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UPSC – CDS

Combined Defence Services (CDS)

Union Public Service Commission (UPSC)

Volume - 4

Indian and World Geography & Science

SIERRA INNOVATIONS

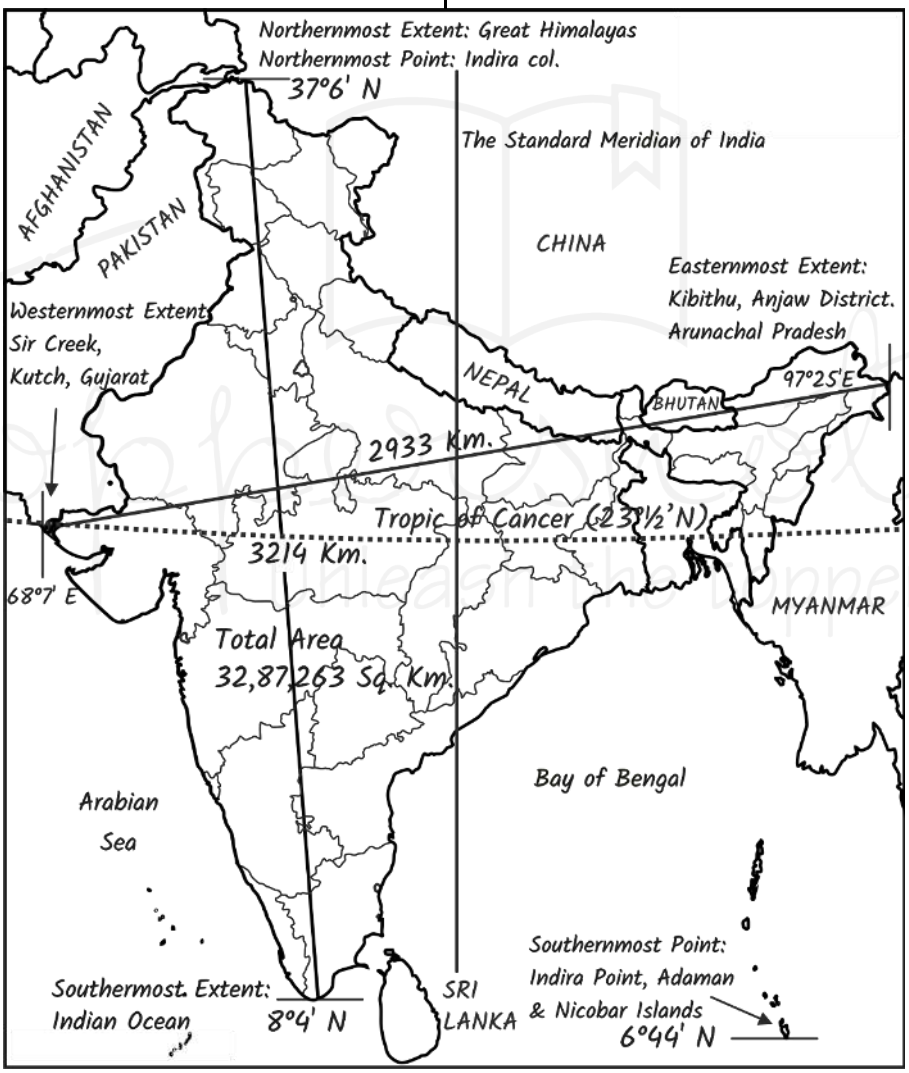
Table of Content

1 CHAPTER India-Size & Location

INDIA being one of the oldest and greatest civilizations of the world is also a melting pot of culture. Its culture and socio economy is shaped by its diverse geographical features.

India is the seventh largest (2.42% area of the world) and most populated (17.5% population of theworld) country in the world.

India is bordered by the Great Himalayas in the north and extends southward, gradually narrowing as it reaches the Tropic of Cancer. From there, it tapers off into the Indian Ocean, lying between the Bay of Bengal to the east and the Arabian Sea to the west.



- Situated in the northern hemisphere
  - ✓ Latitudinal Extent (3214 Km): 8°4'N to 37°6'N
  - ✓ Longitudinal Extent (2933 Km): 68°7'E to 97°25'E

- The southernmost point of the country is the **Pygmalion Point** or **Indira Point** is located in Andaman and Nicobar islands.
- The northernmost point of the country is Indira Col. It is located in Jammu and Kashmir.
- North-south extent from **Indira Col in Kashmir to Kanniyakumari is 3,214 km.**
- East-west width from the **Rann of Kachachh to Arunachal Pradesh is 2,933 km.**
- Area: 32,87,263 sq. km
- Total land boundary = 15,200 km.
- Total coastline= 7516.6 Km (Mainland India + Islands)
  - ✓ Without islands = 6100 Km

Tropic of Cancer passing through the states : Gujarat, Rajasthan, Madhya Pradesh, Chattisgarh, Jharkhand, West Bengal, Tripura and Mizoram. (total 8)

1. Bordering Countries:

North-west	➢ Afghanistan (Durand Line) and Pakistan (Radcliffe line)
North	➢ China (borderline called: McMahon line), Bhutan and Nepal
East	➢ Myanmar, Bangladesh (Longest boundary)
South	➢ Sri Lanka (Separated by Palk Strait & Gulf of Mannar)

2. States sharing International borders:

Bangladesh	5 States: **West Bengal, Mizoram, Meghalaya, Tripura, and Assam (**4096 km)
China	4 States andl UT: Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh and Ladakh (3488 km)
Pakistan	3 States and 2 UTs: Punjab, Gujarat, Rajasthan and J&K and Ladakh (3323 km)
Nepal	5 States: Uttar Pradesh, Bihar, Uttarakhand, Sikkim, West Bengal (1751 km)
Myanmar	4 States: Arunachal Pradesh, Manipur, Mizoram, and Nagaland (1643 km)
Bhutan	4 States: Arunachal Pradesh, Assam, Sikkim, and West Bengal (699 km)
Afghanistan	1 UT: Ladakh (106 km)

- Indian Standard Meridian
  - ✓ 82°30'E, Mirzapur(UP) - India's Standard Meridian.
  - ✓ Ahead of Greenwich Mean Time by 5 hours and 30 minutes.
  - ✓ States through which Indian Standard Meridian Passes: Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Odisha and Andhra Pradesh.
- Coastal states of India (9):West Bengal, Odisha, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Goa, Maharashtra, and Gujarat.

3. Various Channels and their Location

- Ten Degree Channel
  - ✓ Separates the Andaman Islands from the Nicobar Islands.
- Nine Degree Channel
  - ✓ Separates Minicoy island from the Lakshadweep archipelago.
- Eight Degree Channel
  - ✓ Maritime boundary between the Maldives and India.
  - ✓ Separates the islands of Minicoy and Maldives.
  - ✓ Traditionally known as MalikuKandu and MāmalēKanduDivehi.

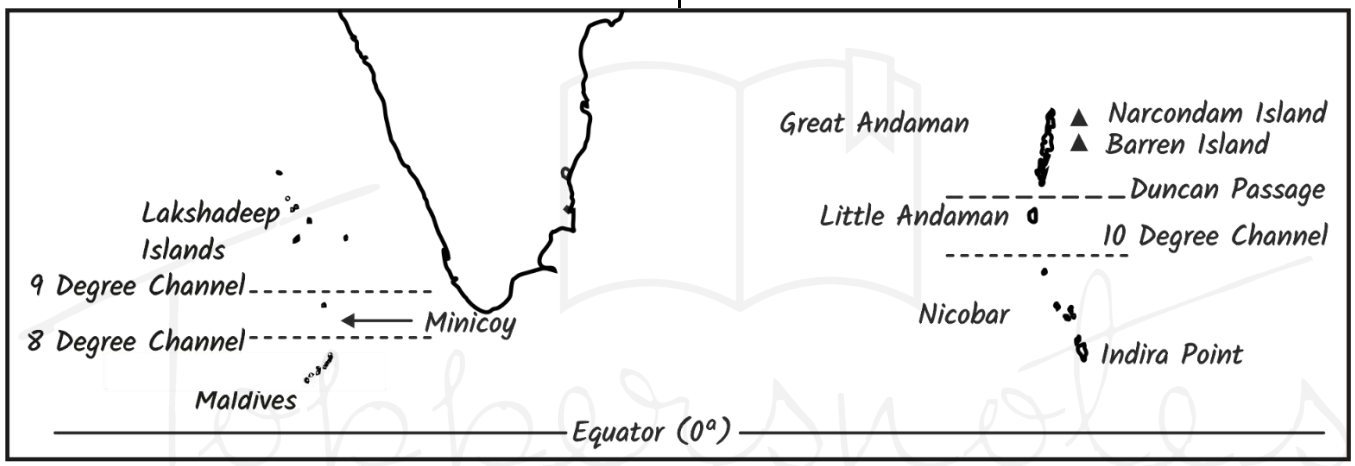
Trick to remember

MaMi-8, LakshMi-9,Andman Nicobar-10

Ma – Maldives

Mi – Minicoy

Laksh – Lakshdweep



Duncan Passage:

- Located in between Great Andaman and Little Andaman.

4. Important Facts-

- Largest state (by area)-Rajasthan.
- Smallest state (by area) - Goa.
- Uttar Pradesh surrounded by a maximum number of states (8 States and 1 UT)-Uttarakhand, Himachal Pradesh, Haryana, Rajasthan, M.P, Jharkhand, Bihar and Chhattisgarh and Delhi.
- Godwin Austin (K2) is the highest point of Country.

2 CHAPTER India- Broad Physical Features and Physiographic & Location

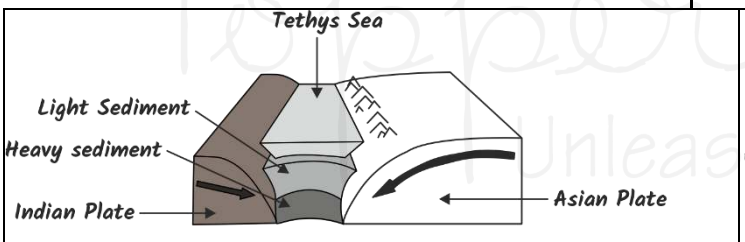
India is a large landmass formed during different geological periods which has influenced her relief. Besides geological formations, a number of processes such as weathering, erosion and deposition have created and modified the relief to its present form.

India has all major physical features of the earth i.e. mountains, plains, deserts, plateau and islands On the basis of physical features, India is divided into 6 physiographic divisions:

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

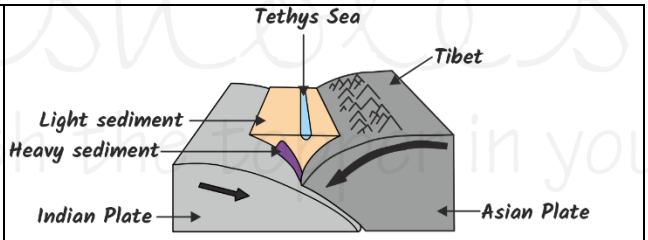
I. Himalayan Mountains

The Himalaya in one of the youngest mountains, The formation of Himalaya started approximately 60 millions years ago, the process and stages of Himalaya formation is depicted in the following pictures.



Sixty Million Years Ago

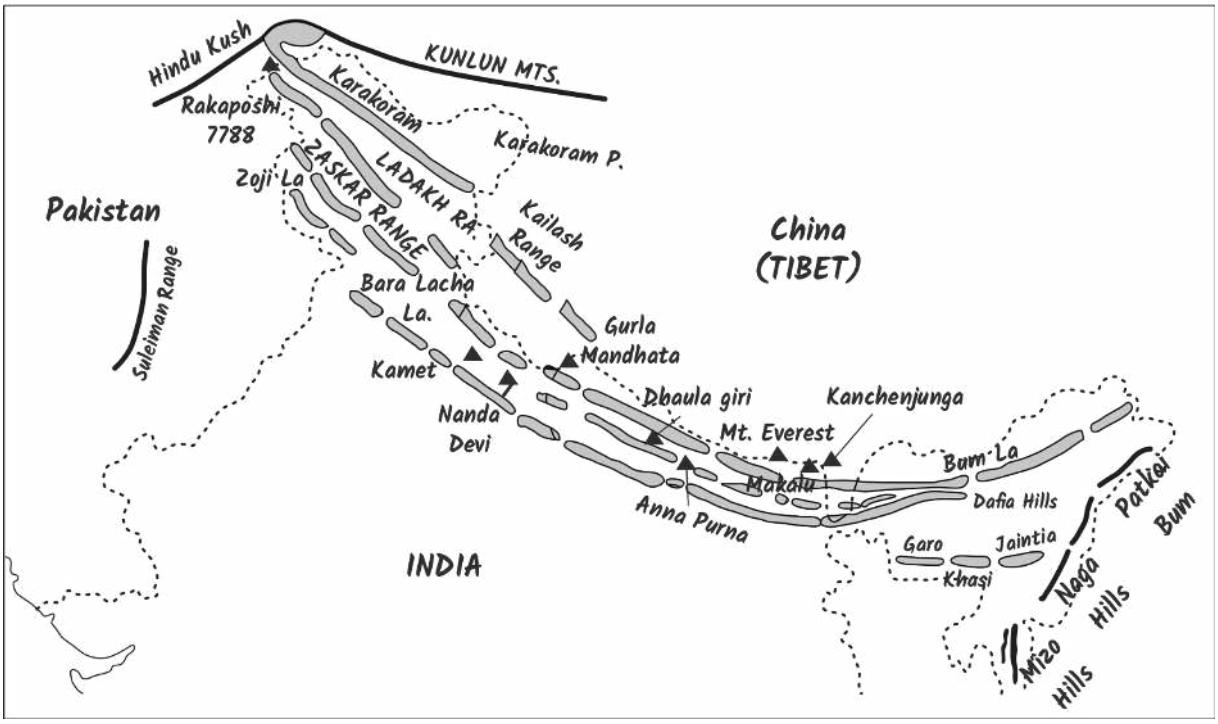
Indian plate collided into the Asian Plate. This movement led to the formation the Himalayan Range, as the two plates push against each other and the earth's crust is squeezed upwards.



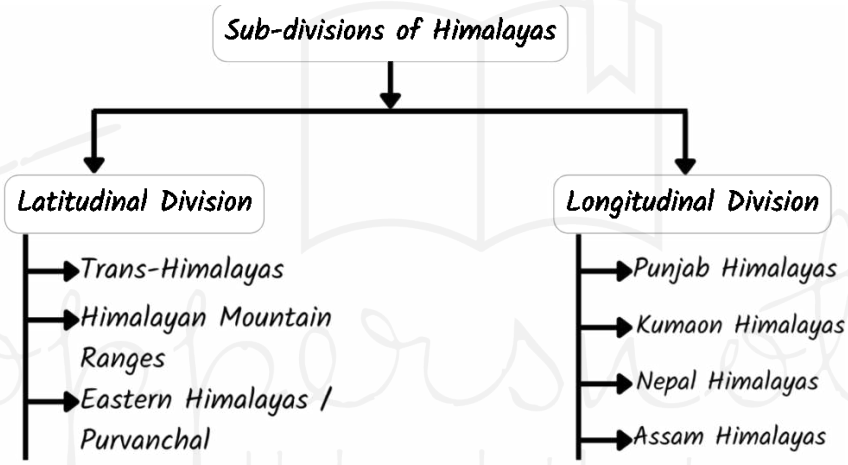
Forty Million years Ago

Heavy Sediments on the ocean floor sink under the Asian Plate, slowly closing up the Tethys Sea. The Indian Plate is submerging even deeper into Tibet.

- Highest and the youngest fold mountain ranges of the world.
- Length: runs west-northwest to east-southeast in an arc 2,400 km long.
  - Western anchor: Nanga Parbat
  - Eastern anchor: Namcha Barwa
- Width: 400 km - 150 km (Wider in the west narrower in the east).
- Altitudinal variations are greater in the eastern half than those in the western half.



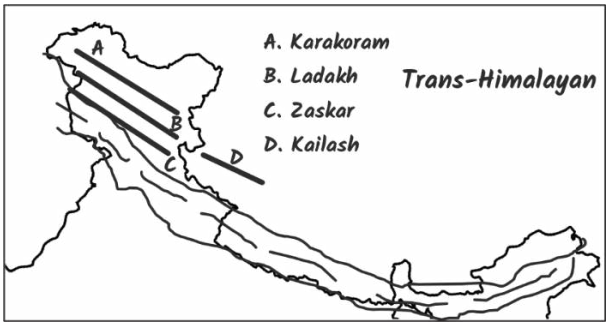
1.1 Sub Divisions of the Himalayas



Latitudinal division of Himalayan:

(i.)Trans Himalayas-

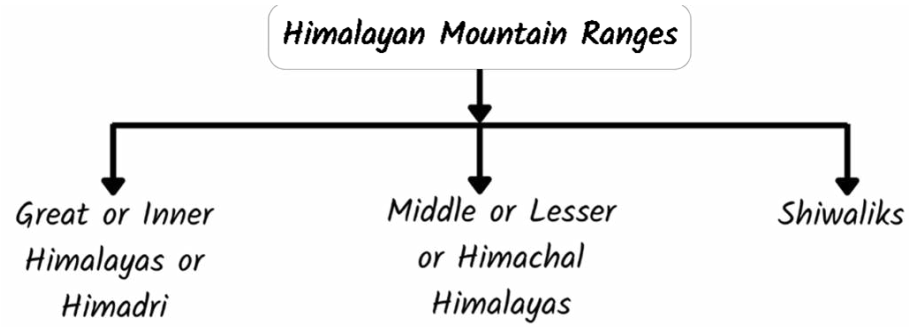
- Location: North of Great Himalayas
- Also known as Tibetan Himalaya because most of it lies in Tibet.
- The Trans-Himalayan ranges begin at the Pamir Knot.
- The region is dry and arid, characterized by a lack of vegetation. This is primarily due to its location in the rain shadow of the Main Himalayas, which limits rainfall and contributes to the arid conditions.
- Length- 1,000 km in east-west direction
- Average elevation- 5000 m above mean sea level.
- Average width - 40 km- 225 km (extremities – central part).
- Prominent ranges:



Karakoram Range	➢ Northernmost and highest range of the Trans-Himalayas in India. ➢ Also known as Krishnagiri range. ➢ Extends eastwards from Pamir Plateau to Mount Kailash. ➢ It forms India's boundary with Afghanistan and China. ➢ Mainly located in Kashmir and Ladakh and famous for Alpine glaciers like Baltoro, Siachin, Batura, Remo glaciers. ➢ Highest peak: Godwin Austin (K2) (8611 m) (Highest mountain peak of India). ➢ Nubra valley is located b/w Karakoram and Ladakh ranges.
Ladakh Range	➢ Southernmost extent of Karakoram range. ➢ Highest Peak – Mt. Rakaposhi (7788 m) ➢ Merges with the Kailash range in Tibet. ➢ Ladakh is the highest plateau found in India
Zaskar Range	➢ It is Southernmost range of Trans Himalayas ➢ Extention: from the Suru valley to the Karnali river. ➢ Highest Peak- Kamet ➢ Major rivers- Hanle, Khurna, Zanskar, Suru (Indus), and Shingo Rivers
Kailash Range	➢ Offshoot of the Ladakh Range. ➢ Highest peak - Mount Kailash (6714 m). ➢ Mansarovar lake located south of Mount Kailash. ➢ River Indus originates here.

(ii.) Himalayan Mountain Ranges

➢ It lies south of the Trans Himalayas and is the longest and highest mountain range of the Northern mountains. It is divided into three parts.



(i) Great or Inner Himalayas or Himadri

- It is the northen most range of the main Himalayas.
- Average height - 6000 m and width is between 100 to 200 km.
- Extension - Mt. Nanga Parbat to Namacha Barwa (2400 km). It is one of the longest -running Fold mountain ranges in the world. It is also the only Himalaya range that maintains its continuity from west to east.
- Features: High relief, deep gorges, vertical slopes, symmetrical convexity, and antecedent drainage.
- Composed of metamorphic and sedimentary rocks.
- Slope of this range is gentle towards north and steep towards the south.
- Major glaciers - Rongbuk glacier (largest in the Himadri), Gangotri, Zemu etc.
- Separated from lesser Himalayas by longitudinal valleys filled with sediments known as Doons. Eg. Patli Dun, Chaukamba Dun, DehraDun etc.

NOTE: DehraDun is regarded as the largest Dun having length of about 35 to 45 kilometers and a width of about 22-25 kilometers.

Some Highest Peaks of the Himalayas

Peak	Country	Height in metres
Mt. Everest	Nepal	8848
Kanchenjunga	India	8598
Makalu	Nepal	8481
Dhaulagiri	Nepal	8172
Nanga Parbat	India	8126
Annapurna	Nepal	8078
Nanda Devi	India	7817
Kamet	India	7756
Namcha Barwa	India	7756
Gurla Mandhata	Nepal	7728

(ii) Middle/ Lesser/ Himachal Himalaya:

- Most rugged mountain system and Lies b/w the Shiwaliks in the south and the Greater Himalayas in the north.
- Rocks in this zone have been metamorphosed due to violent thrusts and compression. Therefore, this range mainly consists of metamorphosed rocks.
- Average altitude - 3,700 - 4,500 metres and average width - 50 to 80 Km.
- Ranges – Pir panjal, Dhauladhar, Nag Tibba.
- Famous valley of Kashmir, the Kangra and Kullu Valley in Himachal Pradesh are also a part of the Himachal ranges.
    - Well known for its hill stations like Shimla, Mussoorie and Darjeeling.

- These ranges are cut across by the Jhelum and Chenab river.
- Pir Panjal in Jammu and Kashmir and Dhauladhar in Himachal Pradesh are the local names of this range.
- The south-facing slopes of this range are steep and generally devoid of vegetation. The north-facing gentle slopes of this range are covered by dense vegetation.
- Temperate Grassland found in these range are known as Murg (Gulmurg, Sonmurg) in Kashmir and Bugyal and Payar in Uttarakhand.
- Karewa-Thick glacial deposits found in Kashmir valley useful for saffron cultivation.

Important ranges of Lesser Himalayas	Region
Pir Panjal Range	J&K (south of Kashmir Valley)
Dhauladhar Range	Himachal Pradesh
Mussoorie Range and Nag Tibba Range	Uttarakhand
Mahabharat Lekh	Nepal

(iii) Shiwaliks:

- Also known as Outer Himalayas and located b/w Great Plains and Lesser Himalayas.
- Altitude- 600-1500 metres.
- Length- 2,400 km - Potwar Plateau to Brahmaputra valley.
- Width - 50 km - 15 km (Himachal Pradesh -Arunachal Pradesh).
- Almost unbroken except for 80-90 km - valley of Tista and Raidak River.
- Covered with thick forests from North-East India up to Nepal.
- Highly dissected by seasonal streams called – Chos.
- Flat valley found between Shiwalik and Middle Himalayas are called Duns in west and Duars in the east, very useful for rice cultivation.
- Different names:

Name of Shiwaliks	Region
Jammu Hills	Jammu
Dafla, Miri, Abor and Mishmi Hills	Arunachal Pradesh
The Dhang Range, Dudhwa Range	Uttarakhand
Churia Ghat Hills	Nepal

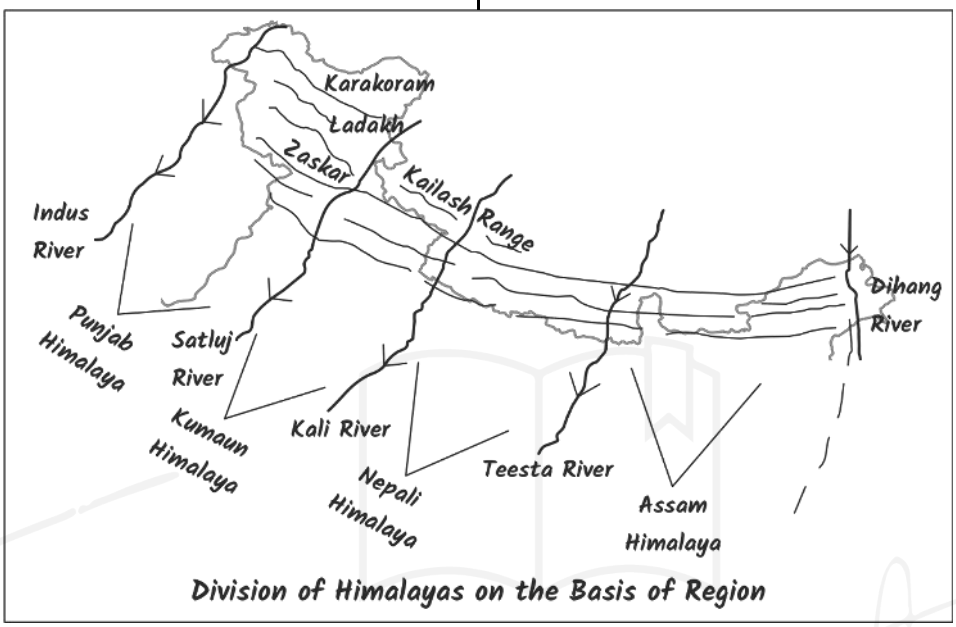
(iv) Purvanchal

- These ranges have general alignment from the north to the south direction.
- In the north, they are known as Patkai Bum, Naga hills, the Manipur hills and in the south as Mizo or Lushai hills.
- Have loose, fragmented sedimentary rocks like shale, mudstone, sandstone, quartzite

- These are low hills, inhabited by numerous tribal groups practising Jhum cultivation. It is also one of the Biodiversity Hotspots in the world.
- The Barak is an important river in Manipur and Mizoram.
- Mizoram which is also known as the 'Molassis basin' which is made up of soft unconsolidated deposits.

1.3 Longitudinal Division / Regional Division of Himalayas

Divided by Sir Sidney Burrard on the basis of the river valleys: 4 parts



Division of Himalayas on the Basis of Region

(i) Punjab Himalayas:

- Located between Indus and Satluj river. It is also called as Kashmir or Himachal Himalayas.
- Length- 560 kms and Width - 320 kms
- Zaskar range:- northern boundary and Shiwaliks:- Southern boundary
- Formed by the Lacustrine deposits (Karewas- helpful in growing saffron- from Pulwama to Pampore) of Jhelum.
- Major ox-bow lakes - Wular lake, Dal lake, etc.
- Important pilgrimage places- Vaishnodevi,Amarnath cave.

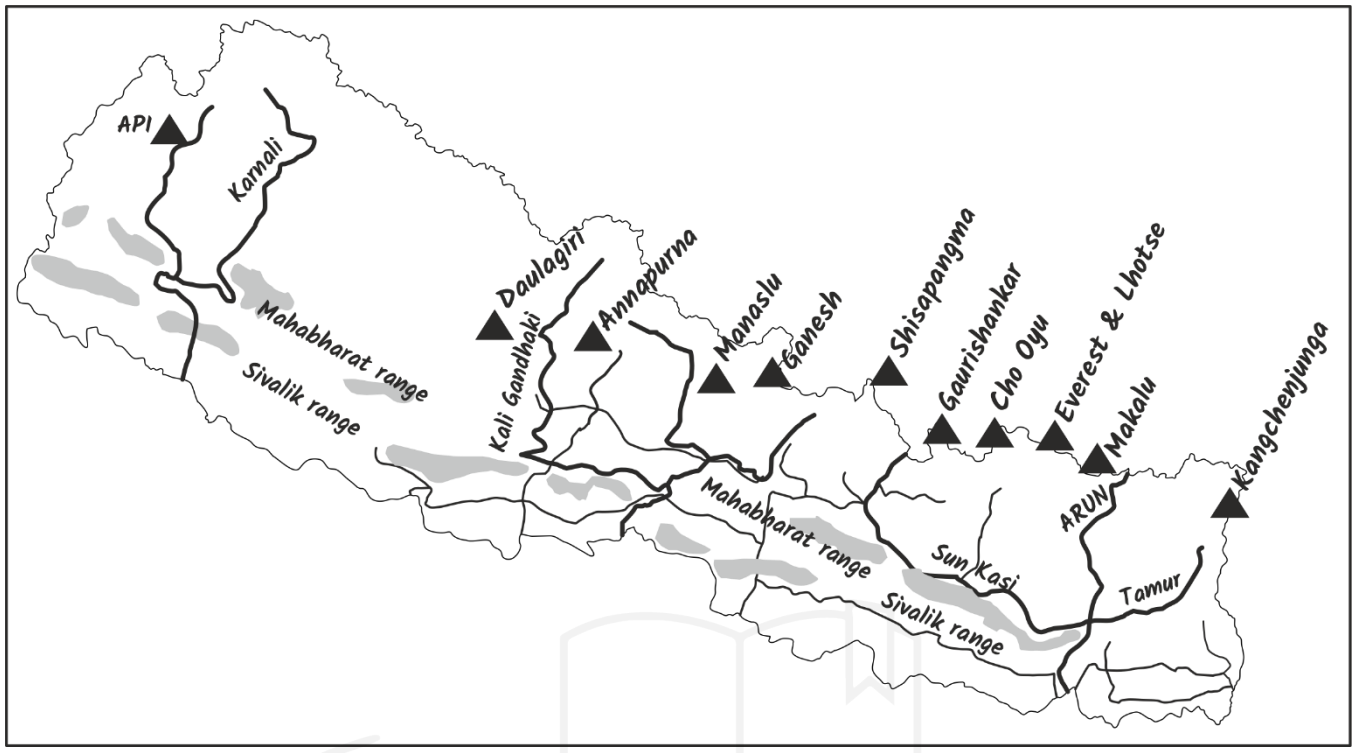
(ii) Kumaun Himalayas

- Length-320 km and Located b/w Satluj and Kali river.
- Major mountain ranges - Nag Tibba, Dhaula Dhar, Mussoorie, and parts of the Greater Himalayas.
- Major peaks – Nanda Devi, Kamet, Badrinath, Kedarnath, etc.
- Major rivers – Gangotri, Yamunotri, Pindari, etc.
- World famous "Valley of Flowers" is situated in this range. The places of pilgrimage such as the Gangotri, Yamunotri, Kedarnath, Badrinath and Hemkund Sahib are also situated in this part.

- Has tectonic valleys- Kulu, Manali, and Kangra.

- More prone to Seismicity and landslides.

(iii) Nepal Himalaya

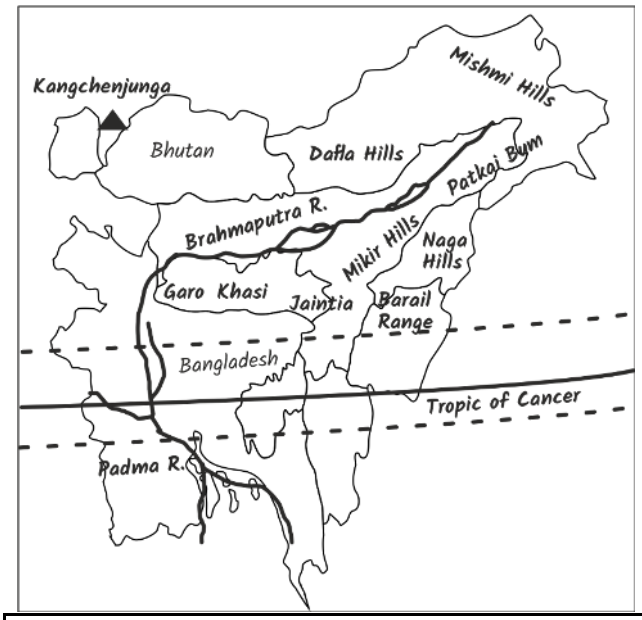


- Length- 800 km and between Kali river in the west and Tista river in the east.
- Great Himalayas attain maximum height in this portion.
- Major peaks- Mt. Everest, Kanchenjunga, Makalu, Annapurna, Gosainthan and Dhaulagiri.
- Major rivers- Ghaghara, Gandak, Kosi, etc.
- Major valleys- Kathmandu and Pokhra lacustrine valleys (previously lakes).
- In place of the Shiwaliks, the 'duar topography found in this region which have also been used for the development of tea gardens.

(iv) Assam Himalayas

- Length- 750km and Located between Tista in the west and Brahmaputra (Dihang gorges) in the east.
- Rainfall > 200cms and shows a marked dominance of fluvial erosion due to heavy rainfall.
- Inhabited by tribes some of the prominent ones from west to east are the Monpa, Abor, Mishmi, Nyishi and the Nagas.
- Important peaks - Namcha Barwa (7756 m) Kula Kangri (7554 m) ChomoLhari (7327 m).
- Major hills - Aka hills, Dafla hills, Miri hills, Abor hills, Mishmi hills, and Namcha Barwa, Patkai bum, Manipur hills, Blue Mountain, Tripura range, and Braille range.

- Major passes- Bomdi La, Yang Yap, Diphu, Pangsau, Tse La, Dihang, Debang, Tunga, and Bum La.



NOTE - Andaman and Nicobar islands are extensions of eastern Himalayas.

1.4 Important Passes of Himalayas

(i) Passes of J&k and Ladakh

Banihal Pass	Situated in Pir- Panjal Range. Jawahar Tunnel
Zoji La	Connects Srinagar with Kargil and Leh.
Burzil La	Srinagar- Kishan Ganga Valley Joins the Valley of Kashmir with the Deosai Plains of Ladakh.
Pir-Panjal Pass	A traditional pass from Jammu to Srinagar. Shortest roadway access to Kashmir valley from Jammu.
Khardung La	Connects Leh and Siachen glaciers. Located in Ladakh range.
Thang La	Located in Ladakh.
Aghil Pass	North of Mount Godwin-Austen in Karakoram.

(ii) Other passes-

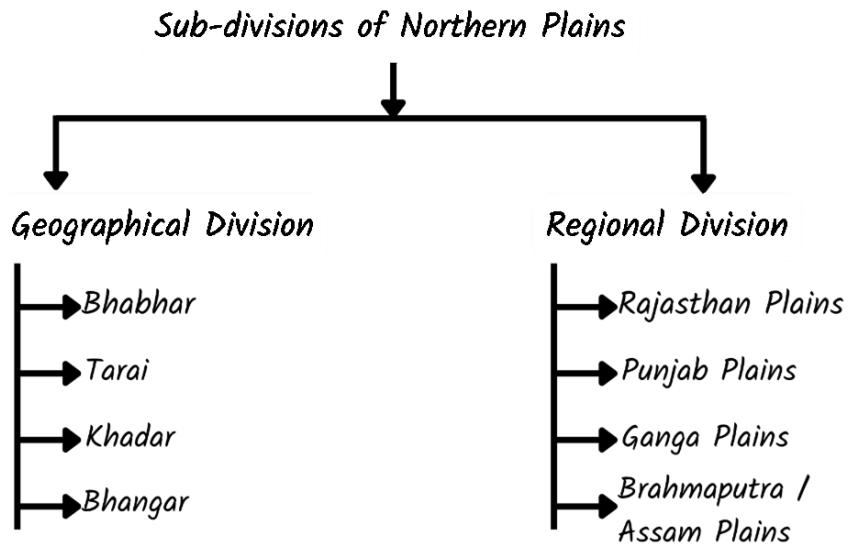
State	Passes
Himachal Pradesh	Shipki la,Bara lacha,Debsa and Rohtang pass
Uttarakhand	Lipulekh,Mana and Niti pass
Sikkim	Nathu la and Jelep la pass
Arunachal Pradesh	Bomdi la,Dihang,Diphu and Pangsan pass
Manipur	Tuju pass

1.5 Importance of Himalayas

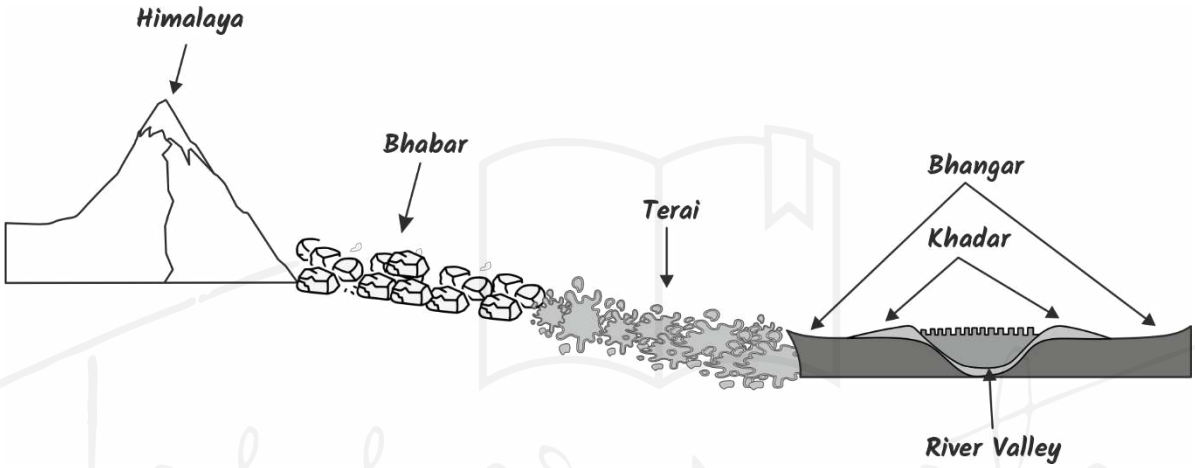
1. It protects India from cold wind coming from Siberia.
2. Source of various rivers like Indus,Ganga etc.
3. Forms a natural boundarywith Pakistan and China.
4. Rich Biodiversity and Vegetation is found.
5. Hill station and religious places attracts tourists.
6. Most fertile plain of India formed by sediments brought by rivers originating from the Himalayas.

2. Northern Plain Region

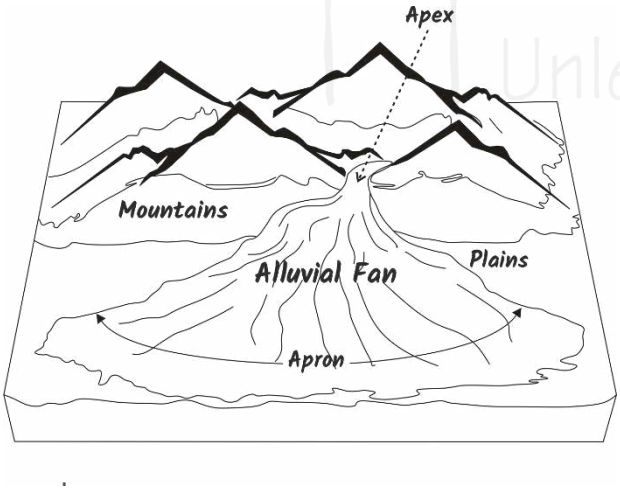
- A transitional zone between the Himalayas and Peninsular India.
- It is formed by alluvial deposits of the Indus, Ganga, Brahmaputra and their tributaries, highly fertile for Agriculture.
- These plains extend approximately 3,200 km from the east to the west. The average width of these plains varies between 150-300 km.
- Merges into Thar Desert in the south-west.



2.1 Geographical Division of Northern Plains



(i) Bhabar:



- Bhabar is a narrow belt ranging between 8-10 km parallel to the Shiwalik foothills at the break-up of the slope.
- The belt consisting of gravel and unassorted sediments (Large sediment).ss
- Deposited by Himalayan rivers.
- Its Most unique feature is its porosity, which makes it unsuitable for agriculture.
- Rivers coming from the Himalayas disappear here.

(ii) Terai:

- 15-30 km wide region south of Bhabar and runs parallel to it.
- Wider in eastern parts of the Great Plains - Brahmaputra valley due to heavy rainfall.

- Most of the streams and rivers re-emerge without having any properly demarcated channel, thereby creating marshy and swampy conditions known as the Tarai. This has a luxurious growth of natural vegetation and houses a varied wildlife.

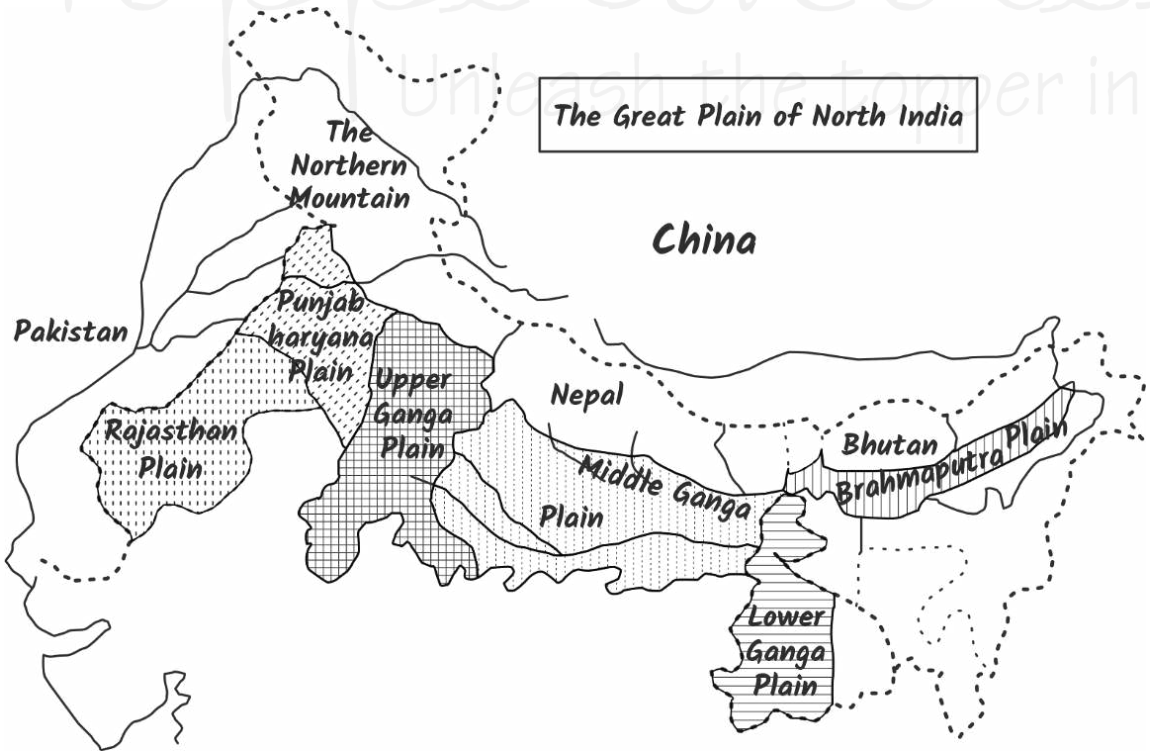
(iii) Bhangar Plains:

- Uplands (alluvial terrace) formed by deposition of older alluvium (older flood plains.) south of Terai region.
- These plains have characteristic features of mature stages of fluvial erosional and depositional landforms such as sand bars, meanders, ox bow lakes and braided channels.
- Main constituent clay and is rich in humus.
- Contains calcium carbonate nodules known as 'Kankars' Barind plains-deltaic region of Bengal. 'Reh', 'Kollar' or 'Bhur' – Drier areas – exhibits small tracts of saline and alkaline efflorescence.

(iv) Khadar:

- Younger alluvium of flood plains of numerous rivers
- Formed by new sediment deposit.
- Suitable for extensive cultivation.
- Rivers in Punjab-Haryana plains have broad floodplains of Khadar flanked by bluffs known as Dhayas.

3. Regional Classification of Great Plains



3.1 Rajasthan Plains

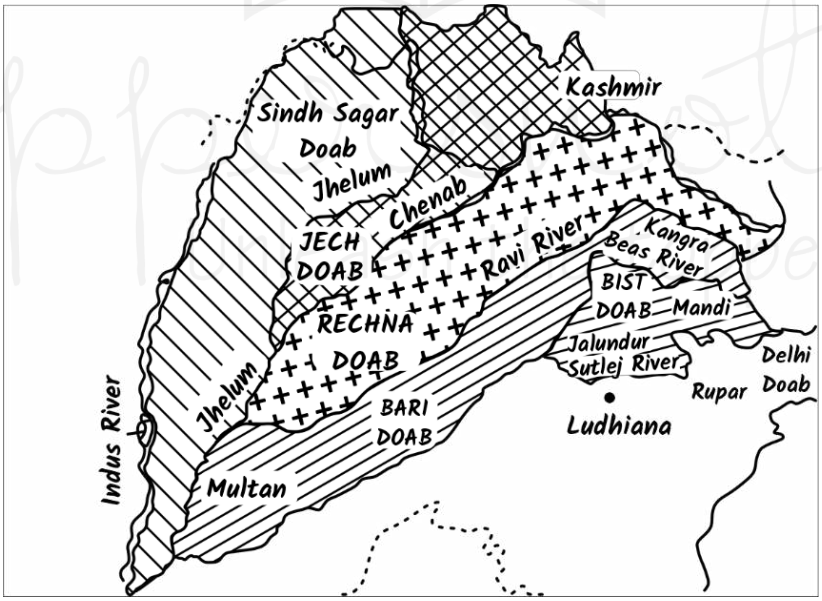
- Occupied by the Thar Desert west of Aravali.
- Desert region k/a Marusthali forms a greater part of the Marwar plain.
- Has a few outcrops of gneisses, schists and granites
  - Proof that it is geologically a part of the Peninsular Plateau.
- Eastern part is rocky while western part has shifting sand dunes.

3.2 Punjab Plains

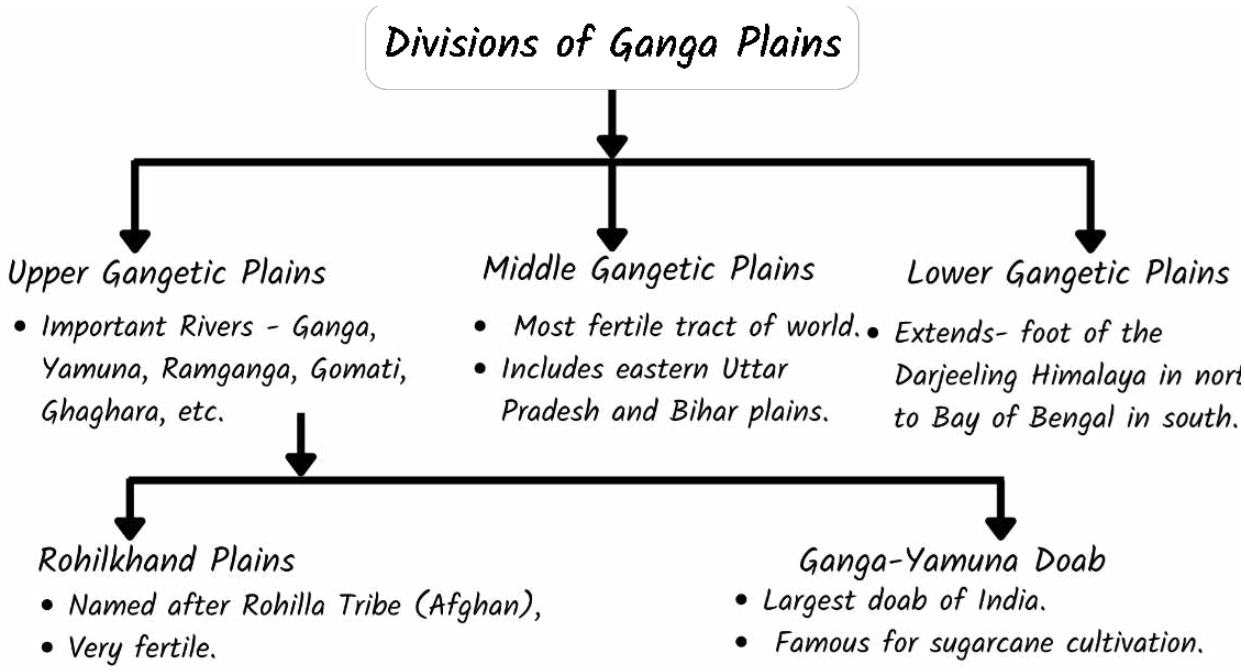
- Formed by 5 important rivers of the Indus system: Jhelum, Chenab, Ravi, Sutlej, and Beas.
- Divided into many Doabs.
- Eastern boundary - Delhi-Aravali ridge.
- High agricultural productivity.
- Area between the Ghaggar and Yamuna rivers -'Haryana Tract'.
  - Water-divide between the Yamuna and the Satluj rivers

➢ Jech / Chaj Doab	➢ Jhelum and Chenab rivers
➢ Rechna Doab	➢ Chenab and Ravi rivers
➢ Bari Doabs	➢ Rabi and Beas rivers
➢ Bist Doab	➢ Beas and Sutlej rivers

3.3 Ganga Plain



- Formed by Ganga and its tributaries.
- It extends from Yamuna river in the west to western borders of Bangladesh (~ 1,400 km).
- Average width - 300 km.
- Peninsular rivers - Chambal, Betwa, Ken, Son, etc. (join Ganga river system) also contribute to formation of this plain.
- Rivers keep shifting their courses making this area prone to frequent floods.



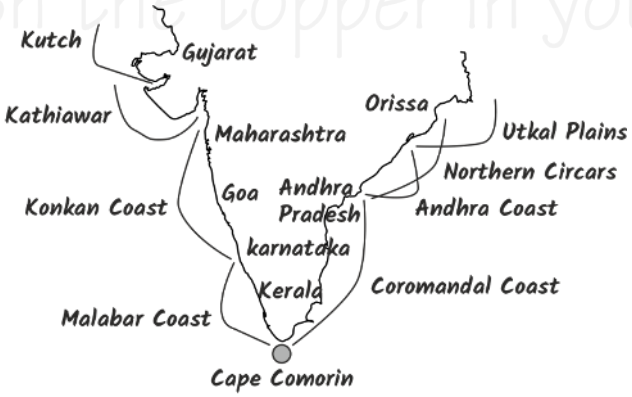
3.4 Brahmaputra/ Assam Plains

- Formed by Brahmaputra and its tributaries.
- Easternmost part of Great Plains.
- It extends from Sadiya (in the east) to Dhubri (near Bangladesh border in the west).
- Majuli (area 929 km²)- largest river island in the world. (In the Brahmoutra river)
- Large marshy tracts→ formation of terai or semi-terai conditions.

3.5 Significance of Plains

- It constitutes < 1/4th of the total area of the country
- Support > 40 % of the total population of the country.
- Fertile alluvial soils, flat surface, slow moving perennial rivers and favorable climate - intense agricultural activity.
- Extensive irrigation in Punjab, Haryana and western part of Uttar Pradesh - granary of India (Prairies - granaries of the world).
- Has a close network of roads and railways - large-scale industrialization and urbanization.
- Cultural tourism: Centers of pilgrimage - Haridwar, Amritsar, Varanasi, Allahabad, etc.

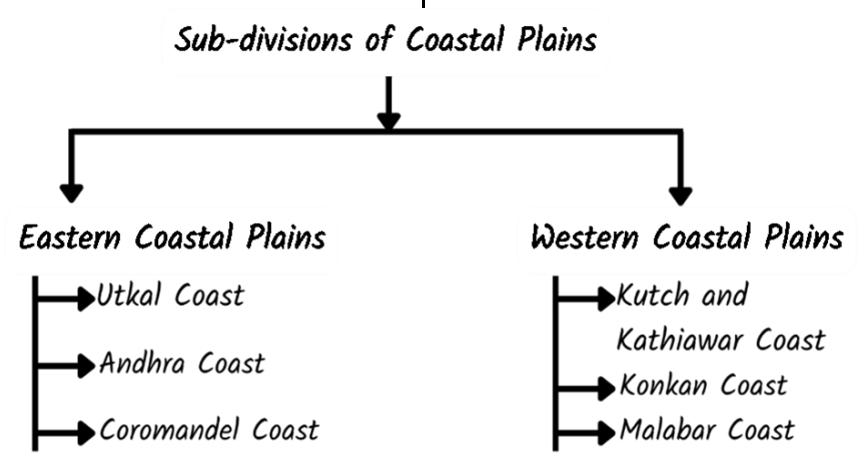
4. Coastal Plains



Eastern and Western Coastal Plains of India

- Area- 7516.6 km
- States- Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha, West Bengal and UTs-- Daman and Diu andPuducherry.

- Formed by sediment deposit by rivers.
- Coastal plains in India are of 2 types:



4.1 Eastern Coastal Plains

- Location: between Bay of Bengal and the Eastern Ghats.
- Width: 100 – 130 kms
- Extends from the Ganga delta(Suvarna Rekha River) to Kanyakumari.
- Marked by well developed deltas of Godavari, Mahanadi, Kaveri, and Krishna.
- Important geographical features - Chilika Lake and Pulicat Lake (lagoon).
- Very fertile for Agriculture.
  - ✓ Delta of river Krishna - Granary of South India.
- Emergent in nature -
  - ✓ Continental shelf extends up to 500 km into the sea, which makes it difficult for development of good ports and harbors.
- Divisions:

Utkal coast	➢ Located Mainly in Odisha Extending between Chilika and Kolleru Lake. ➢ Much wider than western coastal plains. ➢ Formed by the Mahanadi river. ➢ Vulnerable to cyclones. ➢ Major crops: rice, coconut and banana
Andhra coast	➢ Between Kolleru and Pulicat Lake. ➢ Formed by Krishna and Godavari rivers.
Coromandel coast or Payan Ghat	➢ Plain between Krishna river to Kanyakumari in Tamil Nadu. ➢ Remains dry in summer. ➢ Receives rainfall during winters.

4.2 Western Coastal Plains

- Stretch from Gulf of Kutch in the north to Kanyakumari.
- These are narrow plains as rivers form the estuaries.
- Straight coastline.

- These are submerged coast
  - ✓ Provides natural conditions for development of ports and harbors.
  - ✓ Eg. Kandla, Mazagaon, JLN port Navha Sheva, Marmagao, Mangalore, Cochin, etc.
- Rivers do not form any delta. Instead form a chain of waterfalls.
- Kayals – Backwaters or shallow lagoons or the inlets of the sea and lie parallel to the coastline and mainly in Kerala.
- Divisions:

Kutch and Kathiawar coast	➢ Extension of Peninsular plateau. ➢ Kutch formed by the deposition of silt by the Indus. ➢ Kathiawar- south of Kutch.
Konkan coast	➢ Between Daman (north) to Goa (south). ➢ Found mainly in Maharashtra and Goa. ➢ Rice and cashew- 2 important crops.
Malabar coast	➢ Between Mangalore to Kanyakumari. ➢ Relatively broad. ➢ Monsoon brings maximum rainfall. ➢ Consists of lagoons running parallel to the coast in southern Kerala.

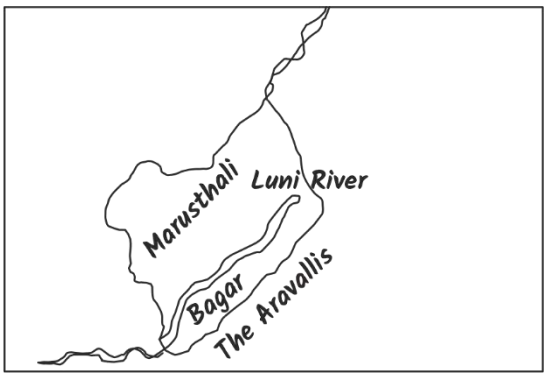
4.3 Importance of the long Indian Coastline

- Coastal areas have an Equable climate, so a long coastline facilitates a large number of areas having a favourable climate (no extremes in temperature).
- Offers a long reach into the vast Indian Ocean.
- Large coastline facilitates more rights on mining, oil exploration and natural gas in India's Exclusive Economic Zone.
- Abundant coastal and marine ecosystems like mangroves, coral reefs, estuaries and lagoons have a great tourism potential.Eg. Goa provides good beaches.
- Fishing is an important occupation of the people living in the coastal areas.
- India's coastal areas have a huge potential for on-shore wind energy farms.
- Sands of Kerala coast have MONAZITE used for nuclear power.

5. Indian Desert

- About 85% of the Thar Desert is in India, While the remaining part is in Pakistan.
- Geographical characteristics:
  - ✓ Location: partly in Rajasthan and partly in Gujarat, Punjab and Haryana.
  - ✓ Area: > 2,00,000 sq km.

- ✓ Rainfall< 150 mm per year- arid climate with low vegetation cover.
- ✓ Major desert land features - mushroom rocks, shifting dunes and oasis (mostly in its southern part).



5.1 Importance of Desert

1. Rich source of renewable energy like solar and wind.
2. Various minerals like Coal,Marble,Gypsum and Building stone found.
3. Important for tourism due to physiographic diversity.
4. Being located near the International border it is strategically important for India.
5. Rich source of Petroleum and Crude oil.
6. Intense summer heating develops low pressure which attracts summer monsoon.

6. Peninsular Plateau

- Roughly triangular in shape.
- Extension:
  - ✓ NW- Delhi ridge
  - ✓ East- Rajmahal hills
  - ✓ West- Gir range
  - ✓ South- Cardamom hills
- An extension also seen in northeast Shillong and Karbi-Anglong plateau.
- Most rivers flow west to east indicating general slope.
  - ✓ Exception: Narmada-Tapti flows - east to west.
- One of the oldest and most stable landforms of earth.
- Highly stable block composed mostly of Archaean gneisses and schists.
- Made up of different patland plateaus like Hazaribagh plateau, the Palamu plateau, the Ranchi plateau, the Malwa plateau, the Coimbatore plateau and Karnataka plateau, etc.
- Important physiographic features: tors, block mountains, rift valleys, spurs, bare rocky structures, series of hummocky hills and wall-like quartzite dykes offering natural sites for water storage.