiving the highest rainfall in the world.
- **Mawsynram** receives highest rainfall in the world located in Meghalaya.

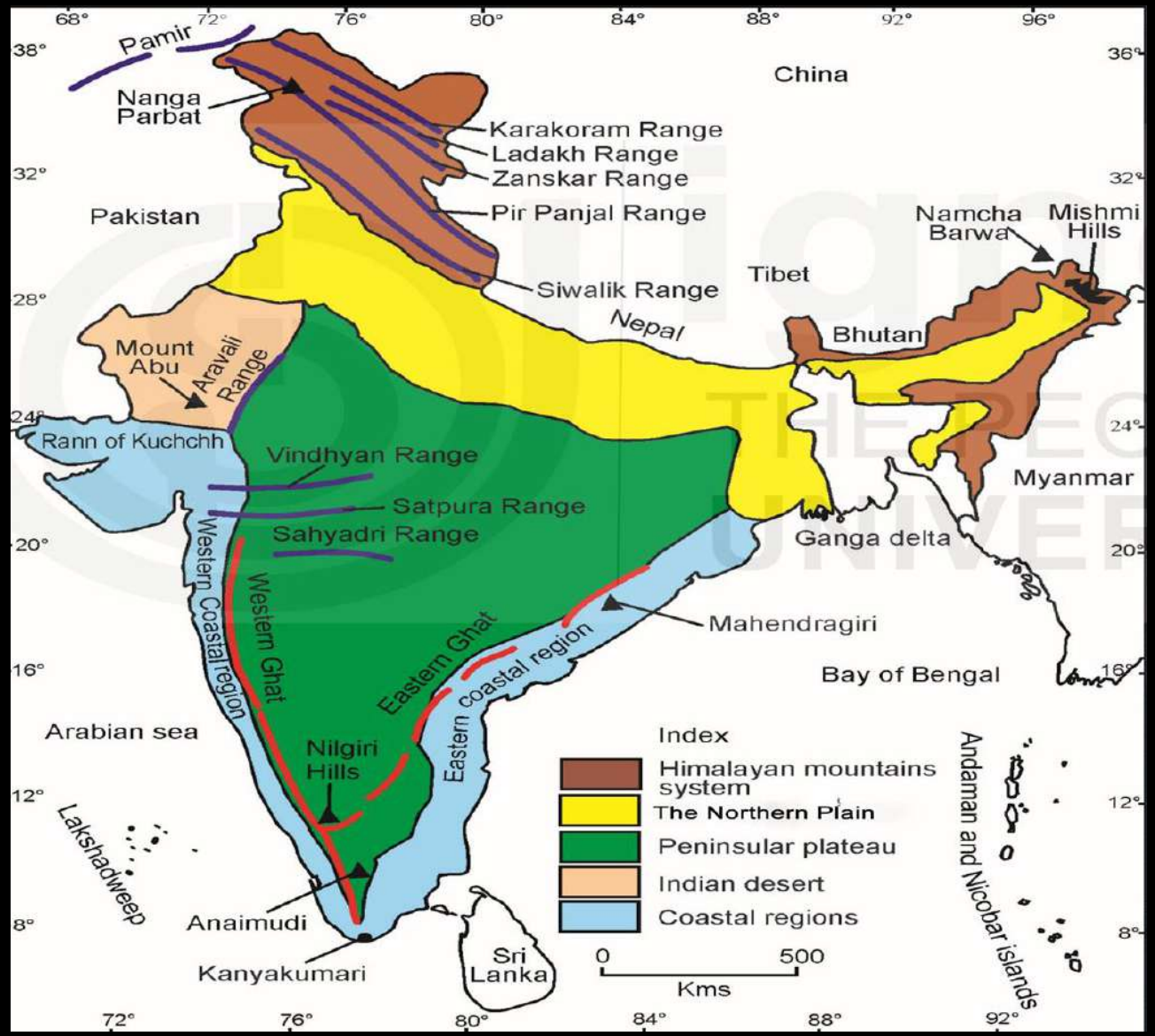


Kathiawar Peninsula

- Located in the western part of **Gujarat**
- Part of the **Peninsular Plateau**.
- Includes
  - **Mandava Hills** - central part.
  - **Girnar Hills-** the highest point of the peninsula, are of **volcanic origin** and hold significant religious importance for **Hindu** and **Jain pilgrims**.
  - **Gir Range-** Southern part, famous for the **Gir National Park**, which is the last natural habitat of the **Asiatic Lion**.


1. Nallamala
2. Erramala.
3. Pallkonda
4. Javali
5. Shiveroy.
TAPI
Gir Hill
Kalsubai
Godawari
Mahendra Giri
Zindagada / Vishakhapatnam peak
Mumbai
Krishna
Mahabaleshwar
Doddabetta.
Goa / 16°N LAT
Kudremukh.
Palini
Anaimudi
Pass:-
A - Thal ghat
B - Bhor ghat.
C - Palghat
D - Shenkotta

COASTAL PLAIN



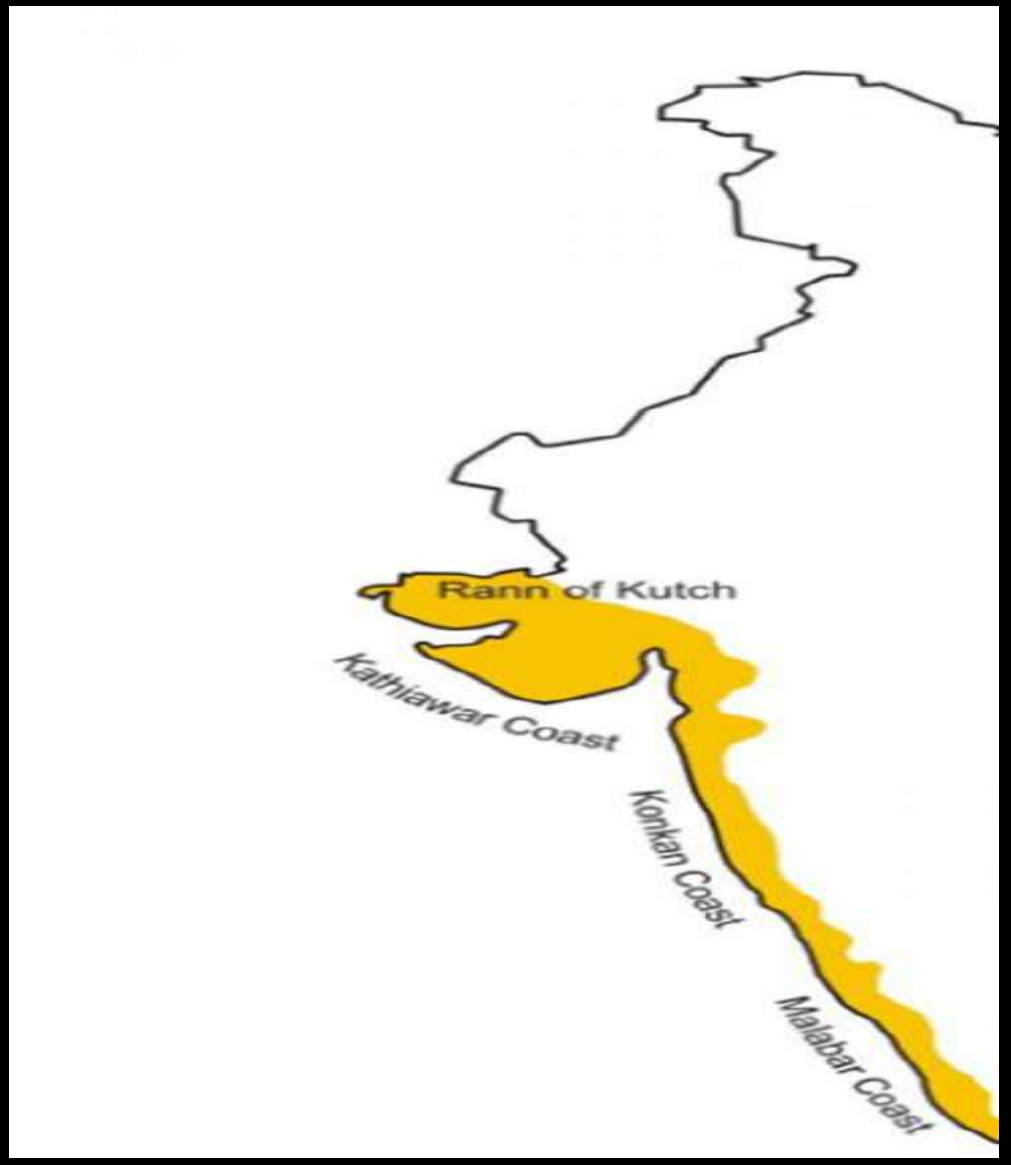
COASTAL PLAIN

- A coastal plain is a flat, low-lying tract of land next to the ocean.
- It is a narrow strips of plain lands, stretching to the east and west of the peninsular plateau.
- **It runs about 3000 km. from the Rann of Kachchh in the West to the Ganga Brahmaputra Delta in the East** .
- It formed due deposition of sediments brought by peninsular rivers and ocean waves.
- Plain may be **divided into two zones** –
  - The East Coastal Plain
  - The West Coastal Plain.
    - Both meet each other at **Kanyakumari.**
    - The western coast is narrower and digitated, While East Coast is more extensive and wider.


INDIA
PHYSICAL MAP
TAJIKISTAN
AFGHANISTAN
PAKISTAN
CHINA (TIBET)
NEPAL
BHUTAN
BANGLADESH
MYANMAR (BURMA)
DELHI
Great Indian Desert (Thar Desert)
Rajasthan Bagar
Aravalli Range
Indo-Gangetic Plain
Bundelkhand
Vindhya Range
Satpura Range
Ajanta Range
Deccan Plateau
Chota Nagpur Plateau
Ganga Hazaribagh Plateau
Mahadeo Hills
Kaimur Hills
Ramgarh Hills
Garhjat Hills
Mahanadi
Hirakud Dam
Mouths of the Ganges
Bay of Bengal
Arabian Sea
Andaman Sea
INDIAN OCEAN
SRI LANKA
LAKSHADWEEP (INDIA)
ANDAMAN & NICOBAR ISLANDS (INDIA)
Nilgiri Hills
Cardamom Hills
Malabar Coast
Coromandel Coast
Palk Strait
Gulf of Mannar
Cape Comorin
International Boundary
State Boundary
Country Capital
River
Mountain Peak
Map not to Scale
Copyright © 2021 www.mapsofindia.com

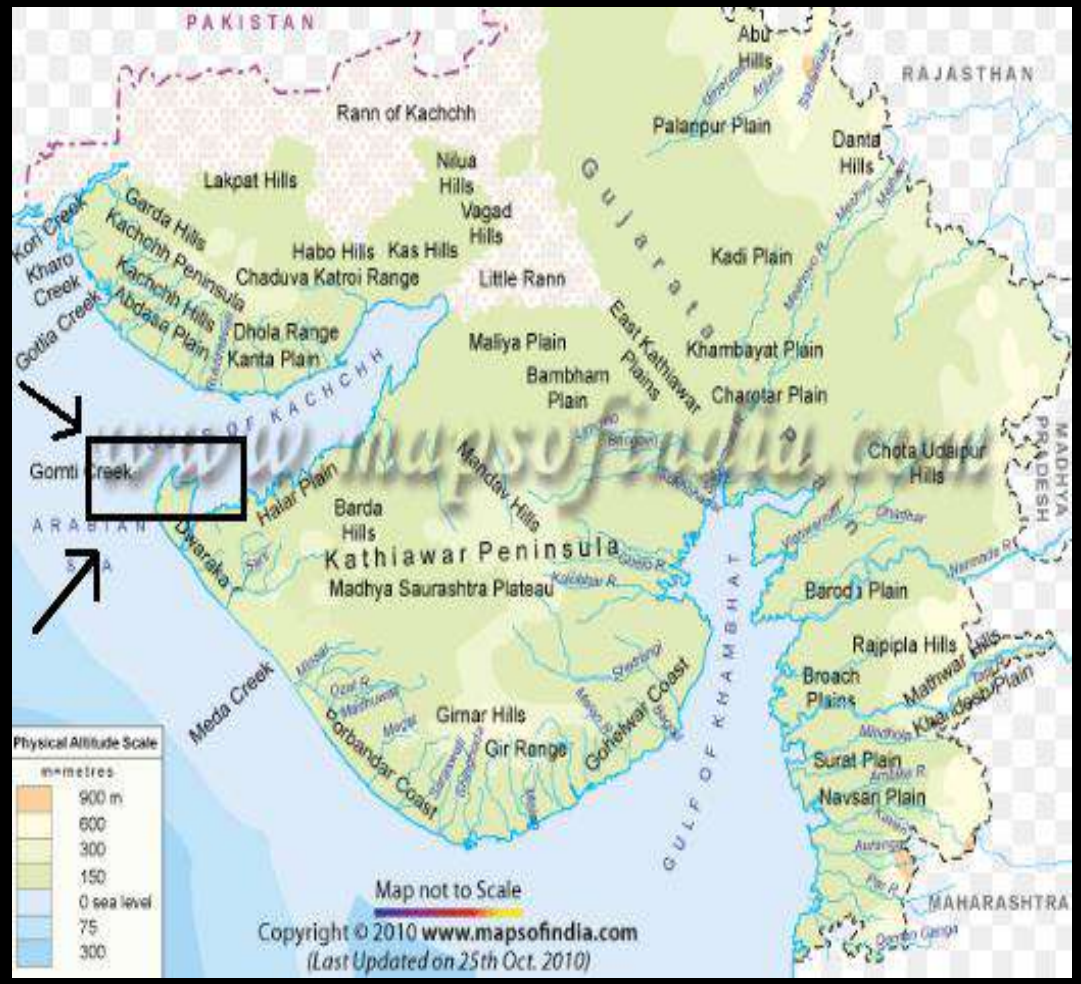
Western Coastal Plain

- Stretching from **Rann of Kachchh** to **Kanyakumari** for about 1,**500 km**.
- These are narrow coastal plains with an average width of about 65 km.
- It is sandwiched between the Western Ghats and the Arabian Sea.



Division of Western Coastal Plain

- On a regional basis, it is divided into following parts :
- A. **Gujarat Plain -**
- It includes Plains of Kutch and Kathiawar/Kathiawar (the saurashtra region).
- The area from Dwarka to Diu in the plains of Kathiawar is called **Porbandar coast** and the area from Diu to Daman is called **Gohilwar coast.**
  - Girnar (1,117m) is the highest point (volcanic origin)
  - Gir Range is located in the southern part of this region.Famous for Gir lion.



Plains of Kutch

- The **Plains of Kutch** in **Gujarat** are known for their large **salt marshes** and the famous **white desert**.
- This **dry** region well known for the **Banni grasslands,** the **Wild Ass Sanctuary**, the **Kharai camels (**can **swim** through the salty waters**).**
- The plains have **tidal creeks (sir creek)** and are part of the **Indus delta**, with many **salt pans** and **mangrove forests**.

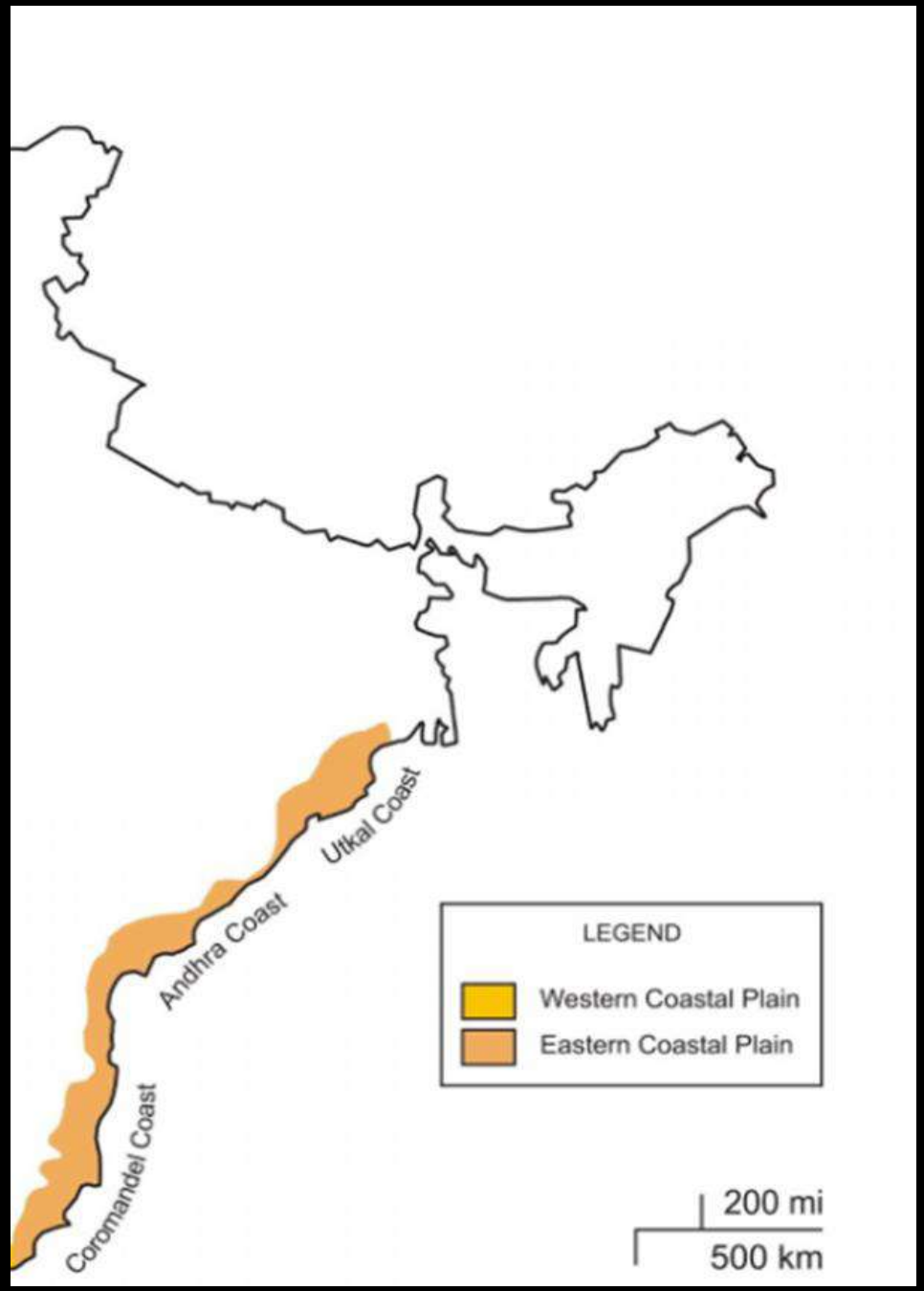
- The **Konkan Coast** extends from **Maharashtra** to **Goa (**Daman to Goa **)**.
- Known for its **rocky cliffs**, **sandy beaches**, and lush **greenery**, it experiences heavy **monsoon** rains.
- The region is famous for **rice**, **coconut**, and **Alphonso mangoes**.
- Rivers like **Mandovi** and **Zuari** flow through, supporting **fishing** and trade.
- The coast is a hub for **ports**, with **Mumbai** and **Goa** being major maritime centers and popular tourist spots.

- The **Kannada Coast**, also known as the **Kanara Coast** or **Karavali Coast**, is stretches from Goa (**Karwar** part) to **Mangalore** in the south in the state of **Karnataka.**
- This region is characterized by **sandy beaches**, **rocky cliffs**, **estuaries**, and **mangrove forests**.
- Major rivers like the **Sharavathi**, **Kali**, and **Netravati** flow through the coast, supporting **fishing** and **agriculture**.
- The Kannada Coast is known for its **cashew**, **coconut**, and **paddy** farming, as well as its rich **cultural heritage** and **temples**.

- The **Malabar Coast** stretches from Mangalore to Kanyakumari in Kerala covering about **600 kilometers**.
- This region is known for its **lush greenery**, **sandy beaches**, and **backwaters.**
- **The blackwaters, locally known as Kayals are the shallow lagoons or inlets of the sea.**
- **Vemaband Lake is largest lake in this region. Which is 75km long and 5-10km wide and is the longest lake in India. Vallam Kali also known as Nehru Trophy Boat Race is a Snake Boat Race held every year in the month of August in Vembanad Lake. Another important lake is Ashtamudi Lake**
- It features rich agriculture, producing **spices, coconuts,** and **rubber**.. Popular tourist destinations include **Kochi**, **Kumarakom**, and **Wayanad**, known for their scenic beauty and unique ecosystems.

Eastern Coastal Plain

- It extends from **Subarnarekha River** (along the West Bengal Odisha border) to **Kanyakumari** for about
- The East Coast has comparatively a **broader plains** compared to the Western Coast with and **average width 120 km**
- It is formed by deposits of sediments brought by major rivers rising from peninsular India such as Mahanadi Godavari and Krishna River.



Division of Eastern Coastal Plain

- Utkal coast
- It extends from **deltic plains of Ganga** to the **Mahanadi delta** for about **400 km**, Mainly in Orissa (from **Balasore** to **Ganjam**. .
- The coast is a crucial breeding ground for the **Olive Ridley turtles**, known for their mass nesting events at **Gahirmatha** beach.
- The coast has fertile alluvial plains drained by **Mahanadi.**
- Known for its beautiful **sandy beaches**, **rocky cliffs**, and lush **estuaries.**
- Rich in cultural heritage, the region features famous sites such as **Puri** and **Konark.**
- It includes **Chilka Lake** which is biggest lake in the country .

Coast of Andhra Pradesh

- It extends from the **Southern limit of Utkal Plains** to **Pulicat Lake** (Andhra Pradesh.)
- It includes :-

A Northern Circars Coast –

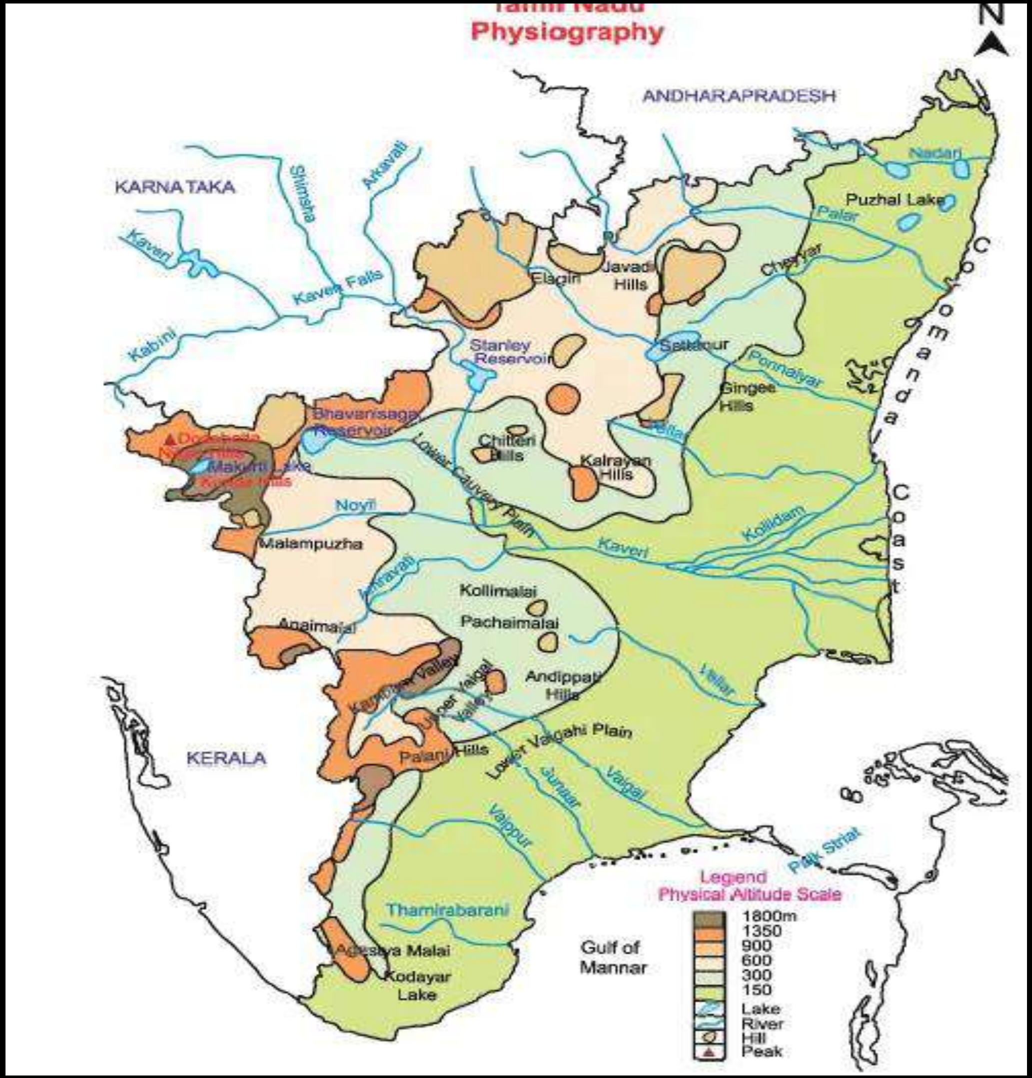
- In Andhra Pradesh, mainly between **Mahanadi** and **Krishna**

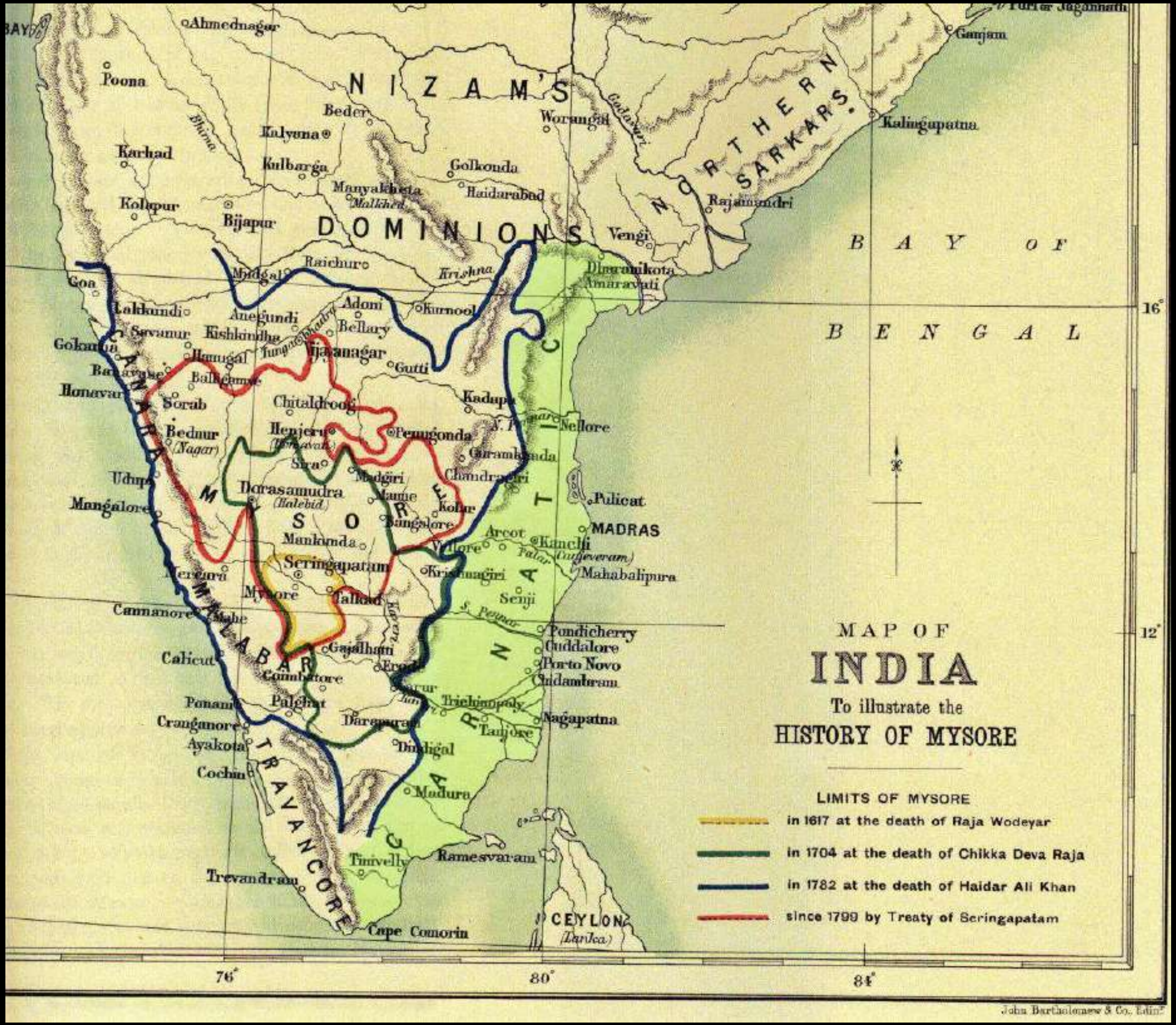
B Carnatic Cost

- Between **Krishna** and **Cauvery**

Coast of Tamilnadu

- It extends form **Pulicat Lake** to **Kanyakumari** for about **657 km**.
- **Coromandel Coast** is a part of this plain the that runs from Point Calimere to the mouth of the Krishna River.
- It has deltaic plains of Cauvery and is popularly called as the **Granary of South India**.


Physiography
ANDHARAPRADESH
KARNATAKA
KERALA
Shimsha
Arkavati
Kaveri
Kaveri Falls
Kabini
Puzhal Lake
Palar
Javadi Hills
Elagiri
Cheyyar
Stanley Reservoir
Sathanur
Ponnaiyar
Gingee Hills
Bhavanisagar Reservoir
Chitteri Hills
Kalrayan Hills
Lower Cauvery Plain
Noyil
Malampuzha
Kaveri
Kollidam
Kollimalai
Pachaimalai
Anaimalai
Andippatti Hills
Vellar
Palani Hills
Lower Vaigai Plain
Vaigai
Vaippur
Palk Strait
Thamirabarani
Agasthya Malai
Kodayar Lake
Gulf of Mannar
Coromandal Coast
Legend
Physical Altitude Scale
1800m
1350
900
600
300
150
Lake
River
Hill
Peak

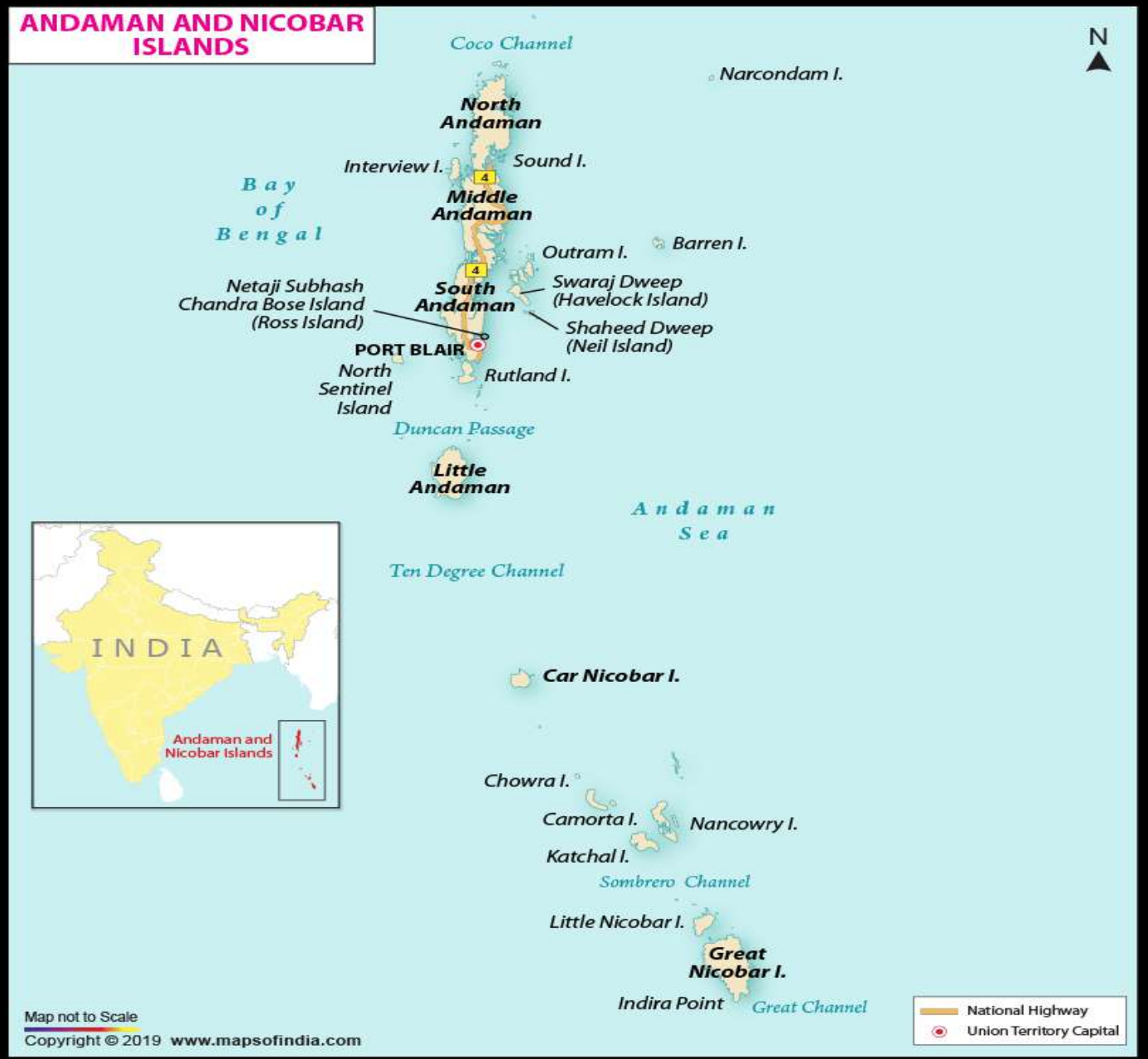

NIZAM'S DOMINIONS
NORTHERN SARKARS
BAY OF BENGAL
MYSORE
CANARA
MALABAR
TRAVANCORE
CARNATIC
MADRAS
Pondicherry
Seringapatam
Bangalore
Mangalore
Calicut
Cochin
Cape Comorin
CEYLON (Lanka)
MAP OF INDIA
To illustrate the
HISTORY OF MYSORE
LIMITS OF MYSORE
in 1617 at the death of Raja Wodeyar
in 1704 at the death of Chikka Deva Raja
in 1782 at the death of Haidar Ali Khan
since 1799 by Treaty of Seringapatam
76°
80°
84°
16°
12°
John Bartholomew & Co. Edin.

riv.
- Suvarn rekha
W.B.
Odisha
Bengal coast
Utkal coast
Chilka lake
Dwarka
Porbandar coast
Guj
Daman
MHA
Riv. Krishna
A.P
Diu
Northern Circars coast
Gohilwar coast
Goa
KAR
Konkan coast
Carnatic coast
Coromandel coast
Kannad coast
Mangalore
Point Calimere
Riv.
- Kaveri
T.N
Malabar coast
Kanyakumari

ISLANDS OF INDIA

- Based on the location, the Islands of India are divided into two categories:
  - **Islands of the Bay of Bengal (off-shore islands & Andaman and Nicobar Islands)**
  - **Islands of the Arabian Sea (off-shore islands & Lakshadweep)**

1. Islands of Bay of Bengal-



Andaman and Nicobar Islands

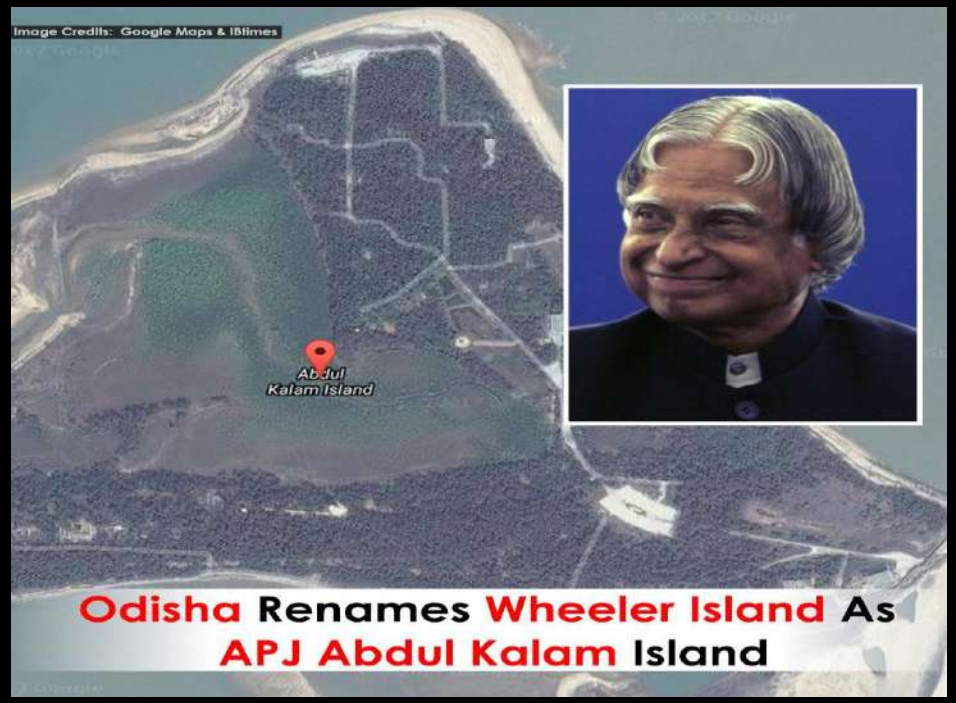
- It is considered to be an extension of the Arakan Yoma Mountain located in Myanmar.
- It is a group of island consisting total 572 islands.
- The Andaman group is in the order from north to south - Landfall Island (northern most), North Andaman, Middle Andaman, South Andaman and Little Andaman.
- **Middle Andaman** is the largest island.
- **Saddle Peak (737 m)** is the highest peak of the Andamans, located on the **North Andamans**.
- The capital **Port Blair** (sri viajaya puram) is located on the **southern Andamans** and was located here cellular jail / kala pani.
- **Duncan Passage** separates the North Andamans from the Little Andamans.
- There are three volcanic islands – Barron (A.V.) ,Narcondam(D.V.) and Baratang (Mud V.)
- **The 10 degree channel** is located between Little Andaman and Nicobar.

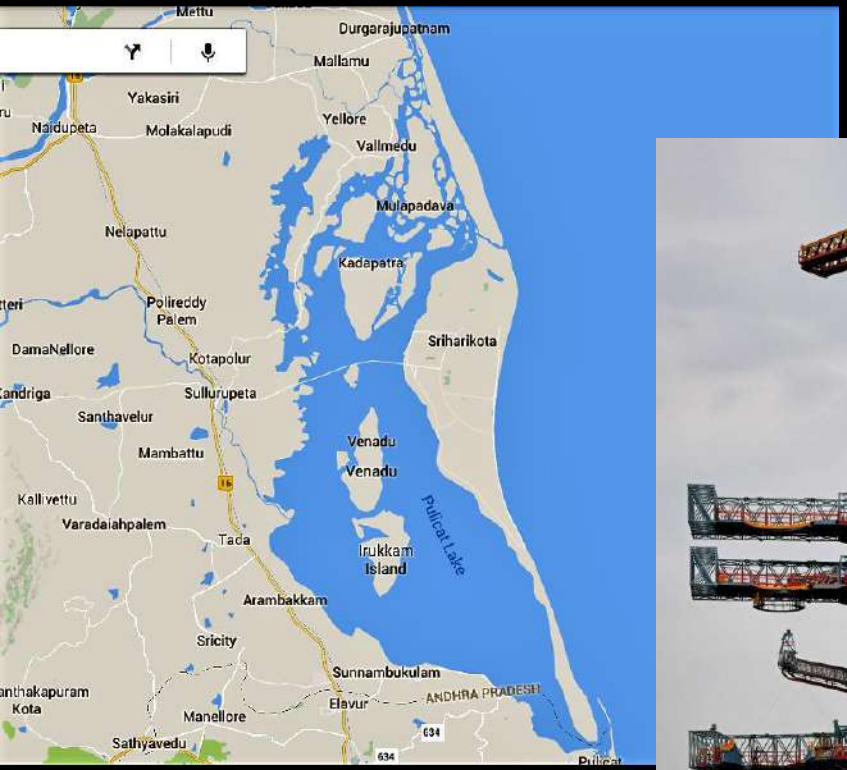
- The **Nicobar Islands** comprises Car Nicobar, Nankovari, Little Nicobar and Great Nicobar in the north to south order.
- Indira Point, also known as The Pygmalion Point, was located on Great Nicobar.
- The largest island in the Nicobar Group is **Great Nicobar.**
- The Andaman and Nicobar Islands are inhabited by many tribes belonging to the Negrito group - **the Ong, Jarawa and Sentinel tribes.**

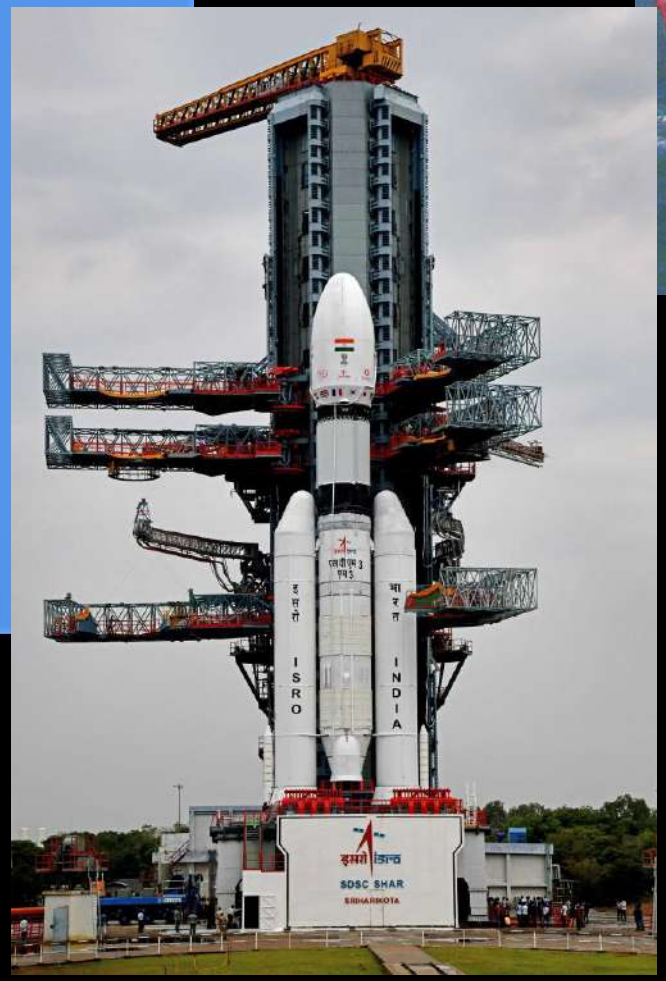
Other islands of the Bay of Bengal are:

New Moore Island

- **New Moore Island** - Disputed between India and Bangladesh
- **Sagar Island** - Near West Bengal
- **Abdul Kalam Island** - Missile testing site of DRDO, Old Name Wheeler Island, near Odisha coast



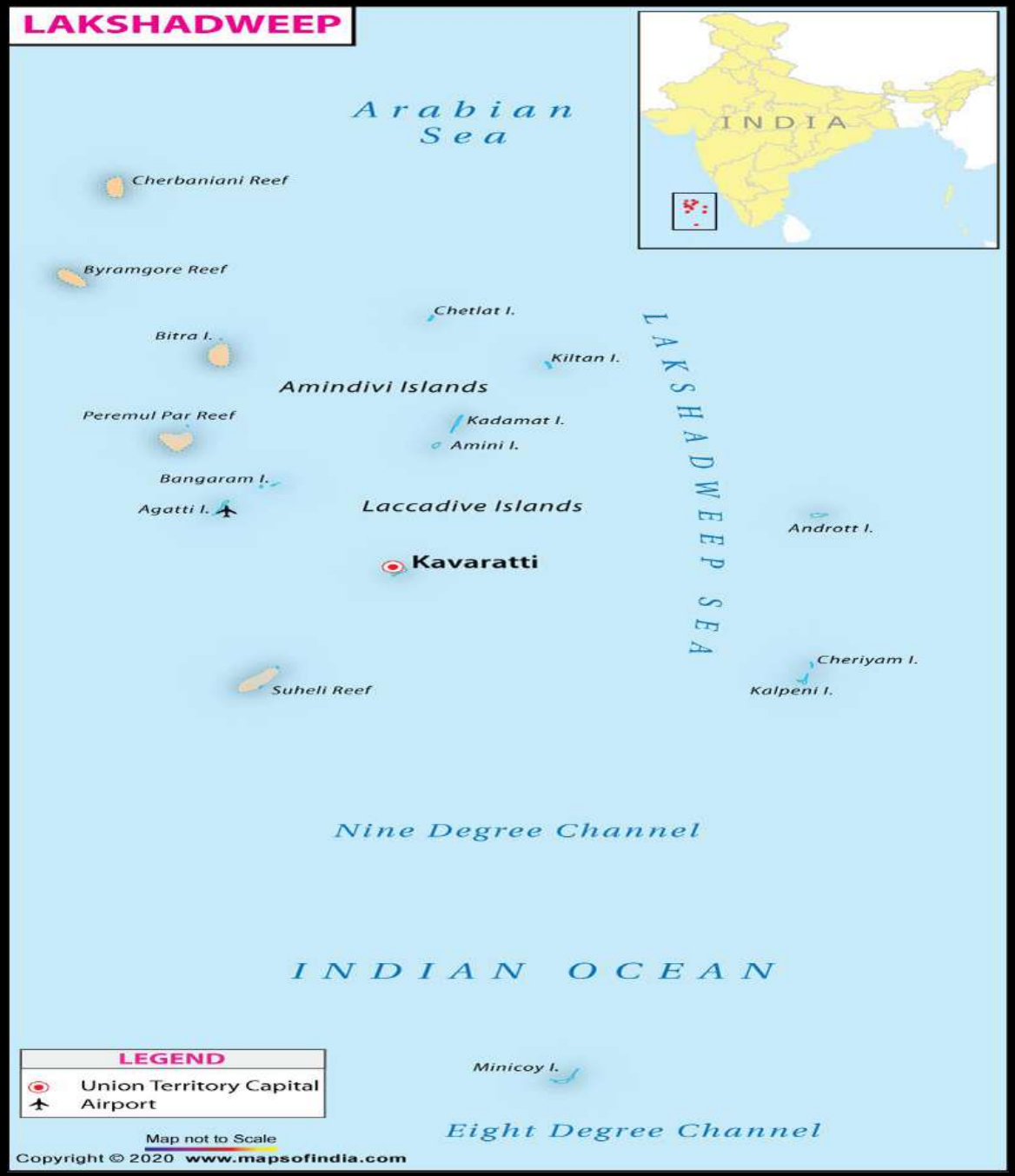




- **Sriharikota Island** - In Andhra Pradesh, on the banks of Pulicut Lake, ISRO's Satish Dhawan Space Centre (SDSC) (satellite launching centre)
- **Pamban Island** - In Tamil Nadu, also known as Rameswaram Island
- **Vivekananda Rock** - Near Kanyakumari, in Tamil Nadu.

Lakshadweep

- It is a coral-made island with about 36 islands.
- Earlier they were known as Amindivi (Northern), Laccadive (Middle) and Minicoy.
- In 1973, these were named as Lakshadweep
- Official Languages :- Malayalam English
- Spoken lang.:- Jeseri, Dhivehi
- The capital of Lakshadweep is Kavaratti located on the Laccadive group.

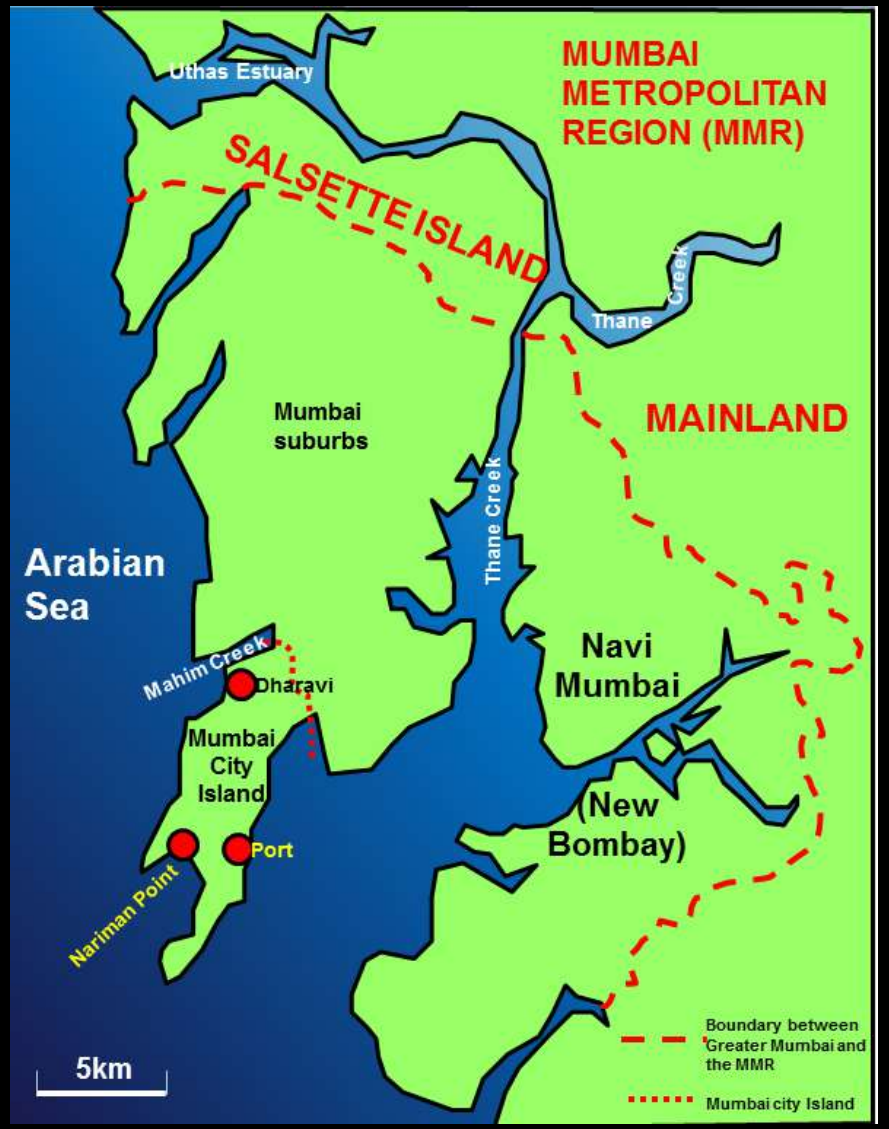


- Largest island :- Androtт
- An airport :- Agatti
- A bird sanctuary - Pitti island (uninhabited)
- The **9 degree channel** is located between Minicoy and Laccadive (intermediate).
- The **8 degree channel** separates Minicoy from Maldives.

Other Islands of Arabian sea

- **Bet Dwarka** - Gujarat, Gulf of Kutch
- **Piroton Island** - Gujarat, Gulf of Kutch
- **Piram** - Gujarat, Gulf of Khambhat
- **Aliya Bet** :- is the delta of the Narmada river and is the habitat of nomadic Tribe JAT MALDHARI. in the Arabian Sea; located in the Gulf of Khambhat. (Aaliya comes from Â‘aalÂ’, the main grass found on this island.)

- Buchad island - Maharashtra , Jawaharlal Nehru Island , Oil Terminal
- Elephanta - Maharashtra, Shiva Temple
- Salset Island - Maharashtra, Mumbai and Thane, the most populous island
- Netrani - Karnataka , Tourist Destination
- Wellington - Kerala, largest artificial island



Importance of islands

Ecological importance	Due to far reaching location islands are the undisturbed location and have become the place of rich biodiversity. Andaman and nicobar island is known for blue whale, dugong, saltwater crocodile and many more species.
Commercial role	located on the cross-road of marine transport network, island plays the roll of halt or resort of vessel. Port Blair is an Entrepot of India.
Strategic role	island provide base in high sea and facilitates defence unit to surveillance and petrol in remote region.
Tourism	over the past few decade as tourism has get its momentum and become a part of humane activity. Islands has become the new hot- spot of tourism.
Resources	Not only the territorial part of island but surrounding ocean is full of mineral and aquatic resources. To harness such resources Indian government has rolled out DOM (deep ocean mission).
Energy	Island are the potential destination of different kind of energy like – wind, ocean wave, OTEC and tidal energy.
Cultural aspects	Thousands of ancient tribe still reside on remote islands. For example- Ong, Jarwa , sentinel, and nicobari tribe that belong to Negrito group settled in Andaman and nicobar.

Off-shore island of India

- FACULTY NAME:
  - KANHAIYA JHA
- SUBJECT:
  - GEOGRAPHY