

PHYSIOGRAPHIC DIVISIONS OF INDIA

by

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Introduction

India is the seventh largest country in the world. The country is bounded by the great Himalayas in the north and the Indian Ocean in the south. It stretches southwards and at the Tropic of Cancer, the shape of the country tapers into a cape form near the Indian ocean.

The southern part is flanked by the Bay of Bengal on the east and the Arabian sea to the west.

India is located entirely in the northern hemisphere. The mainland extends to about 3214 km from north to south between the extreme latitudes. It also extends to about 2933 km from east to west between the extreme longitudes.

It covers an area of 32,872,631 sq.km. It has a very diversified physiographic conditions. If we look at the distribution of physiographic units, Mountains occupy 10.6 %, Hills occupy 18.5%, plateaus occupy 27.7% and the plains occupy 43.2%.

The Indian sub-continent is characterised by a great and diversified group of physical features.

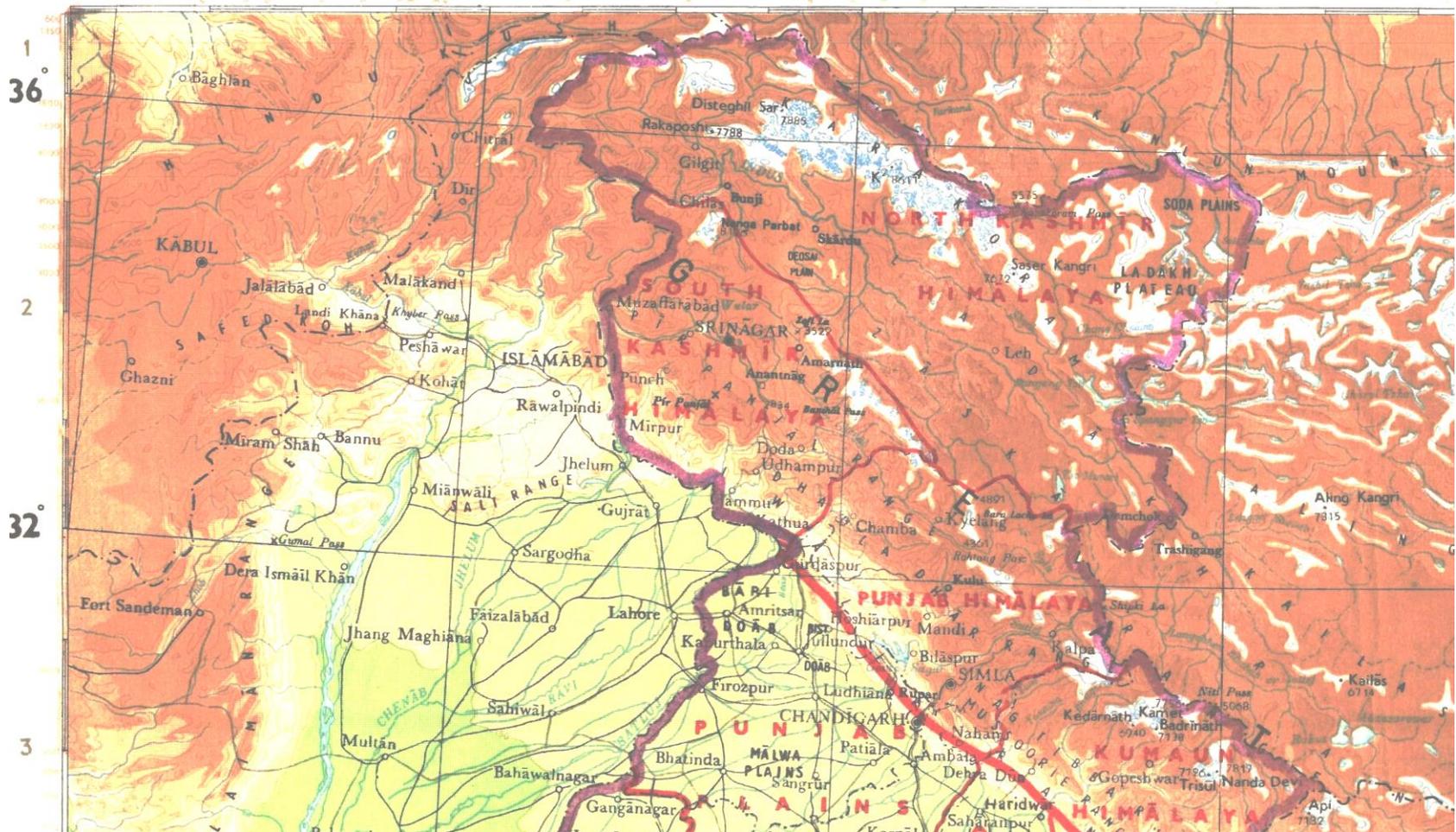
They are classified into the following physiographic units :

1. The Himalayas and other ranges.
2. The Indo-Gangetic plain.
3. The Thar Deserts
4. The Peninsular Plateau.
5. The Coastal belts and Islands.

1. THE HIMALAYAS AND OTHER RANGES

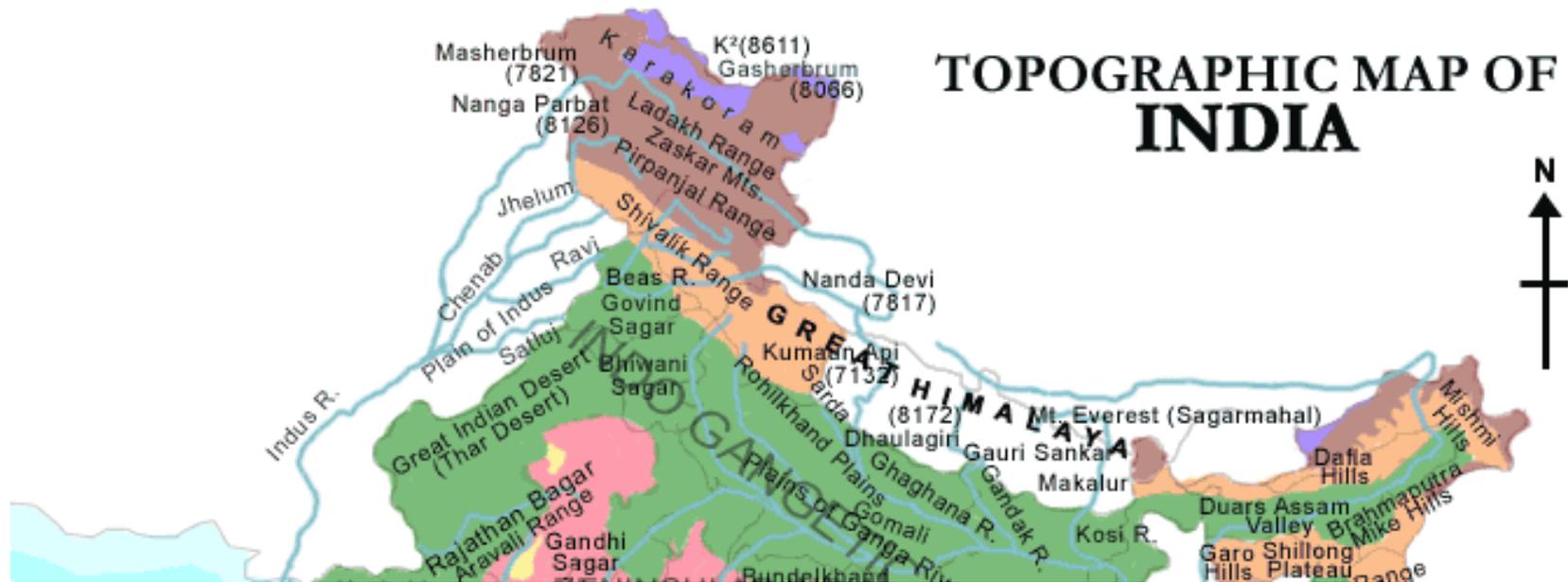
India is proud to have the Himalayan Mountain Ranges in its northern border.

Himalayan mountains are the world's most spectacular arc of mountains, existing in the northern India , consisting of the Himalayas, Hindu Kush, and Patkai ranges.



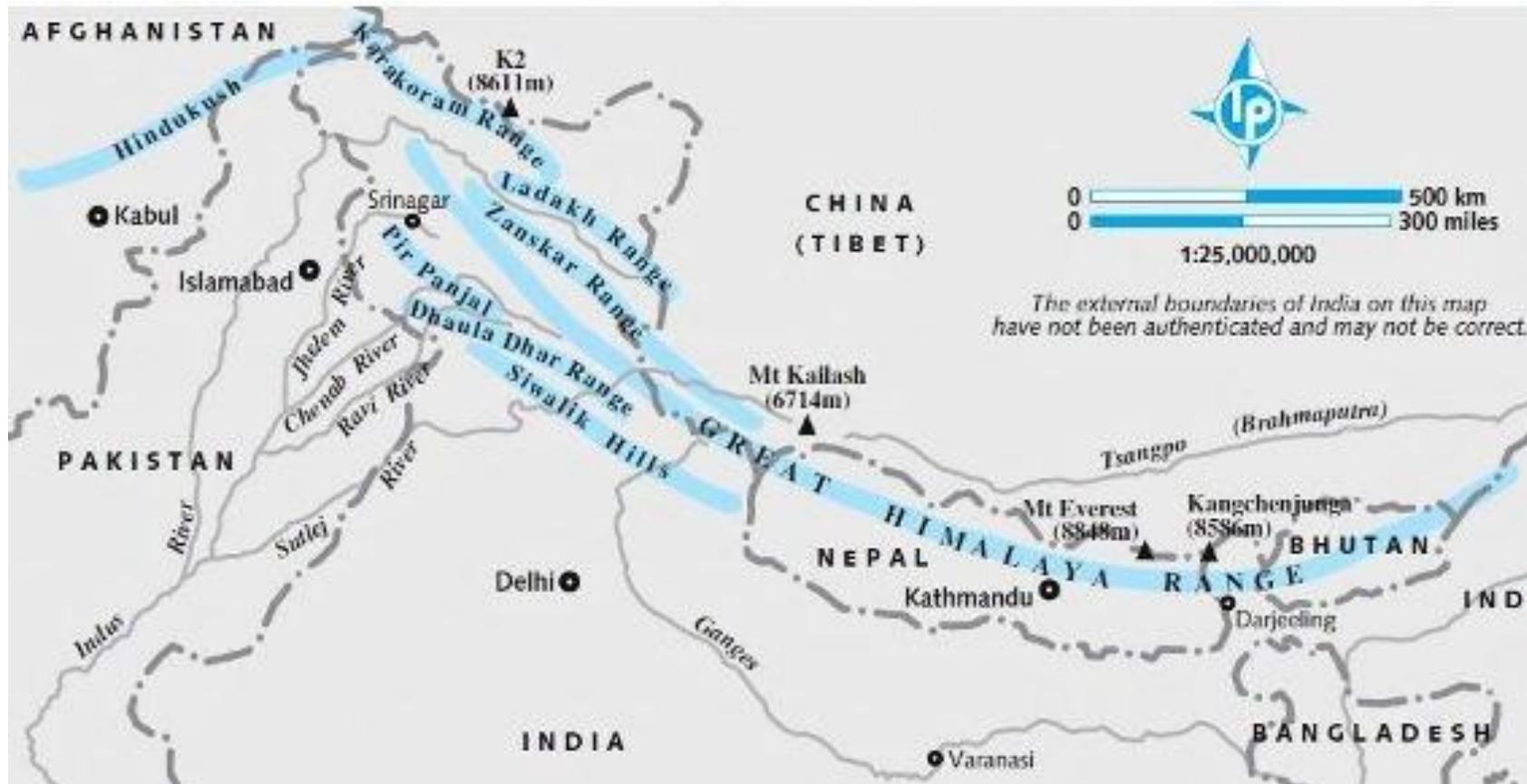
Himalayas are classified into two major types of ranges.

The first classification is based on elevation from lesser to greater heights.



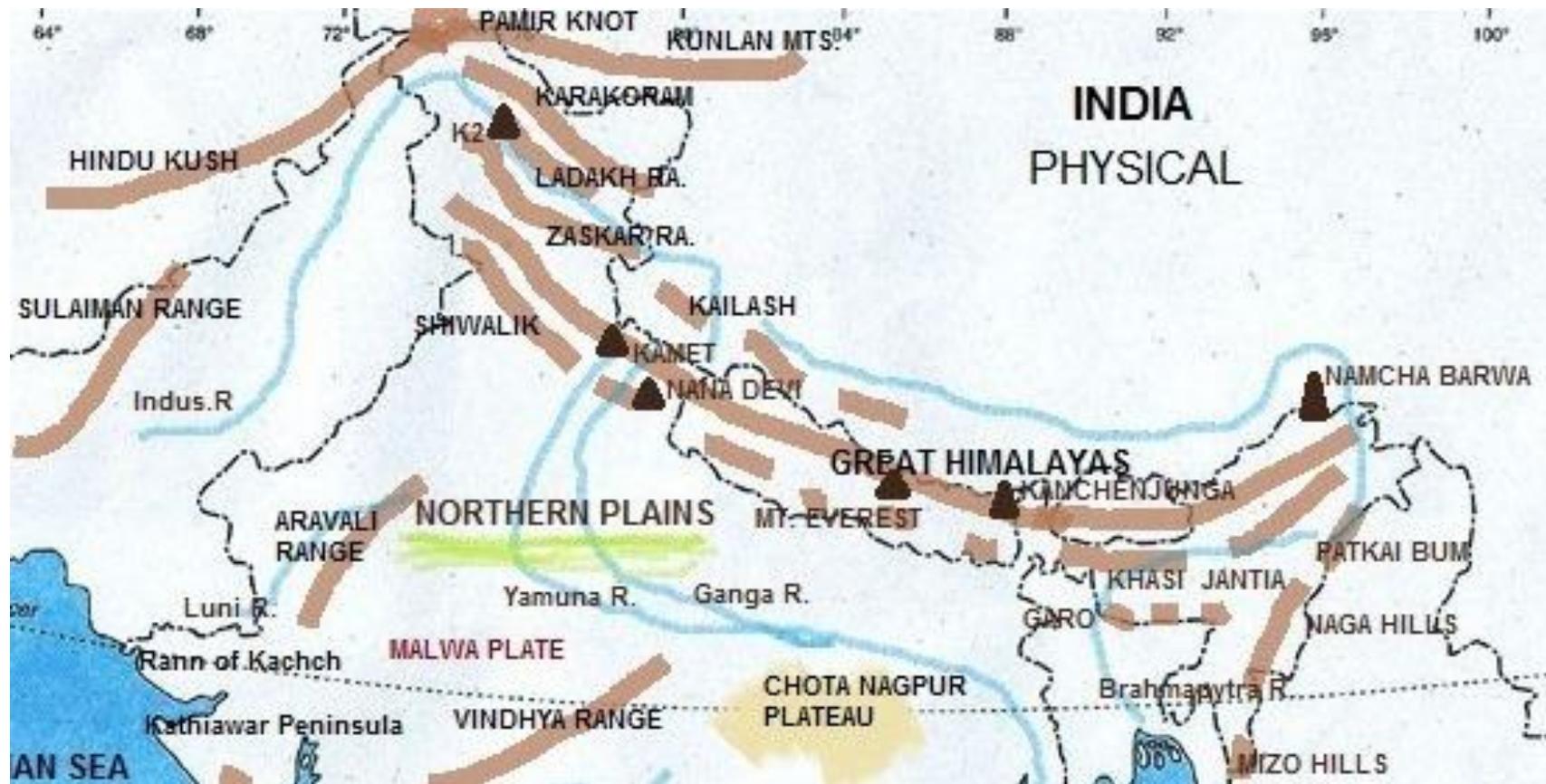
As per this, the following three ranges of Himalayas identified:

1. The Siwaliks Ranges, which are called as outer Himalayas.
2. The Himachal Ranges called as Lesser Himalayas and
3. The Himadri Ranges which are called as Greater Himalayas.



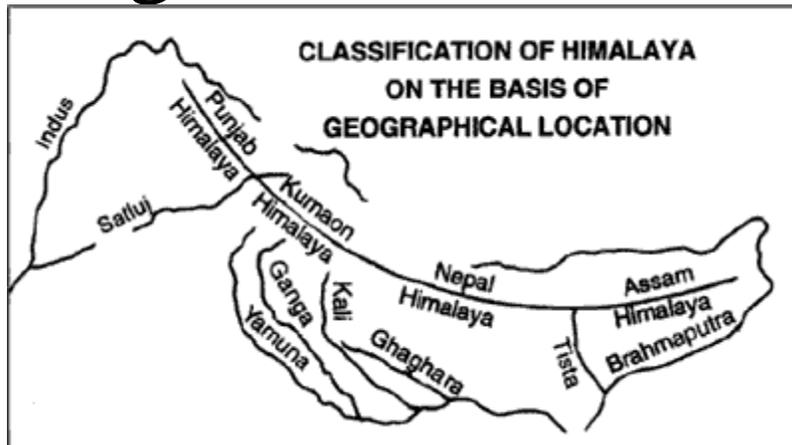
The Siwaliks Ranges are in the outer zone. The elevation is from 600 to 1500m. The average elevation is 600m.

This range is elongated to 2400km, including 90km long Gorges of the Tista and the Raidak. It is 8-45 km wide. This is a discontinuous range. In the Siwalik range the notable valleys are Dehra Dun, Kotah, Patli, Kothri, Chumbi, and Kyarda.



The Himachal Ranges are called as the Lesser Himalayas.

The elevation ranges from 1000 to 4500m. It includes parallel ranges of Nepal and Punjab. Notable ones are Dhauladhar, Pirpanjal(longest), Nag Tiba, Mahabharat range and the Mussourie range.



The world famous hill stations like Shimla, Chail, Ranikhet, Chakrata, Mussourie, Nainital , Almora and Darjeeling are all situated in this range. It is 80km wide. The most ancient to Palaeozoic rocks exist here. It includes the Kashmir, Himachal and Garhwal Sections.

The Himadri ranges are called as the Greater Himalays.

The elevation is from 4500 to 6000m.

This range houses the highest peaks of the Himalayas. The average height is 6100m.

The notable peaks are:

Mount Everest= 8848m,

Kanchenjunga= 8598m,

Makalu= 8481m,

Dhaulagiri=8172m,
Mansalu=8156m,
Cho Oyu= 8153m,
Nanga Parbat= 8126m, and
Annapurna= 8078m.

Most of the peaks in the Himalayas remain snowbound throughout the year.

A lot of Mountain passes exist in this range. This is a range of extensive snowfields and glaciers.

As per the second classification, the Himalayas are classified into three regional divisions based on their geographic locations.

They are the Western Himalayas, the Central Himalayas and the Eastern Himalayan Regions.

The western Himalayas have the following ranges:

Siwaliks	Jammu Hills
Himachal	Pir Panjal, Dhaua Dhar, Nag Tigga, Mussorie range
Himadri	Glaciers of Jammu & Kashmir, Zauskar range with Nanga Parbat, Mt. Kamet, Nanda Devi, Gurla Mandhata.

Western Himalayas covers the zones of

- a. Kashmir Himalayas- which include Karakoram, Laddakh Plateau, Kashmir valley and Pir Panjal Range
- b. Punjab Himalayas- which include Kangra, Lahul, and Spiti,
- c. Kumaon Himalayas- which include Gangotri, Yamunotri, and Badriniath

The Central Himalayas, which is also called as Nepal Himalayas, have the following ranges:

Siwaliks	Dhang, Dundwa, Churia Ghati
Himachal	Mahabharat Range, Valley of Kathmandu
Himadri	Mt. Everest, Dhaulagiri, Makalu, Manaslu, Annapurna.

The Eastern Himalayas consists of Bhutan, Sikkim, and Darjeeling Himalayas and Arunachal Pradesh except Tirap district.

Siwaliks	Miri, Abhor, Mishmi, Gorges of Tista and Raidak
Himachal	Less distinct
Himadri	Bhutan, Sikkim, Darjeeling, Arunachal Pradesh.

The Trans-Himalayas- or the Tethys Himalayas.

This is about 40km wide and 965km long. It consists of Karakoram range, Ladakh and Kailash ranges.

The average height ranges from 3100m to 3700m.

The Karakoram range is known as the “backbone of High Asia”.

Rivers originating in these mountains, flow through the fertile Indo–Gangetic plains as perennial rivers. Millions of people live in this region.

They extend almost uninterruptedly for a length of 2,500 km , covering a vast area of 500,000 sq.km .

The Karakoram mountains are situated in the border state of Jammu and Kashmir. It has more than sixty peaks above 7,000 m.

The notable peak is K2, the second highest peak in the world having an altitude of 8,611 m. K2 is just 237 m smaller than the Mount Everest.

The range is about 500 km in length and the most heavily glaciated part of the world outside of the polar regions.

The Siachen Glacier at 70 km and the Biafo Glacier at 63 km rank as the world's second and third-longest glaciers outside the polar regions.

Just to the west of the northwest end of the Karakoram, lies the Hindu Raj range. Beyond this lies the Hindu Kush range.

The Patkai, or Purvanchal, are situated near India's eastern border with Myanmar.

There are three notable hill ranges that come under the Patkai as,
a) the Patkai–Bum,

- b) the Garo–Khasi–Jaintia and
- c) the Lushai hills.

The Garo–Khasi range lies in Meghalaya.

Mawsynram, a village near Cherrapunji, is the wettest place in the world, receiving the highest annual rainfall, in India.

2. THE INDO-GANGETIC PLAIN.

The Indo-Gangetic Plains are the most fertile zones in the world. The Great plains of the Ganga and the Indus, about 2,400 km long and 240 to 320 km broad, are formed by basins of three distinct river systems.



They are the Indus, the Ganga and the Brahmaputra.

The main tributaries of these rivers are – Yamuna, Chambal, Gomti, Ghaghara, Kosi, Sutlej, Ravi, Beas, Chenab, and Tista—as well as the rivers of the Ganges Delta, such as the Meghna.

They are one of the world's greatest stretches of flat alluvium. This is the most densely populated areas on the planet earth. They run parallel to the Himalayas, from Jammu and Kashmir in the west to Assam in the east, and drain most of northern and eastern India. The plains encompass an area of 700,000 sq. km.

Between the Yamuna at Delhi and the Bay of Bengal, nearly 1,600 km away, there is only a drop of 200 metres in elevation.

Two narrow terrain belts, collectively known as the Terai, constitute the northern boundary of the Indo-Gangetic Plain.

The southern boundary of the plain begins along the edge of the Great Indian Desert in the state of Rajasthan.

The great plains are classified into four belts:

- . The **Bhabar** belt
- . The **Terai** belt
- . The **Bangar** belt
- . The **Khadar** belt

Some geographers subdivide the Indo-Gangetic Plain into three parts:

- a) the Indus Valley (mostly in Pakistan),
- b) the Punjab (divided between India and Pakistan) and Haryana plains, and
- c) the middle and lower Ganga.

These regional distinctions are based primarily on the availability of water.

The Punjab Plain is centered in the land between five rivers: the Jhelum, the Chenab, the Ravi, the Beas, and the Sutlej.

The name *Punjab* comes from the Sanskrit *pancha ab* , meaning five waters or rivers.

Both the Punjab and Haryana plains are irrigated with water from the Ravi, Beas, and Sutlej rivers.

The middle Ganga extends from the Yamuna River in the west to the state of West Bengal in the east. The lower Ganga and the Assam Valley are more lush and verdant than the middle Ganga.

The lower Ganga is centered in West Bengal from which it flows into Bangladesh and, after joining the Jamuna (as the lower reaches of the Brahmaputra are known in Bangladesh), forms the delta of the Ganga. The Brahmaputra (meaning son of Brahma) rises in Tibet (China's Xizang Autonomous Region) as the Yarlung Zangbo River, flows through Arunachal Pradesh and Assam, and then crosses into Bangladesh.

Average annual rainfall increases moving west to east from approximately 600 millimeters in the Punjab Plain to 1,500 millimeters around the lower Ganga and Brahmaputra region.

The plains are one of the world's most intensely farmed areas.

3. THE THAR DESERTS

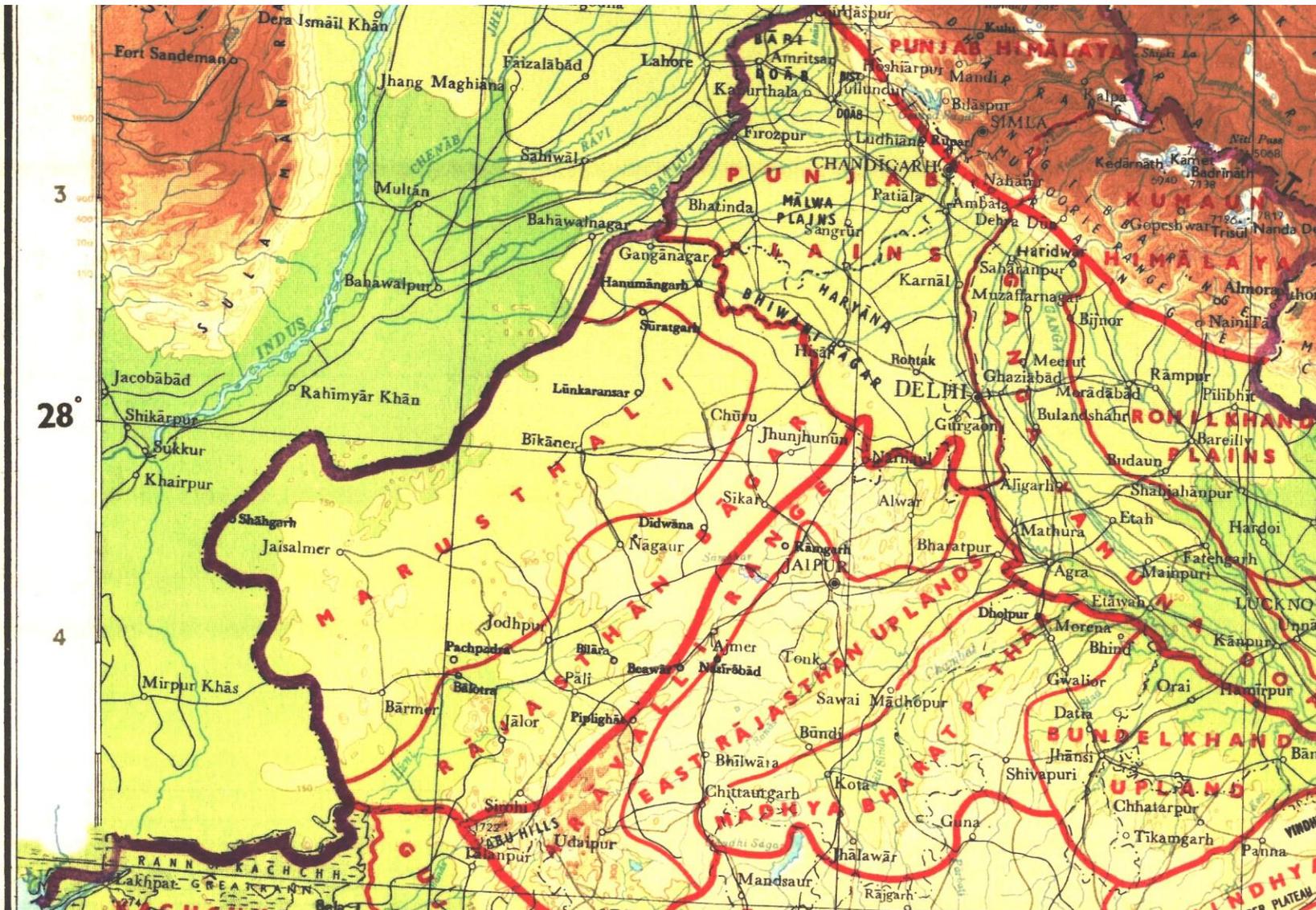
The Great Indian Desert called as Thar desert is one of the important arid regions in the world.

This desert region can be divided into two parts as the great desert and the little desert regions. The great desert region extends from the edge of the Rann of Kuchch beyond the Luni River northward.

The whole of the Rajasthan-Sind frontier runs through this region.

The little desert region extends from the Luni between Jaisalmer and Jodhpur up to the northern wastes.

Between the great and the little deserts lies a zone of absolutely sterile country, consisting of rocky land, cut up by limestone ridges.



The Thar Desert (also known as the *Great Indian Desert*) is the world's seventh largest desert.

It forms a significant portion of western India and covers an area of about 200,000 km² to about 238,700 km² .

The Thar desert continues into Pakistan as the Cholistan Desert.

Most of the Thar Desert is situated in Rajasthan in India, covering about 61% of its geographic area.

About 10 percent of this region comprises sand dunes, and the remaining 90 percent consist of craggy rock forms, compacted salt-lake bottoms, and inter-dunal and fixed dune areas.

The annual temperatures range from 0°C in the winter to over 50°C during the summer. Most of the rainfall received in this region is associated with the short July–September southwest monsoon. The annual rainfall is only 100–500 mm.

Water is scarce and occurs at great depths, ranging from 30 to 120 m below the ground level.

The rainfall is precarious and erratic.

The soils of this arid region are generally sandy to sandy-loam in texture.

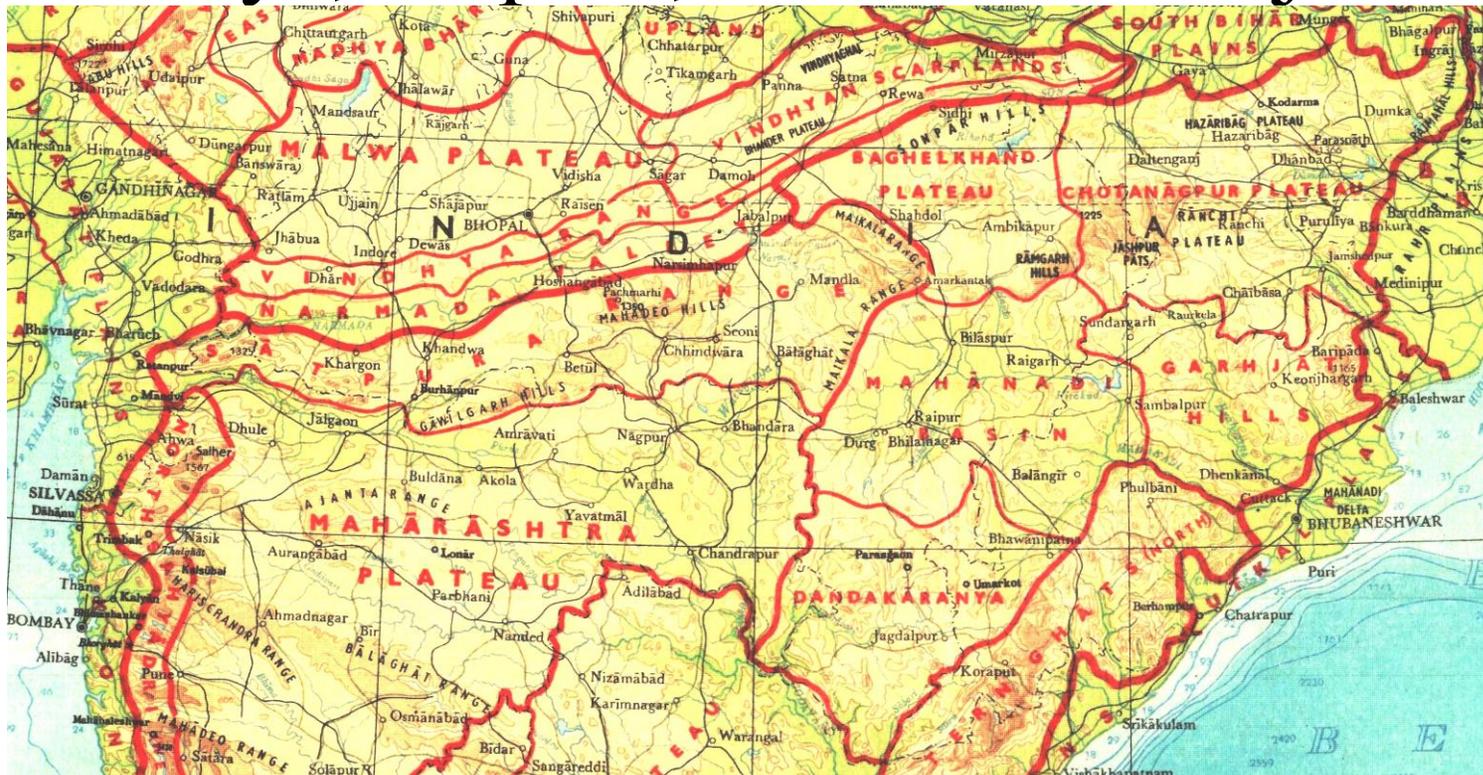
The low-lying loams are heavier and may have a hard pan of clay, calcium carbonate or gypsum.

4. THE PENINSULAR PLATEAU

The Peninsular Uplands of India are the most prominent zones for several of India's developments.

The Peninsular Plateau is marked off from the plains of the Ganga and the Indus by a mass of mountain and hill ranges varying from 460 to 1,220 metres in height.

Prominent among these are the Aravalli, Vindhya, Satpura, Maikala and Ajanta.



The Peninsula is flanked on the one side by the Eastern Ghats where average elevation is about 610 metres and on the other by the Western Ghats where it is generally from 915 to 1,220 metres, rising in places to over 2,440 metres.

Between the Western Ghats and the Arabian Sea lies a narrow coastal strip, while between Eastern Ghats and the Bay of Bengal there is a broader coastal area.



The southern point of plateau is formed by the Nilgiri Hills where the Eastern and the Western Ghats meet.

The Cardamom Hills lying beyond may be regarded as a continuation of the Western Ghats.

The Vindhya range of mountains run across the central India. They extend almost to 1,050 km. The average elevation of these hills is 3,000 m.

They are believed to have been formed by the remnants of the ancient Aravali mountains.

Geographically, it separates the northern India from the southern India. The western end of the Vindhyan mountain range lies in eastern Gujarat, near its border with Madhya Pradesh.



The Satpura Range begins in the eastern Gujarat near the Arabian Sea coast and runs east across Maharashtra, Madhya Pradesh and Chhattisgarh. It extends to about 900 km with many peaks rising above 1,000 m .

It is triangular in shape, with its apex at Ratnapuri and the two sides being parallel to the Tapti and Narmada rivers.

It runs parallel to the Vindhya Range, which lies to the north, and these two east-west ranges divide the Indo–Gangetic plain from the Deccan Plateau located south of River Narmada.

The Aravali Range is the oldest mountain range in India. It is spread across Rajasthan from northeast to southwest direction extending approximately to 800 km.

The highest peak is Guru Shikhar at Mount Abu, rising to an altitude of 1,722 m.

The Central Highlands comprise of three main plateaus as:

- a) the Malwa Plateau in the west,
- b) the Deccan Plateau in the south
(covering most of the Indian peninsula)
and
- c) the Chota Nagpur Plateau in the east.

The Malwa Plateau is spread across Rajasthan, Madhya Pradesh and Gujarat. The average elevation of the Malwa plateau is 500 metres. Most of the region is drained by the Chambal River and its tributaries; the western part is drained by the upper reaches of the Mahi River. The Deccan Plateau is a large triangular plateau, bounded by the Vindhyas to the north and flanked by the Eastern and Western Ghats.

The Deccan covers a total area of 1.9 million km². It is mostly flat, with elevations ranging from 300 to 600 m .Much of the Deccan is covered by thorn scrub forest scattered with small regions of deciduous broadleaf forest. The Chota Nagpur Plateau is situated in eastern India, covering much of Jharkhand and adjacent parts of Orissa, Bihar and Chhattisgarh.

Its total area is approximately 65,000 sq. km and is made up of three smaller plateaus

- a) the Ranchi,
- b) Hazaribagh, and
- c) Kodarma plateaus.

The Ranchi plateau is the largest, with an average elevation of 700 m . The Kathiawar peninsula in western Gujarat is bounded by the Gulf of Kutch and the Gulf of Khambat.



The Western Ghats or Sahyadri mountains run along the western edge of India's Deccan Plateau and separate it from a narrow coastal plain along the Arabian Sea.

The range runs approximately 1,600 km from south of the Tapti River near the Gujarat–Maharashtra border and across Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu to the southern tip of the Deccan peninsula.

The average elevation is around 1,000 m. Anai Mudi in the Anaimalai Hills existing in Kerala is the highest points in the Western Ghats. The **Eastern Ghats** or **Eastern Ghats** are a discontinuous range of mountains along India's eastern coast. The Eastern Ghats run from West Bengal state in the north, through Orissa and Andhra Pradesh to Tamil Nadu in the south passing some parts of Karnataka.

The Deccan Plateau lies to the west of the range, between the Eastern Ghats and Western Ghats. The coastal plains lies between the Eastern Ghats and the Bay of Bengal. The Eastern Ghats are not as high as the Western Ghats. The Eastern Ghats are a discontinuous range of mountains, which have been eroded and drained by the four major rivers of southern India, the Godavari, Mahanadi, Krishna, and Kaveri.

The Nilgiri hills in Tamil Nadu lies at the junction of the Eastern and Western Ghats. The southernmost of the Eastern Ghats are the low Sirumalai and Karanthamalai Hills of southern Tamil Nadu.

North of the River Kaveri are higher Kollimalai, Pachaimalai, Shevaroy (Servaroyan), Kalrayan Hills, Chitteri, Palamalai and Mettur Hills in northern Tamil Nadu state.

The hill station of Yercaud is located in the Shevaroy Hills. The Bilgiri Hills, which run east from the Western Ghats to the River Kaveri, forms a forested ecological corridor that connects the Eastern and Western Ghats.

The Ponnaiyar and Palar Rivers flow from headwaters on the Kolar Plateau eastward through gaps in the Ghats to empty into the Bay of Bengal.

The Javadu Hills lie between the two rivers. North of the Palar River in Andhra Pradesh, the central portion of the Eastern Ghats consist of two parallel ranges running approximately north-south.

The lower Velikonda Range lies to the east, and the higher Palikonda-Lankamalla-Nallamalla Ranges lie to the west.

5. THE COASTAL BELTS AND ISLANDS.

The Eastern Coastal Plain is a wide stretch of land lying between the Eastern Ghats and the Bay of Bengal.

It stretches from Tamil Nadu in the south to West Bengal in the north.

The Mahanadi, Godavari, Kaveri, and Krishna rivers drain these plains and their deltas occupy most of the area.

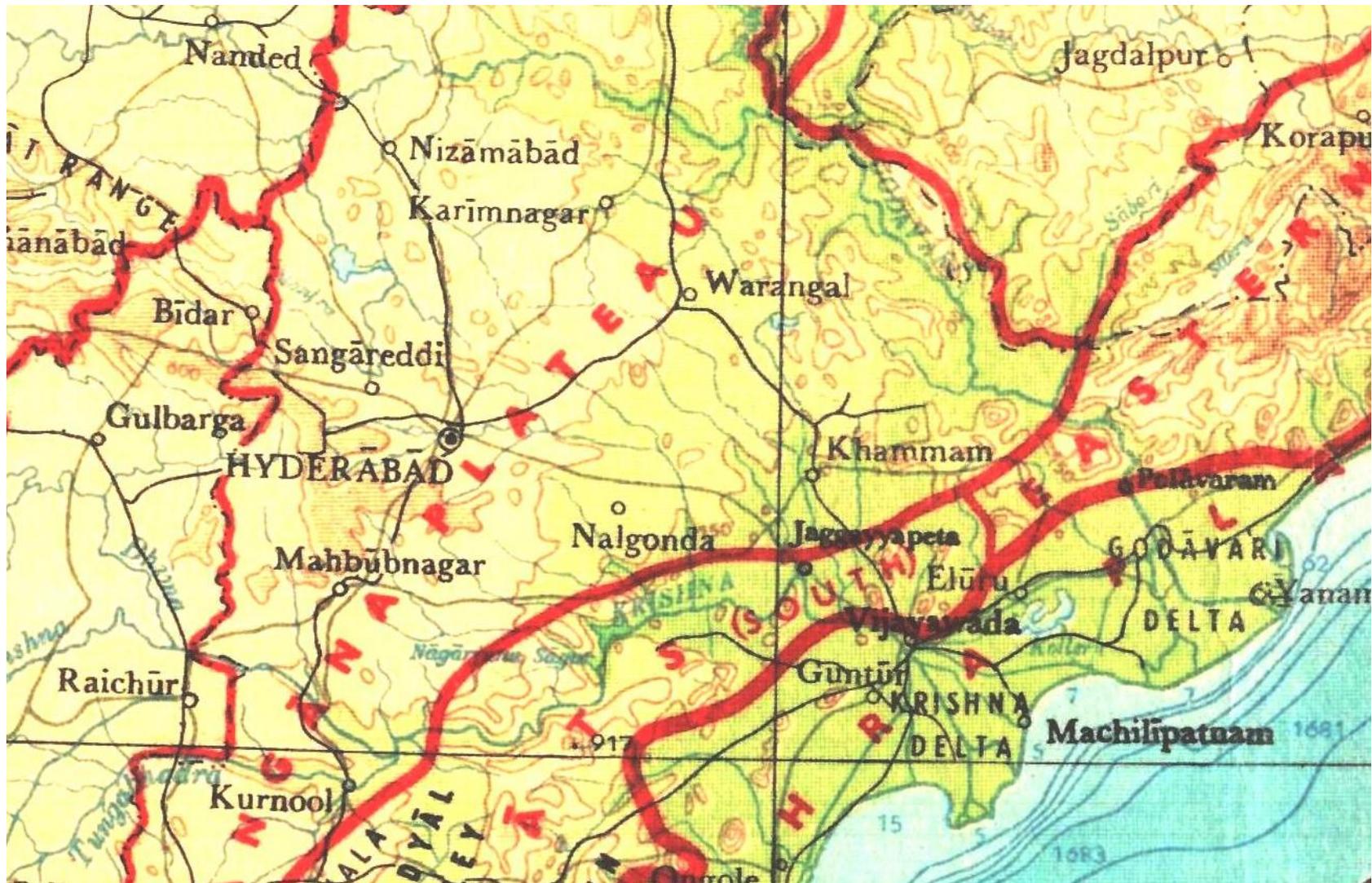
The Arabian Sea branch moves northwards and discharges much of its rain on the windward side of Western Ghats.

Annual rainfall in this region averages between 1,000 and 3,000 mm. The width of the plains varies between 100 and 130 km.



The plains are divided into six regions—

- 1) the Mahanadi delta,
- 2) the southern Andhra Pradesh plain,
- 3) the Krishna-Godavari deltas,
- 4) the Kanyakumari coast,
- 5) the Coromandel Coast, and
- 6) sandy coastal zone.



The Western Coastal Plain is a narrow strip of land sandwiched between the Western Ghats and the Arabian Sea, ranging from 50 to 100 km in width.

It extends from Gujarat in the north and extends through Maharashtra, Goa, Karnataka, and Kerala. Numerous rivers and backwaters inundate the region.





Mostly originating in the Western Ghats, the rivers are fast-flowing, usually perennial, and empty into estuaries. Major rivers flowing into the sea are the Tapi, Narmada, Mandovi and Zuari. Vegetation is mostly deciduous, but the Malabar Coast moist forests constitute a unique ecoregion. The Western Coastal Plain can be divided into two parts, the Konkan and the Malabar Coast.



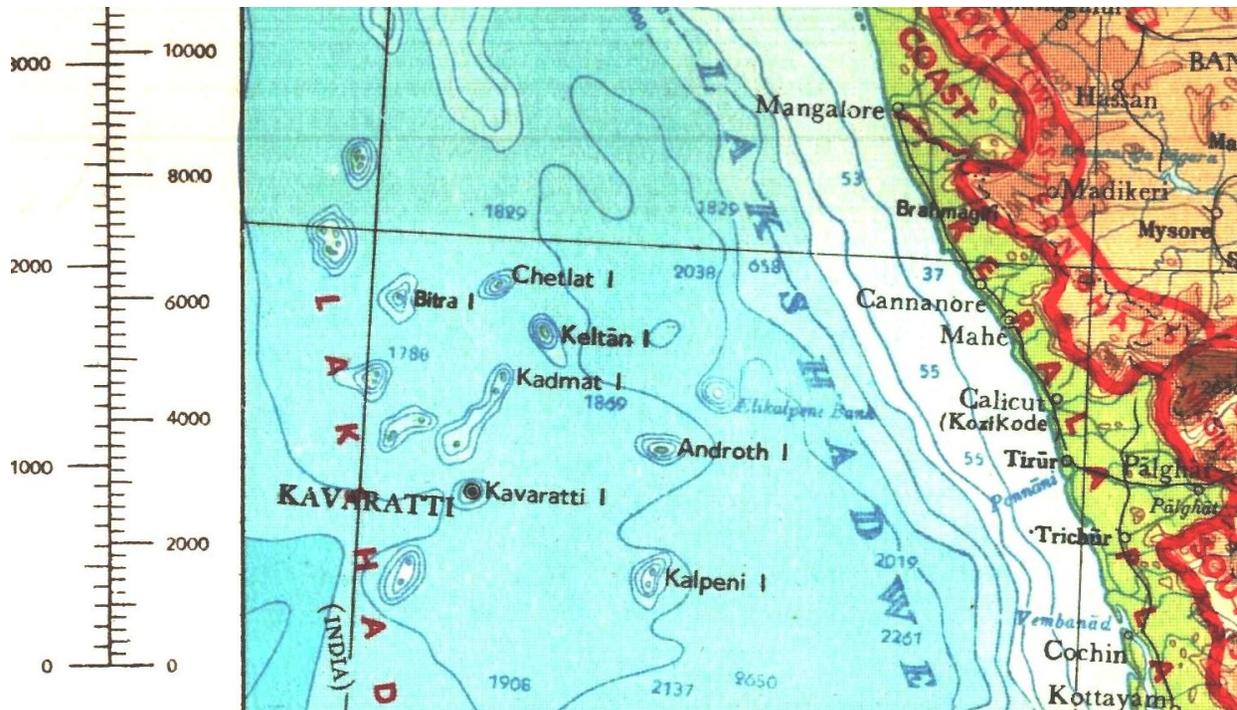
THE INDIAN ISLANDS

In India, there are total 247 islands of which 204 islands in Bay of Bengal and 43 in the Arabian Sea. Few coral islands in the Gulf of Mannar also. The Andaman and Nicobar Islands in Bay of Bengal consist of hard volcanic rocks.

The middle Andaman and Nicobar Islands are the largest islands of India.

Lakshadweep islands in the Arabian Sea are formed by corals. The southern – most point of India is in Nicobar Island, known as Indira Point. Formerly Indira point was called Pygmalion Point, it is submerged now, after 2004 Tsunami.

The Lakshadweep and the Andaman and Nicobar Islands are India's two major island formations and are classified as union territories.



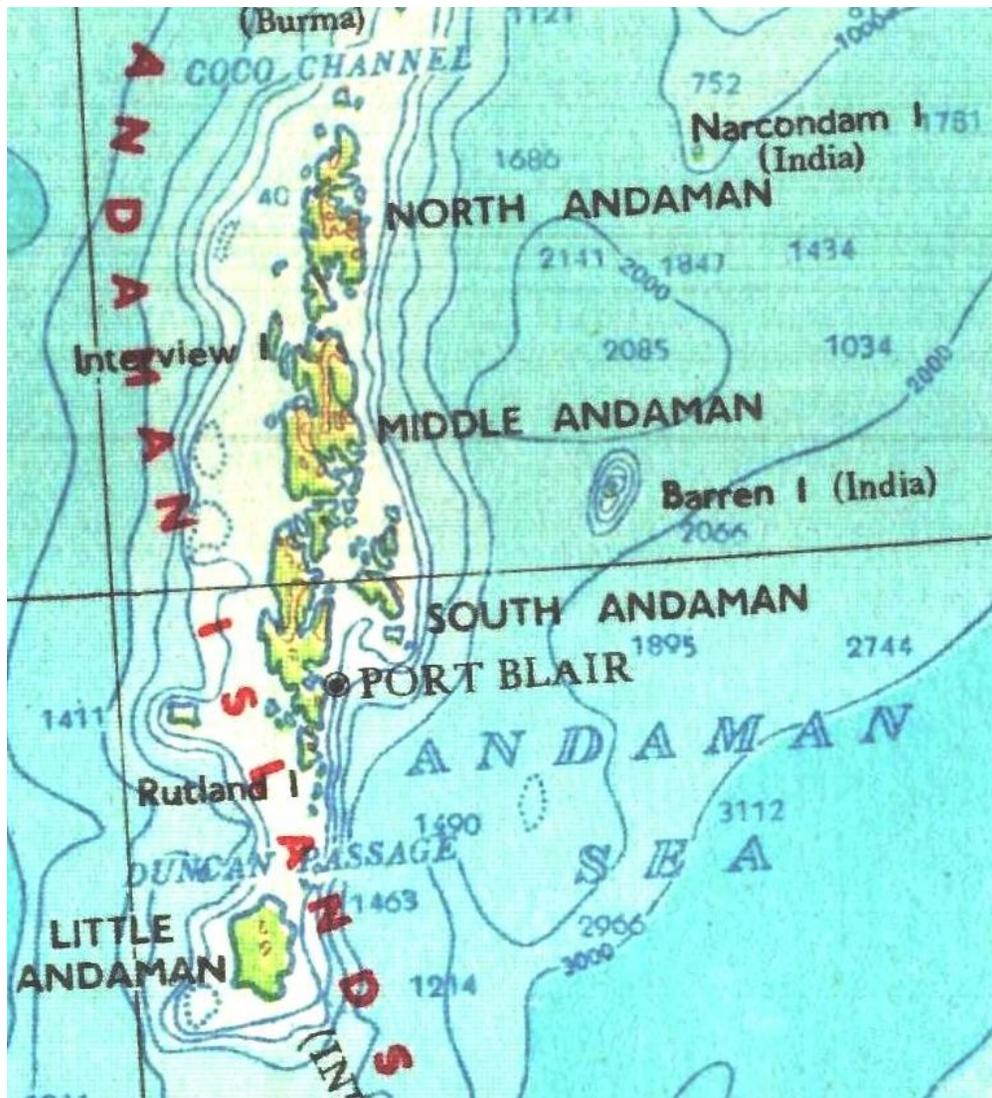
The Lakshadweep Islands lie 200 to 300 km (120 to 190 mi) off the coast of Kerala in the Arabian Sea with an area of 32 km² (12 sq mi). They consist of twelve atolls, three reefs, and five submerged banks, with a total of about 36 islands and islets.

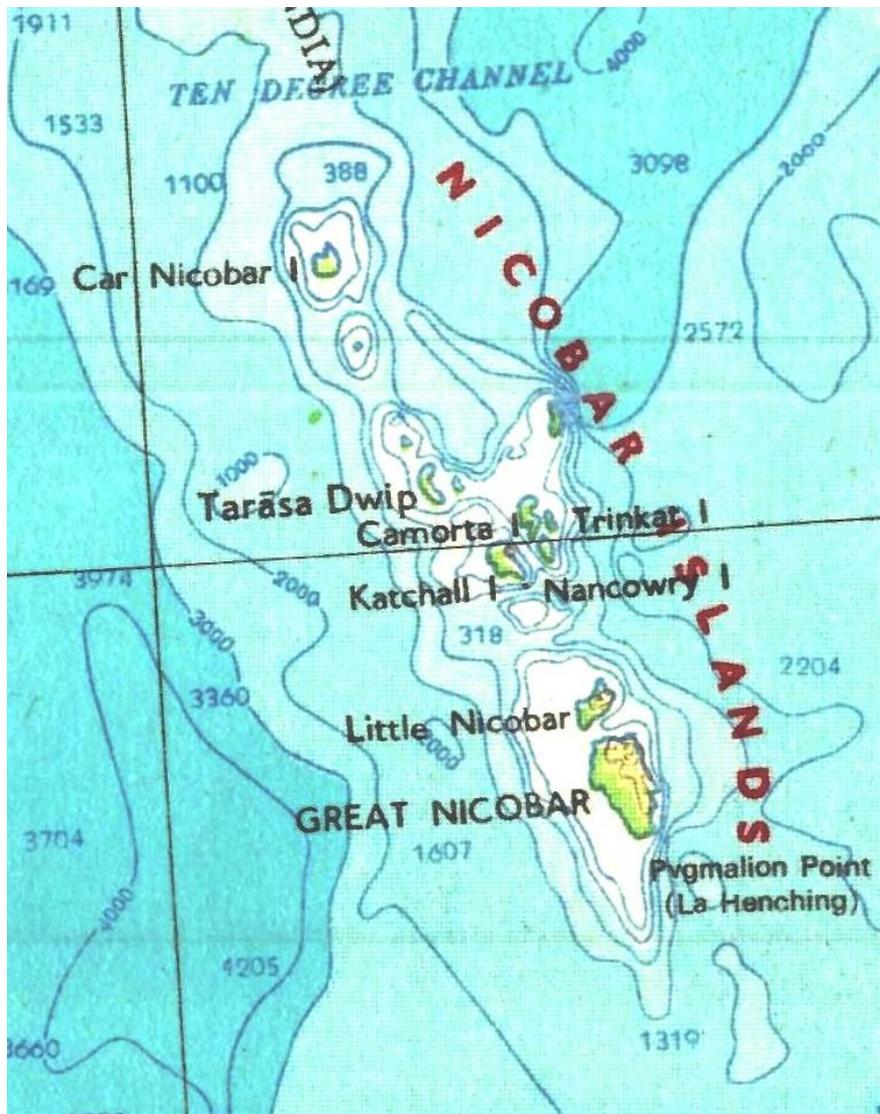
The Andaman and Nicobar Islands consist of 572 islands, lying in the Bay of Bengal near the Myanmar coast.

The Andaman group of islands consists of 204 small islands across a total length of 352 km.

India's only active volcano, Barren Island is situated here.

It last erupted in May 2005.





Indira Point, India's southernmost land point, is situated in the Nicobar islands.

The highest point is Mount Thullier at 642 m (2,106 ft).

Other significant islands in India include,

a) Diu, a former Portuguese enclave;

b) Majuli, a river island of the
Brahmaputra;

c) Elephanta in Bombay Harbour; and

d) Sriharikota, a barrier island in
Andhra Pradesh.

Salsette Island is India's most populous island on which the city of Mumbai (Bombay) is located.

Forty-two islands in the Gulf of Kutch constitute the Marine National Park.

Conclusion:

India is situated entirely on the Indian Plate, a major tectonic plate that was formed when it split off from the ancient continent Gondwanaland (ancient landmass, consisting of the southern part of the supercontinent of Pangea).
India has the topographical diversity.

This includes the Great Himalayas, the Northern Plain, the Thar desert, the coastal plains and the Peninsular Plateau.

India is a country of physical diversity.

There are high mountain peaks in some areas while in others, lie the flat plains formed by rivers.

On the basis of physical features, India can be divided into following six divisions:

1. The Northern mountains
2. The Northern Plains
3. The Peninsular Plateau
4. The Indian Desert
5. The Coastal Plains and
6. The Islands.