



WB – CS

Provincial Civil Services

Prelims & Mains

WEST BENGAL PUBLIC SERVICE COMMISSION

General Studies

Volume 4

Indian & West Bengal Geography



INDIAN GEOGRAPHY

S.No.	Chapter Name	Page No.
1.	India -Size and Location <ul style="list-style-type: none"> Indian Standard Meridian 	1
2.	Physiographic Divisions of India <ul style="list-style-type: none"> Himalayan Mountains Great Plains of India Coastal Plains Indian Desert Peninsular Plateau Islands of India 	3
3.	Volcanism and Earthquake <ul style="list-style-type: none"> Volcano Earthquake 	48
4.	Indian Drainage System <ul style="list-style-type: none"> Drainage system of India Interlinking of rivers Lakes Waterfalls 	55
5.	Climate of India <ul style="list-style-type: none"> Seasons in India Factors Influencing Indian Climate Indian Monsoon Climatic Regions of India Drought Floods 	96
6.	Soils in India <ul style="list-style-type: none"> Types of Soils in India 	127
7.	Natural Resources of India <ul style="list-style-type: none"> Types of Non-Renewable Resources Mineral Resources 	133
8.	Energy resources <ul style="list-style-type: none"> Conventional Sources Non-conventional sources Energy Crisis 	162
9.	Industrial Regions of India <ul style="list-style-type: none"> Major Industrial Regions of India Minor Industrial Regions 	182
10.	Transportation in India <ul style="list-style-type: none"> Road Transport Rail Transport Air Transport 	185

11.	Agriculture <ul style="list-style-type: none"> • Types of Agricultural Revolution in India • Cropping Seasons in India • Important Crops of India 	203
------------	---	------------

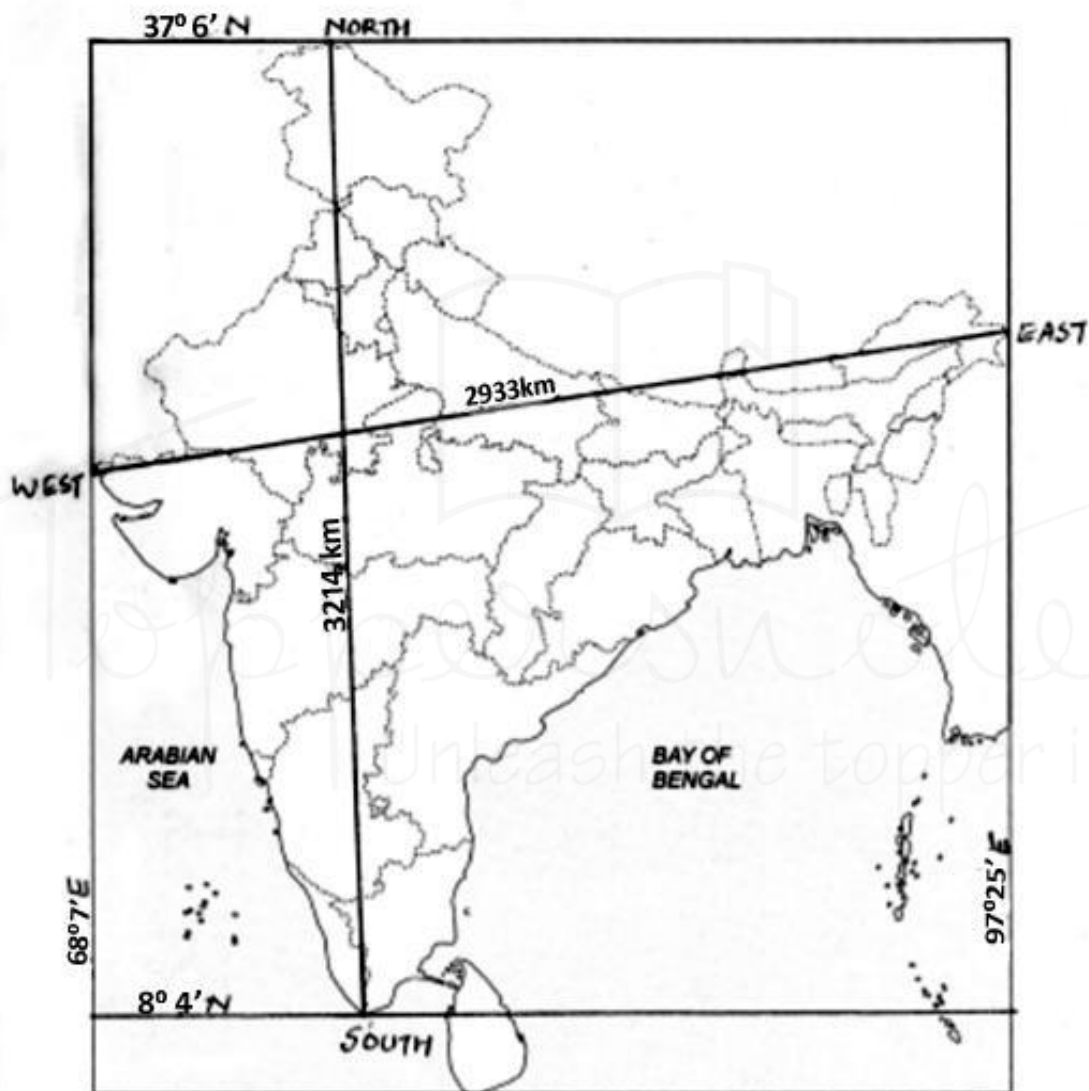
WEST BENGAL GEOGRAPHY

S.No.	Chapter Name	Page No.
1.	Location and Boundary of West Bengal <ul style="list-style-type: none"> • Location and Size • Boundary and Extent 	218
2.	Physiographic Division of West Bengal <ul style="list-style-type: none"> • The Northern Mountains • Terai-Duar Region • Northern Plain • Southern Plain Region • Sundarban Delta • Coastal Fringe 	220
3.	Drainage System of West Bengal <ul style="list-style-type: none"> • Rivers of West Bengal • Lakes of West Bengal • Water Falls in West Bengal • Wetlands in West Bengal 	224
4.	Climate of West Bengal <ul style="list-style-type: none"> • Factors affecting Climate of West Bengal • General Characteristics of Climate of West Bengal • Seasons in West Bengal • Floods in West Bengal • Cyclones in West Bengal 	234
5.	Soils of West Bengal <ul style="list-style-type: none"> • Mountain And Forest Soil • Old Alluvium • New Alluvium • Red Soil • Laterite soil • Clayey Saline Soil • Soil Erosion in West Bengal 	241
6.	Natural Vegetation and Wildlife of West Bengal <ul style="list-style-type: none"> • Forest Area and Forest Cover • Classification of Forest in West Bengal • National Parks and Wildlife Sanctuaries in West Bengal • Wildlife Sanctuaries in West Bengal • Elephant Reserves in West Bengal • Zoological Parks of West Bengal 	244

7	Mineral and Energy Resources of West Bengal <ul style="list-style-type: none"> • Mineral Resources • Energy Resources in West Bengal 	251
8	Agriculture and Allied Sectors of West Bengal <ul style="list-style-type: none"> • Agro-Climatic Zones • Major Crops of West Bengal • Agri-Export Zones of West Bengal • Horticulture And Floriculture In West Bengal • Irrigation In West Bengal • Animal Husbandry in West Bengal • Fisheries In West Bengal 	260
9	Demography of West Bengal <ul style="list-style-type: none"> • West Bengal Population • Castes And Tribes Of West Bengal 	272
10	Industries in West Bengal <ul style="list-style-type: none"> • Major Industries in West Bengal • Industrial Region of West Bengal • Small Scale and Cottage Industries • Special Economic Zone (SEZ) • Industrial Parks in West Bengal 	277
11	Transportation and Communication of West Bengal <ul style="list-style-type: none"> • Transport System in West Bengal • Communication in West Bengal 	284
12	Tourism in West Bengal <ul style="list-style-type: none"> • Historical Places in West Bengal • Religious Centers of West Bengal • Famous Museums of West Bengal • Famous Hill Stations in West Bengal • Famous Beaches of West Bengal 	292

1 CHAPTER

India –Size and Location

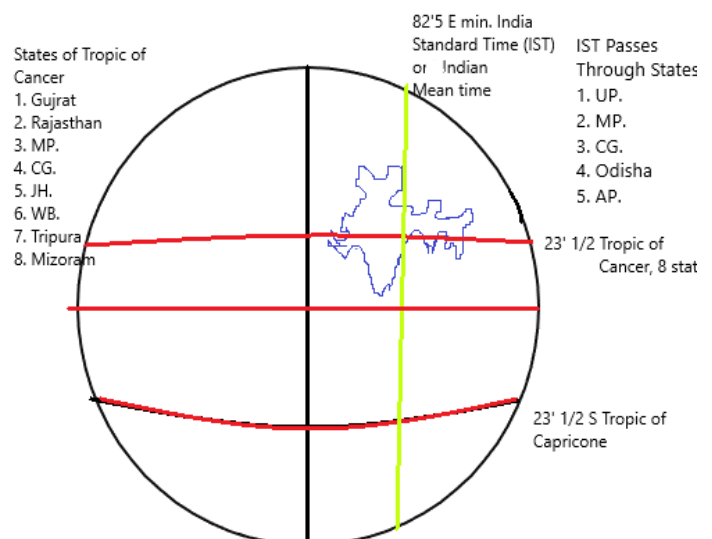


- Situated in the **northern hemisphere** ($8^{\circ}4'N$ to $37^{\circ}6'N$ and $68^{\circ}7'E$ to $97^{\circ}25'E$)
- **Bounded by**
 - **North:** the Great Himalayas
 - **West:** Arabian Sea
 - **East:** Bay of Bengal
 - **South:** the Indian Ocean.
- **7th largest country** in the world.
- **Northernmost point:** Indira Col
- **Southernmost point:** Indira Point in the Andaman and Nicobar Islands.
- **Easternmost point:** near Kibithu in Anjaw district of Arunachal Pradesh
- **Westernmost point:** Sir Creek in Kutch, near the “Guhar Mota” in Gujarat.

- **Length:** 3214 Km
- **Width:** 2933 Km (longitudinal difference: 30° or 2 hours)
- **Area:** 32,87,263 sq. km (**2.42% of the world**)
- **Population:** 2nd largest country in the world (**17.5% of world's population**)
- **Total land boundary**=15,200 km.
- **Total Sea boundary**= 7516.5 Km (without islands 6100 Km)
- **Border Countries:**
 - **North-west:** Afghanistan and Pakistan
 - India-Pakistan border: Radcliffe line
 - Pakistan-Afghanistan border: Durand Line.
 - **North:** China, Bhutan and Nepal
 - India-China border: McMahon line.
 - **East:** Myanmar, Bangladesh (India has longest boundary with Bangladesh)
 - **South:** Sri Lanka separated by Palk Strait and Gulf of Mannar.
- **States sharing International borders:**
 - **Bangladesh:** total boundary= **4096km**
 - **5 States:** West Bengal, Mizoram, Meghalaya, Tripura, and Assam
 - **China:**Total boundary=**3488km**
 - **3 States and 1 UT:** Himachal Pradesh, Uttarakhand and Sikkim and Ladakh
 - **Pakistan :** Total boundary= **3323km**
 - **4 States and 1 UT:** Jammu and Kashmir, Punjab, Gujarat, Rajasthan and Ladakh
 - **Nepal:** Total boundary= **1751km**
 - **5 States:** Uttar Pradesh, Bihar, Uttarakhand, Sikkim, West Bengal
 - **Myanmar:** Total boundary= **1643km**
 - **4 States:** Arunachal Pradesh, Manipur, Mizoram, and Nagaland
 - **Bhutan:** Total boundary= **699km**
 - **4 States:** Arunachal Pradesh, Assam, Sikkim, and West Bengal
 - **Afghanistan:**total boundary= **106km**
 - **1 UT:** Ladakh

Indian Standard Meridian

- **$82^{\circ}30'E$** Meridian crossing through **Mirzapur, UP** is India's Standard Meridian.
- **Ahead of mean time by 5 hours and 30 minutes.**
- **Tropic of cancer ($23^{\circ}30'N$) passes through** - Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, West Bengal, Mizoram, and Tripura.



2

CHAPTER

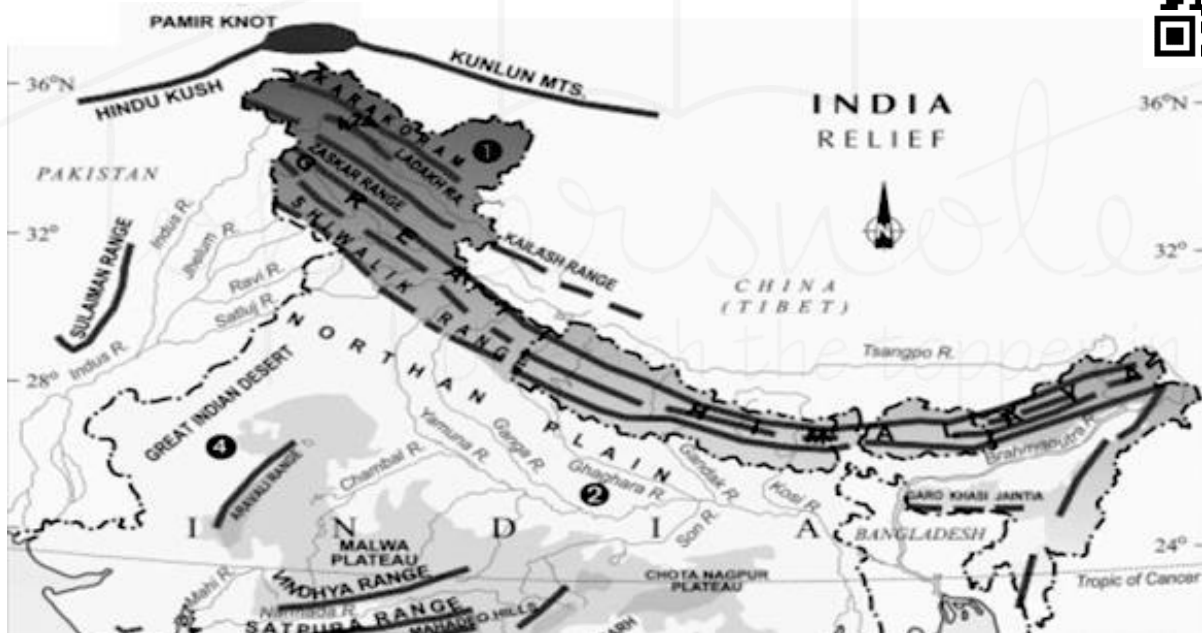
Physiographic Divisions of India



On the basis of physical features, India is divided into 6 physiographic divisions:

1. Northern and North-eastern Mountains
2. Northern Plain
3. Peninsular Plateau
4. Indian Desert
5. Coastal Plains
6. Islands

Himalayan Mountains



- **Highest and the youngest fold mountain ranges of the world.**
- **One of the highest earthquake-prone regions of the world.**
- **Length:** runs **west-northwest to east-southeast** in an arc **2,500 km long**.
 - **Western anchor:** Nanga Parbat (lies just south of the northernmost bend of the Indus river)
 - **Eastern anchor:** Namcha Barwa (lies immediately west of the great bend of the Yarlung Tsangpo River)
- **Width:** 400 km - 150 km (West- east).

Physical Features

- **Soaring heights, steep-sided jagged peaks, valley and alpine glaciers** often of stupendous size



- **Topography** deeply cut by **erosion**, seemingly **unfathomable river gorges**, **complex geologic structure**, and **series of elevational belts** (or zones)
- **Greater part of the Himalayas** lies below the snow line.
- The **mountain-building process** that created the range is still active.
- **Considerable stream erosion** and **gigantic landslides**.

Sub Divisions of the Himalayas



Himalayan Mountain Complex : Cross Sectional View from South to North

North-South of Himalayas



1. Trans-Himalayan Ranges:

- **Location:** North of the Great Himalayas
- aka **Tibetan Himalaya** because most of it lies in Tibet.
- **Lifted much before the Himalayas** b/w Jurassic and Cretaceous
- **Geologically not a part of the Himalayas.**
- **Start** from Pamir Knot.
- **Godwin Austen/ K2/ Qogir** (8,611 m) - **second highest peak in the world / highest peak in the Indian Union** found in Karakoram Range
- **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).
- **Siachen glacier** - highest battlefield.

- **Glacier Baltaro**- largest mountain glacier from Karakoram range.
- **Karakoram pass** - connects the **Aksai Chin** which is an erosional plateau of average height 5000m.
- **Main ranges:**
 - **Karakoram Range :**
 - **Northernmost range** of the Trans-Himalayan Ranges in India
 - aka **Krishnagiri range**
 - Extends eastwards **from Pamir for about 800 km.**
 - **Average elevation** - 5,500 m and above.
 - **Ladakh range :**
 - **North of the Zaskar Range**
 - **Highest point** - Rakaposhi
 - Lies to **north of Leh.**
 - **Merges with the Kailash range** in Tibet.
 - **Important passes** - Khardung La, and Digar La.
 - **Zaskar Range**
 - A mountain range in the **union territory of Ladakh.**
 - **Separates Zaskar from Ladakh.**
 - **Average height** - about 6,000 m.
 - Acts as a **climatic barrier protecting Ladakh and Zaskar from monsoon** - pleasantly **warm and dry climate** in the **summer.**
 - **Major passes**- Marbal Pass, Zojila Pass - extreme northwest .
 - **Major rivers**- Hanle River, Khurna River, Zaskar River, Suru River (Indus), and Shingo River.
 - **Kailas Range**
 - **Offshoot** of the **Ladakh Range.**
 - **Highest peak** - Mount Kailash (6714 m).
 - **River Indus** originates from the **northern slopes of the Kailas range.**

Ladakh Plateau

- **Cold desert**
- Lies to the **north-east of the Karakoram Range.**
- **Dissected into** a number of plains and mountains - **Soda Plains, Aksai Chin, Lingzi Tang, Depsang Plains and Chang Chenmo.**
- **Northwestern part** - **Deosai mountains** are the **end of the Trans-Himalayan region**

2. Great Himalaya:

- aka **Himadri.**
- **Average height** - 6000 m
- **Average width** - 25 km
- **Extension** - Mt. Namcha Barwa to Nanga Parbat (2400 km)- one of the longest-running fold mountain ranges in the world.
- **Features:** High relief, deep gorges, vertical slopes, symmetrical convexity, and antecedent drainage.

- **Terminates abruptly at the syntaxial bends.**
 - **Nanga Parbat** - north-west
 - **Namcha Barwa** - north-east.
- **Composed of metamorphic and sedimentary rocks.**
- **Core - Batholith** representing the intrusion of Magma (Granitic Magma)
- **Have asymmetrical folds** due to high compression and they **have fractured rocks** in the **eastern part.**
- **14 of the 28 tallest peaks** in the world (> 8000 m) are situated here.
- **Major passes** - Zojila Pass (connects Srinagar with Leh), Shipki La Pass, Burzil Pass, Nathu La Pass etc.
- **Major glaciers** - Rongbuk glacier (largest in the Himadri), Gangotri, Zemu etc.
- **Separated from lesser Himalayas** by longitudinal **valleys** filled with sediments k/a **Doons.**
 - Eg. Patli Dun, Chaukamba Dun, DehraDun etc.

3. Middle/ Lesser/ Himachal Himalaya:

- **Most rugged** mountain system.
- Lies **b/w** the **Shivaliks** in the south and the **Greater Himalayas** in the north.
- **Composed of highly compressed and altered rocks.**
- **Average altitude** - 3,700 - 4,500 metres.
- **Average width** - 50 to 80 Km.
- **Pir Panjal range - longest**
 - **Extends from Jhelum - upper Beas river** for over 300 km.
 - Rises to 5,000 metres and contains **mostly volcanic rocks.**
 - **Passes :**
 - Pir Panjal Pass (3,480 m), the Bidil (4,270 m), Gulabgarh Pass (3,812 m) and Banihal Pass (2,835 m).
 - **Banihal Pass**- Jammu-Srinagar highway and Jammu-Baramulla railway.
 - **Rivers :**
 - **Kishanganga, the Jhelum and Chenab.**
 - **Important Valleys**
 - **Valley of Kashmir-**
 - ✓ b/w the **Pir Panjal** and the **Zaskar Range** (average elevation- 1,585 m)
 - ✓ **Composed** of alluvial, lacustrine [lake deposits], fluvial [river action] and glacial deposits. {Fluvial Landforms, Glacial Landforms}
 - ✓ **Jhelum River meanders** through these deposits and cuts a **deep gorge** in Pir Panjal through which it drains.
 - **Kangra Valley -**
 - ✓ **Extends from** the foot of the **Dhauladhar Range to the south of Beas.**
 - **Kulu Valley**
 - ✓ In the **upper course of the Ravi**
 - ✓ A **transverse valley.**
- **Most important range** - Dhaula Dhar and Mahabharat ranges.
- **Includes** famous valley of Kashmir, the Kangra and Kullu Valley in Himachal Pradesh.
 - **Well known for its hill stations.**
- **Cut across by the Jhelum and Chenab river.**

- **Dhauladhar ranges** - extension of Pir Panjal into Himachal Pradesh - cut across by the river Ravi.
- **Mussoorie ranges** - divide the waters of Sutlej and Ganga
- Have **steep, bare southern slopes** [prevents soil formation] and more **gentle, forest covered northern slopes**.
- **Uttarakhand**- marked by **Mussoorie and Nag Tibba ranges**.

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

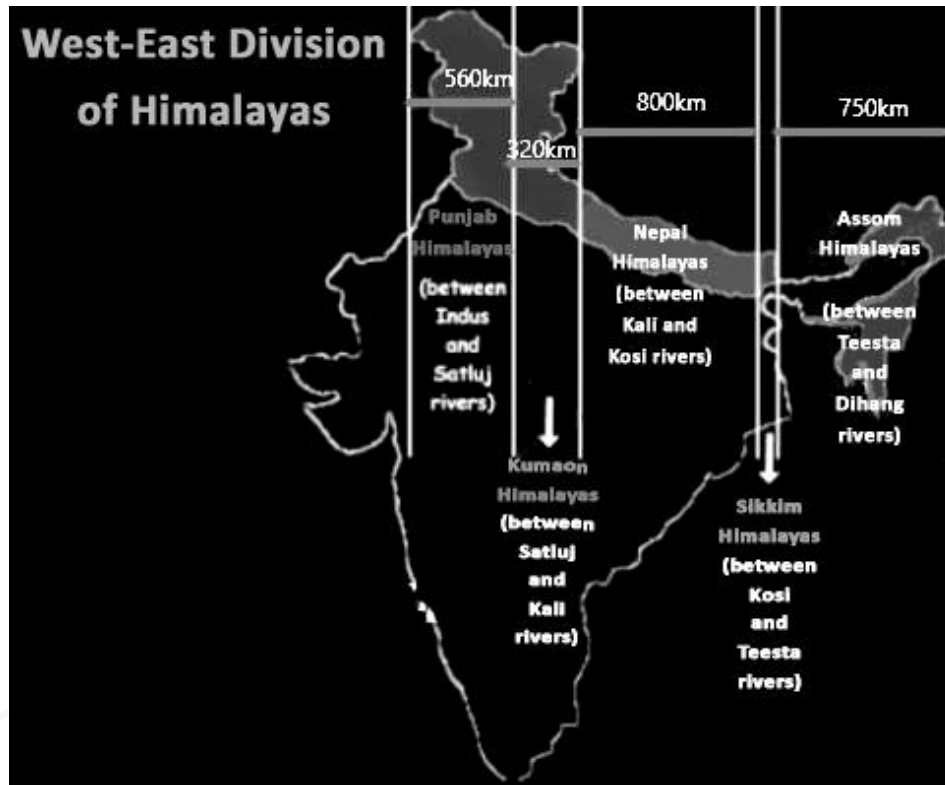
4. Sub-Himalayas/ Shiwaliks:

- aka **Outer Himalayas**.
- **b/w Great Plains and Lesser Himalayas**.
- **Altitude**- 600-1500 metres.
- **Length**- 2,400 km - **Potwar Plateau to Brahmaputra valley**.
- **Southern slopes** - steep
- **Northern slopes** - gentle.
- **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**.
- **Southern slopes in Punjab and Himachal Pradesh**- almost **NO forest cover**.
- **Highly dissected by seasonal streams** - Chos.
- **Valleys** - part of **synclines** and **hills** - part of **anticlines**
- **Different names:**

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

Region - wise division of Himalayas

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



Kashmir /Punjab/ Himachal Himalayas:

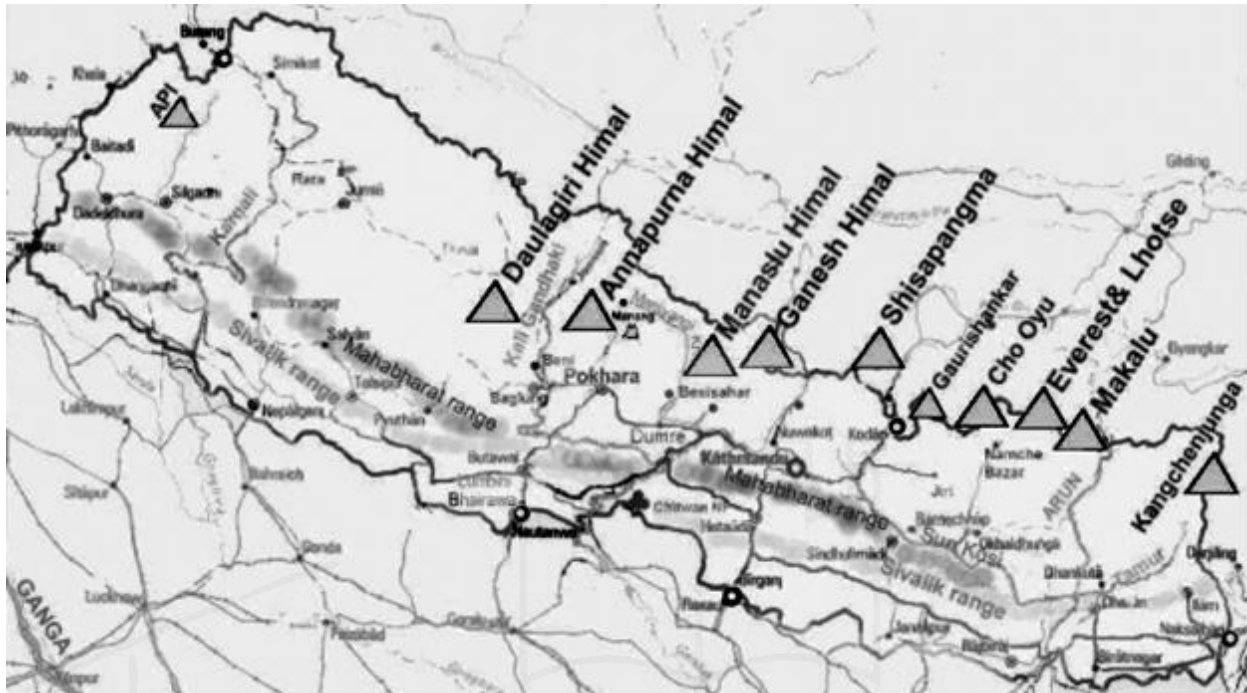
- Located b/w Indus and Satluj gorge
- **Length**- 560 kms
- **Width** - 320 kms
- **Zaskar range** - northern boundary and **Shivaliks** - Southern boundary
- **Characterised by** ridge and valley topography (Kashmir Valley is the syncline basin) formed by the Lacustrine deposits (**Karewas**- helpful in **growing saffron**- from Pulwama to Pampore) of Jhelum.
- **Major ox-bow lakes** - Wular lake, Dal lake, etc
- aka “Vail of Kashmir”
- **Rainfall** upto 100cm in **summers** and **snow** during **winters**
- **Only gateway to Kashmir** - **Banihal pass** - Jawahar tunnel (Second Largest in India)
- **Major passes**- Burzil pass, Zozila pass.

The Kumaon Himalayas

- Located b/w **Satluj** and **Kali** gorges
- **Length**- 320 kms
- **Major mountain ranges** - Nag Tibba, Dhaula Dhar, Mussoorie, and parts of the Greater Himalayas.
- **Major peaks** - Nandadevi, Kamet, Badrinath, Kedarnath, etc.
- **Major rivers** – Gangotri, Yamunotri, Pindari, etc.
- **Characteristics:**
 - **Snowfall** in winters
 - **Coniferous** forests above **3200m** and **Deodar** forest (Deodar forest) b/w **1600-3200m**.
 - Has **tectonic valleys**- Kulu, Manali, and Kangra.

- **Rainfall** about 200cm in **summers**
- **More prone to Seismicity** and landslides.

Nepal/ Central Himalaya



- **Length- 800 km**
- **b/w Kali** in the west and **Tista** in the east.
- **Great Himalayas attain maximum height** in this portion.
- **Major peaks-** Mt. Everest, Kanchenjunga, Makalu, Annapurna, Gosainthan and Dhaulagiri.
- **Lesser Himalaya** k/a **Mahabharat Lekh** here.
- **Major rivers-** Ghaghara, Gandak, Kosi, etc.
- **Major valleys-** Kathmandu and Pokhara lacustrine valleys (previously, lakes).

Assam/ Eastern Himalayas

- **Length- 750km**
- Located b/w **Tista** in the **west** and **Brahmaputra** (Dihang gorges) in the **east**.
- Occupy **mainly Arunachal Pradesh** and **Bhutan**.
- **Narrow longitudinal valleys**
- **Rainfall > 200cms.**
- Show a **marked dominance of fluvial erosion** due to heavy rainfall.
- **Landslides, earthquakes** are very **common** as rocks are fractured
- **Inhabited by tribes**
- **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, Yong Yap, Diphu, Pangsau, Tse La, Dihang, Debang, Tunga, and Bom La.

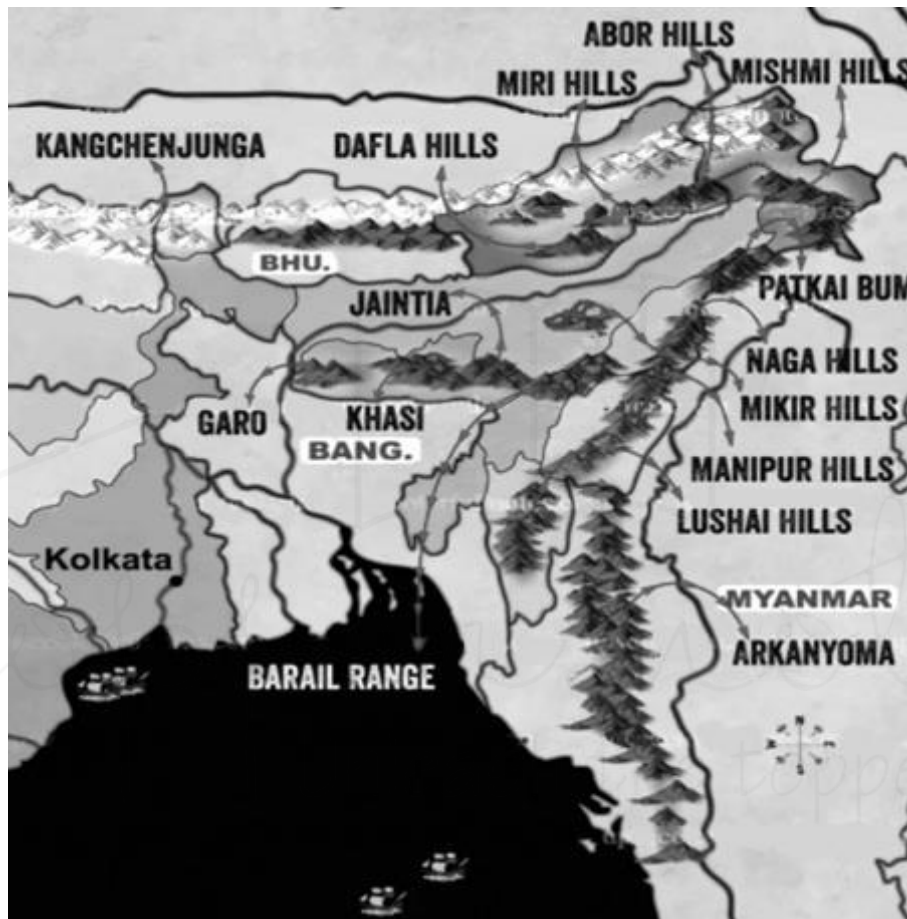


Western Himalayas	Eastern Himalayas
Don't act as barrier to south west monsoon	Act as barrier to south west monsoon
Shivaliks are farther	Shivaliks are closer

Arunachal Himalayas

- Form the eastern frontier of the Eastern Himalayas.
- Namcha Barwa - extreme east of Arunachal Pradesh.
- Earlier k/a Assam Himalayas.
- Himalayan range enters Arunachal Pradesh from Bhutan in the West Kameng district.
- Characteristics

- **High ridges and low valleys**
- **Altitude** - 800 m to 7,000 m above sea level.
- **Extend** from east of the Bhutan Himalayas - Diphu pass in the east.
- **Dissected by fast-flowing rivers** like **Brahmaputra** which flows through a deep gorge after crossing Namcha Barwa.
 - **Perennial** - highest hydro-electric power potential in the country.
- **Major tribes**- Monpa, Abor, Mishmi, Nyishi and the Nagas- practise Jhumming.



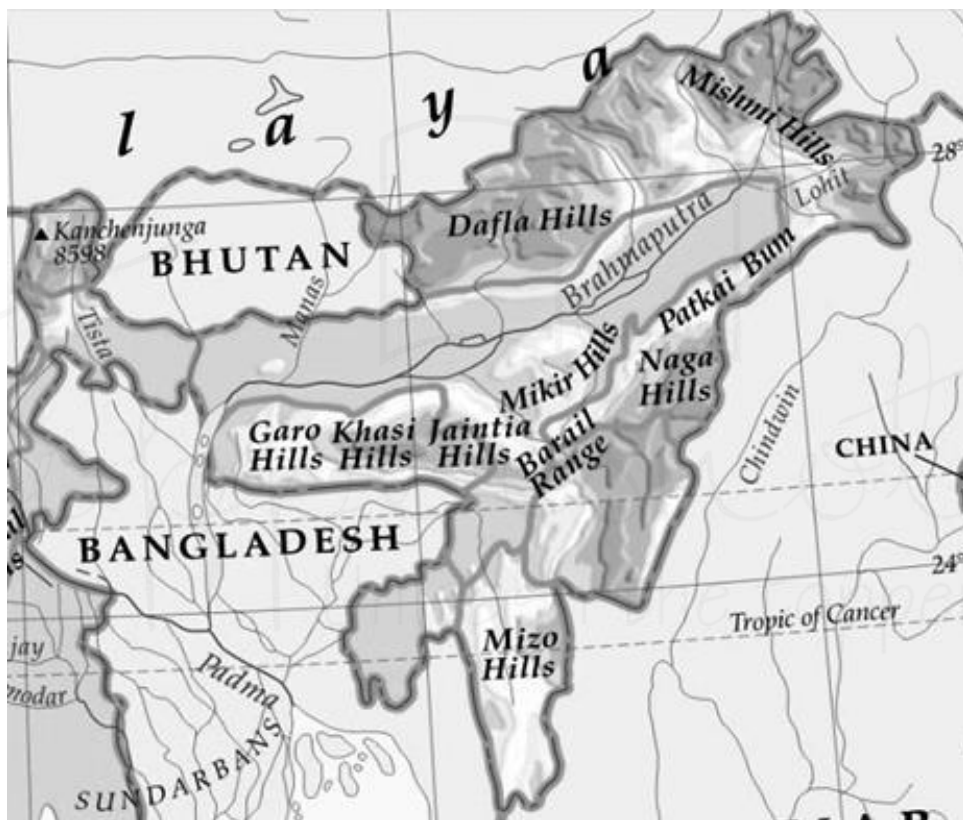
Purvanchal Himalayas

- Geologically considered **part of the Himalayas**
- Has **structural differences**, thus, **separated from the main Himalayan ranges**.
- Lies **south of the Brahmaputra valley**.
- Belong to **Arakan Yoma orogenesis**.
- Have **loose, fragmented sedimentary rocks** like shale, mudstone, sandstone, quartzite
- **Most fractured part** of the Himalayas.
- **Naga fault line**- earthquakes and landslides
- **Rainfall** - 150-200 cms
- **Densely forested**
- **Elevation** decreases from **north to south**.
- **Convex to the west**.
- **Low hills** where Jhum cultivation is prevalent.
- **Major Hills:**

Dafila Hills	<ul style="list-style-type: none"> ● Location: north of Tezpur and North Lakhimpur ● Bounded on west by the Aka Hills and on the east by the Abor Range.
Abor Hills	<ul style="list-style-type: none"> ● Location: region of Arunachal Pradesh in NE of India, near China border ● Bordered by Mishmi Hills and Miri Hills. ● Drained by the Dibang River, a tributary of the Brahmaputra.
Mishmi Hills	<ul style="list-style-type: none"> ● Location: southward extension of the Great Himalayan ranges. ● Northern and eastern parts touch China.
Patkai Bum Hills	<ul style="list-style-type: none"> ● Location: India's NE border b/w Arunachal Pradesh and Myanmar. ● "Patkai" - "to cut chicken" in Tai-Ahom language. ● Originated by the same tectonic processes that resulted in the formation of the Himalayas in the Mesozoic. ● Have conical peaks, steep slopes and deep valleys ● Not as rough as the Himalayas. ● Whole region is surrounded by forests composed of sandstones.
Naga Hills	<ul style="list-style-type: none"> ● Location: extending into Myanmar forms a divide b/w India and Myanmar. ● Highest peak - Saramati . ● Receive a heavy monsoon rainfall and densely forested.
Manipur Hills	<ul style="list-style-type: none"> ● Location: north of Nagaland, Mizoram in the south, upper Myanmar in east and Assam in the west bound Manipur Hills. ● Border b/w Manipur and Myanmar. ● Loktak Lake - only floating national park of the world. ● Keibul-Lamjao national park situated here.
Mizo Hills	<ul style="list-style-type: none"> ● Location- south-eastern Mizoram state. ● Formerly k/a Lushai Hills . ● Highest part- Blue Mountain. ● Part of the North Arakan Yoma system. ● aka 'Molasses basin' - made up of soft unconsolidated deposits. ● Shifting agriculture and some terrace cultivation practised.
Tripura Hills	<ul style="list-style-type: none"> ● series of parallel north-south folds, decreasing in elevation to south. ● Merge into greater Ganges-Brahmaputra lowlands (aka Eastern Plains).
Mikir Hills	<ul style="list-style-type: none"> ● Location- south of the Kaziranga National Park, Assam . ● Part of the Karbi Anglong Plateau. ● Mikir Hills - oldest landform in Assam. ● Radial drainage pattern ● Major rivers- Dhansiri and Jamuna. ● Highest peak – Dambuchko.
Garo Hills	<ul style="list-style-type: none"> ● Location: Meghalaya state . ● Highest peak: Nokrek Peak.

Khasi Hills	<ul style="list-style-type: none"> ● Part of Garo-Khasi Range in Meghalaya. ● Cherrapunji - East Khasi Hills . ● Highest peak: Lum Shyllong .
Jaintia Hills	<ul style="list-style-type: none"> ● Location: further to the east from the Khasi Hills.
Barail Hill	<ul style="list-style-type: none"> ● Location: North Cachar Hill District. ● South-western extension of the Patkai Range. ● Runs in a south-westerly direction from southern Nagaland and parts of northern Manipur, up to the Jaintia Hill of Meghalaya.

Andaman and Nicobar islands are extensions of eastern Himalayas.



Ice Ages in India

1. The Dharwar Ice Age:

- Indicated by **Moraine deposits** and other **glaciated topographical features** observed in **Karnataka**, i.e. about 1700 million years ago.

2. The Gondwana Ice Age:

- Indicated by **Telcher Series** (Odisha) of the Gondwana System.

3. The Pleistocene Ice Age:

- **Effect** of ice age was **noticed in the Himalayas**, especially in the **Karakoram and Greater Himalayan ranges**.
- **Evidenced by:** erratic rocks, boulders, cirques, eskers, rock polishing, buff-coloured sands, and laminated clays inter-stratified among the karewas deposits of Kashmir, Bhadarwa (Doda), and Ladakh.

- Also led to the formation of a number of **high altitude glacial lakes** like **Kailash-Kund** , **Sanasar Lake** near Batote, **Gulmarg-basin**, **Sheshnag**, and **Gangable Lake**.
- **Peninsular part- no evidence of Pleistocene glaciation**

Glaciers and Snowline

- **Snowline:**
 - **Lower limit of perpetual snow.**
 - **Depends on:** latitude, altitude, amount of precipitation, moisture, slope and local topography.
 - **Snowline in the Western Himalaya - lower altitude** than Eastern Himalaya.
 - Kanchenjunga** in the Sikkim - 4000m,
 - Kumaon and Lahul** - 3600m
 - Kashmir Himalayas** - 2500m above the sea level.
 - **Factors responsible** for snowline:
 - Lower **latitude** → warmer temperatures → higher snowline.
 - Precipitation - Western Himalayas** - low and occurs as **snowfall** whereas **eastern Himalayas** - greater and occurs as **rain**.



Altitude of Snowline in the Himalayas

Himalayan Region	Altitude of Snowline
NE Himalayas (Arunachal Pradesh)	4400 m
Kashmir Himalayas	5200 m to 5800 m
Kumaun Himalayas	5100m to 5500 m
Karakoram	5500 m and above

- **Glaciers:**

Main Glaciers of India

Glacier	Location	Length
Stachin	Karakoram	75km
Sasaini	Karakoram	68km
Hispara	Karakoram	61km
Biafo	Karakoram	60km
Baltoro	Karakoram	58 km
Chogo Lungma	Karakoram	50km
Khurdopin	Karakoram	47km
Rimo	Kashmir	40km
Punmah	Kashmir	27km
Gangotri	Uttarakhand	26km
Zemu	Sikkim/Nepal	25km
Rupal	Kashmir	16km
Diamir	Kashmir	11km



Current Situation:

- Himalayan glaciers are receding.
- According to the new laro satellite, Himalayan glaciers are melting, **8% advancing** and 17% showing no change.
- Commissioned by the environment ministry, the study is different from an IPCC report, claiming without sufficient evidence, that the **glaciers would vanish by 2035**

Important Passes of Himalayas

Passes of J&k and Ladakh



Banihal Pass (Jawahar Tunnel):	<ul style="list-style-type: none"> • A popular pass in Jammu and Kashmir. • Situated in Pir- Panjal Range. • Connects Banihal with Qazigund.
Zoji La:	<ul style="list-style-type: none"> • Connects Srinagar with Kargil and Leh. • Border Road Organization- clears and maintains the road, especially during winter.
Burzil pass	<ul style="list-style-type: none"> • Srinagar- Kishan Ganga Valley • Joins the Valley of Kashmir with the Deosai Plains of Ladakh.
Pensi La	<ul style="list-style-type: none"> • Connects the Kashmir valley with Kargil. • Situated in the Greater Himalayas.
Pir-Panjal Pass	<ul style="list-style-type: none"> • A traditional pass from Jammu to Srinagar. • Closed after the partition. • Shortest roadway access to Kashmir valley from Jammu.
Qara Tagh Pass	<ul style="list-style-type: none"> • Located in the Karakoram Mountains. • A subsidiary of the ancient silk route.
Khardung La	<ul style="list-style-type: none"> • Highest motorable pass in the country (5602 m). • Connects Leh and Siachen glaciers. • Closed during the winter.
Thang La	<ul style="list-style-type: none"> • Located in Ladakh. • Second highest motorable mountain pass in India.
Aghil Pass	<ul style="list-style-type: none"> • North of Mount Godwin-Austen in Karakoram. • Connects Ladakh with Xinjiang province of China.
Chang-La	<ul style="list-style-type: none"> • Connects Ladakh with Tibet.
Lanak La	<ul style="list-style-type: none"> • Aksai Chin in Ladakh region. • Connects Ladakh and Lhasa. • Chinese authorities have built a road to join Xinjiang with Tibet.
Khunjerab Pass	<ul style="list-style-type: none"> • Kashmir and China • On Indo-China border
Imis La	<ul style="list-style-type: none"> • Ladakh • Difficult geographical terrain and steep slopes. • Remains closed during the winter season.
Parpik La	<ul style="list-style-type: none"> • Kashmir and China • East of Mintaka pass on the Indo-China border
Mintaka Pass	<ul style="list-style-type: none"> • Kashmir and China • Tri Junction of India-China and Afghanistan border

Passes of Himachal Pradesh

Shipki La Pass	<ul style="list-style-type: none"> • Passes through Sutlej Gorge. • Connects Himachal Pradesh with Tibet. • India's 3rd border post for trade with China (Lipu Lekh & Nathula Pass)
Bara-Lacha Pass	<ul style="list-style-type: none"> • Himachal Pradesh- Leh-Ladakh • Situated on the National Highway in Jammu and Kashmir. • Connects Manali and Leh.
Debsa Pass	<ul style="list-style-type: none"> • Joins Spiti and Parvati Valley. • b/w the Kullu and Spiti of Himachal Pradesh. • Bypass route of Pin-Parvati Pass.
Rohtang Pass	<ul style="list-style-type: none"> • High road transportation- high jams • Connects Kullu, Spiti, and Lahaul.