# INDIA PHYSICAL GEOGRAPHY

### **IMPORTANT MOUNTAIN RANGES**

### **KARAKORAM RANGES:**

- 1. Extends form the Pamir, east of the Gilgist River, 600 km long and the average width 120-140km.
- 2. Ancient name was Krishnagiri.
- 3. Trans Himalaya, originally a part of Eurasian plate.
- 4. Abode of largest glaciers in India.
- 5. Siachen, Baltora, Biafo, and Hisper all the four of largest glacier are in Karakoram.
- 6. Highest Peak: K<sub>2</sub> or Godwin Austin (8611m)
- 7. Other important Peak: Gasherbrum or Hidden Peak Broad Peak and Gasherbrum II
- 8. In the northern limit of Karakoram Range lies Pamir, the Aghil Mountains and the Yarkand River and in the southern limit Rive Indus and its tributary Shyok.

### LADDAKH RANGE

- 1. Situated to the north of Indus Tsangpo Suture Zone (ITSZ) and south or Karakoram, between River Indus and Shyok.
- 2. Highest Peak: Mt.Rakaposhi (steepest peak in the world)

### (A)GREAT HIMALAYA OR HIMADRI

1. Northern most part of the Himalayan Range is the world's highest with an average altitude of 6,000m.

2. include the word's highest peak, Mt. Everest(8,848 m), Makalu (8,481m) Mansalu (8,156m), Annapurna(8,078m) and also the Indian peak Kanchenjungs (8,598 m) and Nanga Parbat(8,126m) 3. Include some famous passes- Burzil and Zozila in Kashmir, Shipki La and Bara lapchala in Himachal Pradesh, Thag La, Niti Pass, and Lipulekh in U.p Jelepla and Nathu La in Sikkim.

### ZASKAR RANGE

Western part of the main Great Himalayan Mountain is situated to the south of Trans Himalayan.

### Nanga Parbat (8,126m)

Forms the north-west part of Zaskar Range but geographically confined to the Kashmir, Himachal Pradesh, Garhwal region.

Second highest peak of the Himalayan Range in India.

# Dhalagiri (8,172 m)

Eastern continuation of Nanga Parbat and is located in Nepal.

### (B) LESSER HIMALAYA

Also known as Himachal-Himalaya which is separated from the Shiwalik Range by Duns.

#### (I) PIR PANJAL RANGE

Located in Kashmir, Punjab and extends from the Jhelum River to the upper Beas River for over 300km.

Separated form the Zaskar Range by the valley of Kashmire (vale of

Kashmir)

### (II) DHAULADHAR

Southern-most range of the Lower or Lesser Himalaya.

Rarely attains elevations higher then 4,000m

Continue eastward in to Mahabharat Range.

### (C)SIWALIK RANGE

Extends from Jammu & Kashmir (150km wide) to Arunachal Pradesh (8-

15km) over 2400km.

Northern limit-Main Boundary thrust which separates Outer Himalaya from

the Lesser Himalaya. Its southern limit is Indo Gangetic Plain.

Also known as Sub-Himalaya or Outer Himalaya.

Youngest part of mountain chain stretching form the Brahmaputra to the Indus.

Separated from Lesser Himalaya by Main Boundary Thrust.

# CLASSIFICATION OF HIMALAYA ON THE BASIS OF GEOGRAPHICAL LOCATION:

NAME	LOCATION	DISTANCE
1.Punjab Himalaya	Between Indus and Sutlej	560 km
2.Kumaon Himalaya	Between Sutluj and Kali	320 km
3.Nepal Himalaya	Between Kali and Tista	800 km
4.Assam Himalaya	Between Tista and Dihang	720 km

#### THE PURVANCHAL

#### (The North Eastern Highland)

The Himalaya range after crossing the Dihang gorge in the east, bend southwards, forming a series of hills, in north south trend.

Hills, North Cachar Hills and the Tripura Hills.

### PURU NEFA

#### (I) Mishmi Hills

The highest range of Purvanchal Hills which is situated in the north-eastern part of Arunachal Pradesh.

#### (II) Patkai Bum

A synclinal range extending north south in Arunachal Pradesh and Nagaland.

Courtesy : Saidai Manithaneyam

#### NAGA RANGES

Forms watershed between Nagaland and Myanmar.

#### MANIPUR HILLS

Characterized by ridge and valley type of topography

Loktak lake (centripetal drainage) is situated in this hill.

#### NORTH CACHAR HILLS

Larger portion of hilly belt lying between Meghalaya and the North eastern ranges.

#### **MIZO HILLS**

Previously known as Lushai Hills

Characterised by cuesta type of topography

#### **TRIPURA HILLS**

Characterised by ridge and valley topography

#### THE NORTHERN PLAINS OF INDIA

East-West Extent 2,400 km (3,200 km if the Indus plains are included)

Average width:150-300km

1.Largest alluvial tract of the world, extending from the mouth of Indus to the mouth of Ganga between Peninsular plateau and the northern are of the mountains.

2. Alluvial in nature, and are composed of Bhangar (old alluvium), Khadar (new alluvium) in river bed. Bhabar (porous gravel ridden plains at the foot of Himalaya) and Terai (damp thickly forest area, where bhabar stream reappears)

### SUBDIVISION OF GREAT PLAINS

#### THE RAJASTHAN PLAIN

Extent:650km long.

Average width:250-300 km wide

Thar or Great Indian Desert is the westernmost region of Great Indian Plains in the western Rajasthan.

#### **Dream Dare Win**

A semi arid plain, lying to the east of Thar desert is known as Rajasthan Bagar.

The Luni is the only southwest flowing rivers of this region.

The Sambhar(largest), the Kuchaman, and the Didwana are important lakes situated to the north of Luni Basin.

#### THE PUNJAB HARYANA PLAINS:

Extent:640km in northwest to southeast and 300km in east west direction. Extends from Punjab in the west to Yamuna River(Haryana)in the east. Land of five rivers-is primary made up of 'doabs'-the land between two rivers. They are composed by Bet(Khadar plains)and Dhaya(Heavily gullied bluffs).

#### THE GANGA PLAINS:

The largest Great Plain stretching from Delhi to Calcutta across the states of Uttar Pradesh, Bihar and West Bengal.

The Ganga and its tributaries like Yamuna, Ghagra,Gomti, Kosi, and Son deposit large amount of alluvium and make this extensive plain more fertile.

They comprise of Gango-Yamuna Doab in the west, to the east of this Doab are the Rohilkhand plains which merges which merges with Avadh plain in the east

#### THE BRAHMAPUTRA PLAIN

The low level plain formed by the Brahmaputra river system is situated between Eastern Himalaya (Arunachal Pradesh) in the North, Patkai and Naga hills in the east, Garo-Khasi-Haintia and Mikir Hills and lower Ganga Plain and Indo Bangladesh border in the west.

#### **PENINSULAR MOUNTAINS**

Total length:800km

Highest peak: Guru Sikhar(1,722m) of the Abu Hills.

Extending from the north east to the south-west of India and separates to semi desert regions of Rajasthan from the fertile Udaipur and Jaipur regions.

It is and example of relict mountain

**Dream Dare Win** 

Courtesy : Saidai Manithaneyam

One of the oldest fold mountains in the world.

#### VINDHYAN RANGE

A block mountain which separates northern India from the southern mainland.

Composed of sandstones, shales and quartzites.

South of it, Narmada River flows in the rift valley.

Acts as a natural watershed between north and south India.

#### SATPURA RANGE

Highest peak: Dhupgarh(1,350m) near Panchmarhi.

Average elevation: 1,030m above sea level.

Extending in east west direction, to the south of Vindhyans.

Situated between Narmada and Tapi River.

Starting from Rajpipla hills in the west through Mahadeo hill to Maikal range.

#### MAIKAL RANGE

Eastern part of Satpura system is situated in Madhya Pradesh.

Mount Amarkantak is the highest peak

### AJANTA RANGE, BALAGHAT RANGE, AND HARISH CHANDRA RANGE:

Extending in east west direction, are all spurs of Western Ghats forming local watersheds.

Kalsubai(1,646m) the highest peak of Western Ghat forming local watersheds.

#### NILGIRI HILLS

It is the meeting point of Western and Eastern Ghats.

Doda Betta(2,637m) is the highest peak of Nilgiri Hills.

The hills are separated from southern hills by a gap called Palghat Gap

#### ANAIMALAI HILLS

Anai Mudi(2,695m) the highest peak of South India is in Anaimalai Hills.

#### **CARDAMON HILLS**

It is situated in the extreme south of Peninsular India

Formed of gneisses and schists.

Dream Dare Win

Courtesy : Saidai Manithaneyam

#### **RAJMAHAL HILLS**

Extends in north south direction and is situated in the northeaster edge of the Chhotanagpur Plateau.

#### SAHYADRIS(WESTERNGHATS)

Total length: about 1600km

Average height:1200m

Highest Peak: Kalsubai(1646m)

Runs along the western coastal plain from the south of valley of Tapi to Kanya Kumari, the southern most point of mainland India.

Region which receives maximum rainfall and is covered with evergreen forest

The Western Ghats meet with Eastern Ghats in the Nilgiri hills.

Acts as a main watershed of Peninsular rivers.

### EASTERN GHATS:

Runs along the eastern coast of India from northern Orissa to the Nilgiri Hills.

Characterised by unbroken hills between Mahanadi and Godavari.

Mahendragiri is the highest peak of Eastern Ghats.

Nallamalli Hills is situated between Krishna and Penneru Rivers.

# THE INDIAN PLATEAU

### BUNDELKHAND BHANDER, BAGHEL AND MALWA PLATEAU

These highlands are situated to the north of Narmada rift valley.

Bundelkhand Plateau is a part of central highlands and is composed of granite and gneisses.

Malwa plateau is an example of dissected lava plateau, which is covered with black soil.

### MEGHALAYA PLATEAU

It comprises of Garo, khasi and Haintia Hills.

Originally a part of Peninsular plateau.

Garo-Rajmahal Gap separates it from the main block of peninsular plateau

#### CHOTANAGPUR PLATEAU

Highest peak- Parasnath (1,366m) in the Hazaribagh Platean.

Situated in the north eastern part of Indian Plateau includes the region of Bihar,

adjoining Madhya Pradesh and West Bengal.

It consists of the Ranchi Plateau in the south, the Hazaribagh Plateau in the north, and the Rajmahal Hills in the northeast.

Described as the "Ruhr of India"

Pat lands are one of the chief characteristics of Chotanagpur Plateau.

Very rich in mineral resources.

#### DECCAN PLATEAU

South of the Satpura Range in the peninsula is called the Deccan Plateau.

#### (1) The Deccan Lava Plateau Region

Northwestern part of Deccan Plateau is the region of Basaltic lava.

It includes the Western Ghats north of 16° north latitude, plateau of Maharashtra (except the east of Nagpur) and the adjoining parts of Madhya Pradesh, Karnataka and Andhra Pradesh.

#### (2) Telengana Plateau

Part of the Deccan Plateau, comprises of the interior region of Andhra Pradesh.

North of Krishna River is the plateau of Telengana.

South of the Krishna River, lying in the Rayalseema plateau region.

#### (3)The Karnataka Plateau

Situated to the south of Deccan Lava Region.

Malnad and Maidan are two physiographic regions of Karnataka plateau.

#### Malnad

Hilly and dissected plateau region about 64km wide lying close to the Western Ghats.

#### (ii) Maidan

Situated in the eastern part of Malnad, relatively large rolling plains with low granitic hills.

#### THE WEST COASTAL PLAIN

Runs from Rann of Kachchh to Kanyakumari and are confined to a narrow belt about 10-15 km wide.

#### KATHIAWAR COAST(Total length:500km)

The West Coastal Plain between Daman in the north and Goa in the south is examples of coast of submergence due to vertical movements, and is consequently dissected.

Coastal lowland is uneven and is interspersed with river valleys, creeks and ridges.

#### (iii) Malabar Coast

Extends from Goa in the north to Kanyakumari in the south is a coastline of emergence.

Southern coastal region receives more rainfall during summer monsoon season.

### THE EAST COASTAL PLAIN

Extends from the deltaic plains of the Ganga in the north to Kanyakumari in the south for 1100 km with an average width of 120km.

#### (I)UTKAL COAST

Extends for about 400km from deltaic plains of the Gango to the Mahanadi delta.

#### (II)ANDHRA COASTAL PLAINS

Extends from the southern limit of Utkal plains to Puliant lake(Andhra Pradesh). It has large deltas of the Krishna and the Godavari rivers.

#### (III) TAMIL NADU PLAINS

Extends about 675km, from the north of Chennai to Kanyakumari in the south. It has the deltaic plains of Kaveri and is popularly called the Granary of South India.

### **IMPORTANT GULFS**

#### **GULF OF KACHCHH**

#### Separates:

Kachchh and Kathiwar Penisual.

Location: West if Gujarat

Information: Region with highest potential of tidal energy generation.

#### **GULF OF CAMBAY**

Separates: Kathiawar Penisula and Gujarat

Location: Gujarat

Information: Tapi, Narmada, Mahi and Sabarmati rive drain into the Gulf.

#### **GULF MANNAR**

Separates: Sri Lanka and Southern India

Location: South east of Tamil Nadu

Information: Asia's first marine biosphere reserves.

#### IMPORTANT LAGOONS AND LAKES

#### **VEMBNAD LAKE**

State: Kerala

Information: Large sized lagoons of Kerala, have fertile alluvial islands, 63 km in length.

#### KAYALS

State: Kerala

Information: Popularly called back water in Kerala.

A chain of lakes which are connected with each other y canal.

Peaty soils of backwaters are called Kari in Kerala.

#### CHILKA LAKE

Maximum length -64km

Maximum breadth- 20km

Average width -150km

State: Orissa

Information: Situated to the south west of the Mahanadi Delta.

Enclosed by the sand pit, has an opening which permits sea connection.

Courtesy : Saidai Manithaneyam

Largest brackish water lake in Asia.

### FRESH WATER LAKE

#### WULAR LAKE:

State: Jammu and Kashmir

Information: Largest fresh water lake of India

#### **KOLLERU LAKE**:

State: Andhra Pradesh

Information: A part of the sea enclosed between the deltas of Godavari and the

Mahanadi and has a number of islands in it.

#### **PULICAT LAKE:**

State: Andhra Pradesh

Information: Situated on the southern border of Andhra Pradesh.

Lagoon formed due to enclosure by sand bar.

#### **JAISAMAND LAKE:**

State: Rajasthan

Information: Largest fresh water lake of Rajasthan

#### NAKKI LAKE:

State: Rajasthan

Information: A small natural lake near Mt. Abu surrounded by hills important as

tourist place.

#### LOKTAK LAKE:

State: Manipur

Information: Site hydroelectricity power generation an example of centripetal drainage.

### SALINE WATER LAKES:

#### SAMBHAR LAKE

State: Rajasthan

Information: Largest Lake of Rajasthan lies on the border of Jaipur and Nagaur

District.

Sodium chloride (common salt) and sodium sulphate are produced mainly by the

Hindustan Salt Ltd.

#### DEEDWANA LAKE

State: Rajasthan

Information: Situated near Deedwana Town of Nagaur District.

#### **GEOLOGY TIME SCALE**

CENOZOIC ERA	HOLOCENE		
	PLEISTOCENE	From upper Pliocene	Upliftment of Outer
		to Plistocene	Himalayas(Siwalik).
			Main Boundary
			Thrust(MBT)formed.
	PLIOCENE	From Miocene to	Main Central
		Plioceen	Thrust(MCT)formed.
			Upliftment of Lesser
			Himalaya(Second
			Phase)
	OLIGOCENE	From Ecocene to	Upliftment of Central
	ECOCENE	Oligocene	Himalaya.
	PALAEOCENE	From the Cretaceous	Collison of Indian and
		to Eocene	Eurasion plate
			begins.(Continent
			continent collision)-
			Indus Tsangpo Suture
			Zone formed
			(ITSZ)formed.
MESOZOIC ERA	CRETACEOUS		Extensive eruption of
	(LATE)		basalt leading to
			formation of Deccan
			Lava Plateau.

			Enclosure of Tethys
			which start shrinking.
PALAEOZOIC	UPPER	From Carboniferous	Deposition in three
ERA		to Permian	great graben like
			basins Mahanadi,
			Damodar and
			Godavari Known as
			Gondwana
			deposits.(Region with
			rich coal reserves)
	LOWER	From Cambrian to	Formation
		Carboniferous(Early)	conspicuously absent
PRECAMBRIAN	UPPER		Vindhyan syncline-
	PROTEROZOIC		devoid of
			metalliferous
			minerals.
			Vindhyan Mountain –
			formed of shales,
			slates, clay and
			limestone
	MIDDLE		Satpura, Shillong
	PROTEROZOIC		Plateau Formation and
			deposition in
			Cuddapah depression.
	EARLY		Delhi Aravalli
	PROTEROZOIC		orogeny took place
	CLOSE ARCHEN		Dharwar system-
			cover whole length of
			Karnataka(region with
			rich iron ore reserves)

LATE ARCHEAN	Peninsular Gneiss and
	Eastern Ghat
	formation
MIDDLE	Singhbhum &
ARCHEAN	Keonjhar Orogeny
	(rich iron orereserves)

### **PHYSIOGRAPHIC REGIONS**

#### **MAJOR DIVISIONS:**

#### WESTERN HIMALAYA

(i) **Jammu and Kashmir state** – Comparatively cool, arid and semi-arid over a large area. Rains during summer season occurs only over a small area in the southern part.

#### (ii)Punjab and Kumaun :

Himalaya Region(between Nepal in the east to Jammu and Kashmir in the north west)- Wetter, more densely forested and more thickly populated region than Jammu and Kashmire state.

#### ASSAM REGION-includes

Arunachal Pradesh, Nagaland, Manipur, Mizoram, Meghalaya, Tripura and Assam.

- (i) Assam Himalaya
- (ii) The Brahmaputra or Assam Valley
- (iii) The Meghalaya Hills or Shillong plateau including he Garo, chasi, Jaintia and Mikir- It is a part of peninsular plateau and structurally a granitic block.
- (iv) The Eastern Highlands- Young fold mountains running from North to South

#### THE PLAINS OF NORTHERN INDIA

-Rainfall is the main criterion used for dividing this alluvial plain into regions.

(i) The West Bengal Plain-Rice and Jute producing area.

# (ii) The West Bengal duars and the Sikkim, Darjeeling, Himalaya- Wetter than

West Bengal Plain, semi-evergreen forest and tea plantation.

#### (iii) The Ganga Plain

Comprising alluvial plain of U.P and Bihar- Decrease in the amount of summer rainfall in the west.

#### (iv) The Punjab-Haryana Plain

Situated to the west of Yamuna and North of arid and semi-arid Rajasthan desert.-Extensive well irrigation coupled with canal-irrigation in the northern districts.

#### (v)The Rajasthan desert

Situated to the west or Aravalli-Region deficient in rainfall. Entirely different in character from the highly plains of the Ganga and Brahmaputra.

# THE INDIAN PLATEAU

#### **Deccan Lava Region**

Includes plateau area of Maharashtra and neighbouring states of M.P., A.P. and Karnataka.- Receives annual rainfall between 50cm and 100cm. Region has Black soil and produces cotton, jowar and groundnut.

#### The North Western Plateau and the Aravalli Range.

Situated to the north of Deccan lava region.

- Receives less rainfall during summer than the Deccan lava region and is relatively cooler in winter.

#### The Karnataka Plateau

Situated to the south of the Deccan lava region-Relatively cooler in summer than neighbouring areas due to its high elevation.

#### Telengana and Rayalseema

Situated to the East of Karnataka state – Receives less rainfall than coastal Andhra Pradesh.

#### The North Eastern Plateau

Situated to the east of the Deccan lava region and includes interior part of Orissa, the Jharkhand Plateau and eastern M.P.-Regions very rich in minerals.

#### THE COASTAL LOWLANDS

- More productive soils, heavier rainfall and better irrigation facilities than the Indian Plateau.

#### **Eastern Coastal Region**

- (i) Coastal Plain of Andhra Pradesh and Orissa in the North.
- (ii) Tamil Nadu Region Receives rainfall during winter also.

#### Western Coastal Region

- (i) Gujarat Region North of Daman
- (ii) The Konkani Region between Daman in the north and Goa in the south.-Largely semi –arid, millet and cotton producing region. Dominated by port and industries of Mumbai.
- (iii) Goa and littoral of Karnataka, Kerala. Plantation and wet crops producing region.

# **INDIA- MAJOR SOIL TYPES**

#### ALLUVIAL SOIL

**DISTRIBUTION:**7.7 lakh km<sup>2</sup> (24% of the country's total area)

#### Formation:

Formed due to deposition of alluvium brought by rivers over millions of years. Newer alluvium is called khadar and the old alluvium is called Bhangar Terai Soil: Bhabar infertile soil: Usar

#### **Characteristics:**

Very fertile soil, rich in potash and lime, deficient in humus, nitrogen and phosphorus.

#### **Regions&States**:

Northern plains or river basin: Punjab, Haryana, eastern part of Rajasthan,

Gujarat, U.P., Bihar, West Bengal and Assam Valley.

### **BLACK COTTON SOIL OR REGUR SOIL.**

#### **Distribution:** 5.18 lakh $\text{km}^2$ (16%)

Formation: Formed over Deccan lava, gneiss and granites.

#### **Characteristics:**

Black in colour due to presence of Fe and Mg. Deficient in nitrogen and phosphoric acid. Rich in potash and lime.

#### **Regions&States:**

It covers lateaus of Maharastra, Sourth Orissa, Northern Karnataka, Parts of Rajasthan (two districts of Bundi and Tonk)Central and South Tamil Nadu.

#### **RED SOIL**

#### **Distribution:** 5.18 lakh $\text{km}^2$ (16%)

**Formation:** The soil developed on old crystalline rock under moderate to heavy rainfall. It is in different shads of Red and Yellow.

#### **Characteristics:**

Red colour due to presence of Fe. Deficient in organic plant material, phosphorus, nitrogen and lime content. Potash and alumina content are satisfactory. Acidic like laterite but less leached than laterite soil.

#### **Regions** & States:

Larger part of Tamil Nadu, Andhra Pradesh and Karnataka. Southern parts of Maharashtra, Eastern Mp, parts of Orissa and Chotanagpur and Bundelkhand.

#### LATERITE SOIL:

#### **Distribution:** 1.26 lakh km<sup>2</sup>

#### **Formation:**

The Laterite soil is a result of intense leaching due to heavy tropical rains with alternate wet and dry seasons.

#### **Characteristics:**

More acidic on higher areas due to presence of Al and Fe. Deficient in nitrogen, potash, magnesium and phosphoric acid.

#### **Regions & States**:

Tropical humid areas where rainfall is more than 200 cm e.g., Western Ghats, Karnataka, Tamil Nadu, Chotanagpur Plateau and slopes of North Eastern states.

#### **ARID OR DESERT SOIL**

#### **Distribution**: 1.42 lakh km<sup>2</sup>

#### Formation:

Sand and wind blown. Weathering due to temperature help in the formation of these soils. Developed under arid or semiarid conditions in the north western part of the country.

#### **Characteristics:**

Deficient in humus and nitrogen, rich in phosphorus, Due to less leaching mineral content is high.

#### **Regions** & States:

Punjab, Southern parts of Haryana, Western Rajasthan and Rann of Kachchh in Gujarat.

#### **MOUNTAIN SOILS**

#### **Formation:**

Formed by the deposition or organic matter derived from the forest growth, Characteristic of soil varies with variation of rocks, ground configuration and climate.

#### **Characteristics:**

Rich in humus but deficient in potash, phosphorus and like. Most suitable for plantation crops like tea, coffee etc.,

#### **Region& states:**

Himalayan region of Jammu and Kashmir, Himachal Pradesh. Also in Western and Eastern Ghats as well as in some region of Peninsular plateau.

**Dream Dare Win** 

Courtesy : Saidai Manithaneyam

#### **PEATY AND ORGANIC SOIL:**

#### **Formation:**

Developed in hot humid conditions as a result of accumulation of large amount of organic matter.

#### **Characteristics:**

Dark and almost black in colour, very strongly acidic and saline.

#### **Region & States:**

They are confined to depression caused by dried lakes in alluvial and coastal plain areas and developed under water logged environments. For example, Regions like Kari in Kerala, T.N., coastal Orissa, W.B. and North Bihar.

### MEAN ANNUAL RAINFALL

#### AREA OF HEAVY RAINFALL

#### Rainfall between 200- 400 cm

The Arabian Sea branch of south west monsoon cause rainfall all along the western Ghats and Western coastal regions from June to September.

In North East India, the Bay of Bengal branch of monsoonal winds which causes monsoon in the southern hills of Shillong Plateau, Garo, Khasi, Jaintia hills (Meghalaya) and other states.

In These regions Orographic features play an important role because the moisture laden monsoon winds strike against physical barriers the like mountains, to cause heavy rainfall.

#### AREA OF MODERATE RAINFALL

#### Rainfall between 100 – 200 cm

The average rainfall over North Indian Plain generally remains between 100 to 200 cm. Other areas of moderate rainfall are northeastern parts of Peninsular India, highlands of Central India, and Tamil Nadu.

Rain fall between 60 – 100 cm occurs in the upper Ganga Valley, eastern parts of Aravallis, eastern Gujarat, internal parts of Andhra Pradesh, Tamil Nadu,

Maharashtra and Karnataka.

The intensity of rainfall decreases from east to west and north to south in the Northern Plains.

#### AREA OF SCANTY RAINFALL

#### Rain fall between 40 – 60 cm

Parts of Punjab, Haryana, northern and western Rajasthan and Kachchh and Kathiawar regions of Gujarat. A narrow strip of land, lying in rain shadow areas of Peninsular India receives rainfall below 60cm.

The dry regions of Rajasthan, west of the Aravalli hills receives rainfall below 20cm, Northern parts of Gujarat and Jammu and Kashmir are other regions which receive scanty rainfall.

#### **AREAS OF WINTER RAINFALL**

- (i) The northwestern parts of India-Jammu & Kashmir, Punjab and U.P. plains.
- (ii) Tamil Nadu: Rainfall due to North East monsoon.

# **INFORMATION ABOUT HIMALAYAN RIVERS**

### THE INDUS SYSTEM(INDUS AND ITS TRIBUTOARIES)

#### 1.INDUS:

#### (One of the world's largest river)

Source: Tibet, at an altitude of 5,180 m near Mansarovar Lake.

Total length:2,880km (709km in India)

River Basin: 1,165,00 sq.km (321,290 sq.km in India)

#### Information:

Mountain tributaries; Gilgit Shyok, Skardu, Shigoo.

Plain tributaries: Jhelum, Chenab, Ravi, Sutlej and Beas.

#### 2.JHELUM:

#### (An important river of kashmir and is the main waterway)

Source: Rises in Verinag at the foothills of Pirpranjal.

Total length: 400 km

River Basin: 28,490 sq.km (in India)

#### Information:

Its basin lies between Great Himalaya and Pir Pranjal Range.

It flows through Vale of Kashmir and Wular Lake before entering into

Pakistan.

#### **3.CHENAB**

#### (largest of all the Indus tributaries)

Source: Rises in snow covered Kullu hills of Himachal Pradesh.

Total length: 1,800 (in India)

River Basin: 26,755 sq.km (in India)

#### Information:

Flows through Chamba state for 160 km in the trough between the Greater Himalaya and the Pir Panjal.

#### 4.RAVI

Source: Kullu hills of H.P

Total Length: 725 km

River Basin: 5,957( in India)

**5. SUTLEJ** 

#### (Second largest tributary of Indus)

Source: Rakas Lake, at an altitude of 4,555 m in Tibet

Total Length: 1050km (in India)

River Basin: 25,087 sq.km(in India)

#### Information:

It enters India through Shipki La and flows through Himachal Pradesh and Punjab before entering into Pakistan.

#### 6. BEAS

Source: Kullu hills at an altitude of 4,000 m

Total Length:470 km( in India)

River Basin:25,900 sq.km (in India)

Information: It joins Stulej near Harike.

### THE GANGA SYSTEM (GANGA AND ITS TRIBUTARIES)

#### The Ganga:

Formed by two head streams **Alaknada** and **Bhagirathi** which join at **Devprayag. Source:** Rises in Gangotri glacier of the Great Himalaya. Above Devaprayag it is called as Bhagirathi and below it is referred to as the Ganga.

**Total Length:** Of its total length of 2,525 k.m, 1,450 k.m in Bihar and 520 km in West Bengal.

**River Basin:** 838,200 sq.km. Largest river basin in India, Covers more than fourth of the country's total surface

#### Information:

Left Bank tributaries; Ramganga, Gomati, Ghagra, Gandak, Burhi Gandak, Kosi. Right Bank tributaries; Yamuna, Son. The Bhagirathi – Hooghly is the western most distributary of the river. Beyond Frakka it bifurcates itself into Bhagirathi Hooghly in West Bengal and Padma-Meghna in Bangladesh. **The Yamuna** (Largest and the most important tributary of Gang) **Source:** Rises in the Yamunotri glacier which is west of Ganga source. Total Length: 1,376 km fromits source to Allahabad where it joins Ganga. **River Basin:** 3,59,000 sq. km **Information:** Important tributaries; Chamba (rises in Mhow in the Vindhya)Sidh. Betwa and Ken. **The Son (Right bank tributary of Ganga) Source:** Rises from the Amarkantak Plateau **Total Length:** 780 km River Basin: 71,900 sq.,km

Information: It joins Ganga near Ramnagar.

Ramganga:

Source: Rises in the Kumaun Himalaya near Nanital

Total Length: 690 km

River Basin: 32,800 sq,km

Information: It joins the left bank of Ganga near Chapra (Bihar).

**Ghagra:** 

Source: Rises from east of Gangotri,

Total Length: 1,080 km

River's Basin: 127, 500 sq,km More than half of its basin is in Nepal.

Information: It joins the left bank of Ganga near Chapra(Bihar).

Gandak:

**Source**: Rises near the Nepal-China border at an altitude of 7,600m in the Central Himalaya.

Total Length: 425 km(in India)

River Basin:48,500, 9,500 sq.km (in India)

**Information:** It flows through eastern Nepal, enters Bihar in Champaran district and turn south east to join the left banh of Ganga near Sonepur.

Kosi

(formed by the confluence of the Son Kosi, the Arun Kosi and the Tamur Kosi)

Source: Rises from the peak of Nepal Tibet and Sikkim

Total Length: 730km (in India)

River's Basin:86,900, 21,500 sq, km (in India)

**Information**: It flows through eastern Nepal, enters Bihar in Saharasa district and joins the left bank of Ganga below Bhagalpur (Bihar).

The river is notorious for shifting its course and causing floods, thus often termed as the **'Sorrow of Bihar.** 

#### Damodar

(Sorrow of Bengal)

Source: Rises in Chota Nagpur plateau in the Plalamau district (Jharkand)

Total Length: 541 km

River's Basin: 22,000 sq.km

Information: It joins the Bhagirathi Hooghly in West Bengal

# THE BRAHMAPUTRA SYSTEM (BRAHMAPUTRA AND ITS TRIBUTARIES)

#### **Brahmaputra or Tsangpo (Tibet)**

**Source:** Rises in the Chemayungdung glacier in the Kailash Range and Mariam La pass separates it from Mansarovar Lake.

Total Length: 2,900 km one of the longest rivers of the world.

River's Basin: 240,000 sq,km

Information: Important tributaries: Subansiri Kameng, Dhansiri, Dilhang, Lohit,

Tista, Torsa. Manas; Burhi Dihing, etc. It flows through Tibet, India and

Bangladesh and forms the large delta of the world along with Ganga.

### **PENINSULAR RIVERS**

#### Mahanadi

(An important river of the peninsular India)

Source: Northern foothills of Dandakarnaya near Shiawa in Raipur district.

Length: 857km

River's Basin: 141,600 sq.km in M.P., Orissa, Bihar and Maharashtra

**Information**: Left bank tributaries; Sheonath, Hasdeo, Ib and Mand. Right bank tributaries ; tel, Ong, and Jonk.

#### Subarnarekha, Brahmi and Baitarni:

#### Information:

These smaller river basins are interposed between the Ganga and the Mahanadi basin.

# THE GODAVARI RIVER SYSTEM (GODAVARI AND ITS TRIBUTARIES)

#### Godavari:

Source: Trimbak plateau of north Sahyadri near Nasik (Maharashtra)

Length: 1465 (longest river of Peninsular India)

River's Basin: 312,812 half of which lies in Maharashtra and also in Andhra

Pradesh ,M.P., Orissa, and Karnataka.

**Information**: Largest river system of the Peninsular India and is next only to the Ganga system in India. Left bank tributaries; Penganga, Wardha, Wainganga, Indravati and Sabri Right Bank tributaries: Manjra.

# KRISHNA RIVER SYSTEM (KRISHNA AND ITS TRIBUTARIES)

#### Krishna

(Second largest east flowing river of the Peninsula)

Source: North of Mahabaleshwar in the Western Ghats.

Length: Flows for a distance of 1,400 km to the Bay of Bengal

River's Basin: 258,948 sq.km. Lies in Karnataka, Andhra Pradesh and

Maharashtra.

Information: Important tributaries: Bhima, Tungabhadra, Ghatprbha, Malaprabha,

Musi and Koyna.

Kaveri

Source: Rises in the Brahmgiri Range of Western Ghats.

Length: 800km

River's Basin: 87,900 sq.km.- Shared by Kerala, Karnataka, and Tamil Nadu.

Information: Left bank tributaries: Herangi, Hemavati, Shimsha, Arkavati, etc.

Right bank tributaries: Kabani, Bhavani and Amravati etc.

# WEST FLOWING RIVER

Dream Dare Win

Courtesy : Saidai Manithaneyam

#### Sabarmati:

Source: Mewar hills in Aravalli Range.

Length: 320km

River's Basin: 21,674 sq. km. Shared by Rajasthan and Gujarat.

#### Information:

Important tributaries: Hathmati, Sedhi, Wakul, etc.

#### Mahi

Source: Vindhya Range at an altitude of 500 m.

Length: 533km

River's Basin:34,862sq.km

Information: Madhya Pradesh, Rajasthan and Gujarat share the river basin.

#### Narmada

(Largest west flowing Peninsular river)

Source: Rises in Amarkantak in Madhya Pradesh.

Length: 1312 km ( from its source to its estuary in the Gulf of Khambhat)

River's Basin:98,796 sq.km which it shared by M.P. Gujarat and Maharashtra.

#### Information:

Left bank tributaries: Tawa Burhner, etc. Right Bank tributaries: Hiran world's famous Dhuan Dhar or Cloud of Mist Falls is located on this river. It flows through a rift valley between the Vidhyas and the Satpura Range.

#### Tapi or Tapi

(Second largest of west flowing river of Peninsula)

Source: Rises near Multai on the Satpura Range in Betul district (M.P)

Length: 740 km

River's Basin: 65,145 sq.km in M.p., Maharashtra and Gujarat

**Information:** Left bank tributaries: Purna, Veghar, Girna, Bari and the Punjhar Right Bank tributaries: Betul, Arunavati, Ganjal and Gomai. It is also Known as the 'twin' or handmaid of the Narmada.

### **RIVER VALLEY PROJECTS**

#### Bhakra Nangal Multipurpose Project.

Bhakra dam: One of highest gravity dam in the world.

Govind Sagar Lake (H.P) is a reservoir.

River: Sutlej(A tributary of Indus)

State: Joint venture of Punjab, Haryana and Rajasthan

Purpose: Irrigation, Hydro electricity.

#### Thein Dam Project:

River: Ravi ( A tributary of Indus)

State: Punjab

Purpose: Irrigation, hydroelectricity

#### **Dulhasti project:**

River: Chenab (A tributary of Indus)

State: Jammu and kashmir

Purpose: Part of the prgramme of cascade development for irrigation

#### Salal project:

River: Chenab

State: Jammu and Kashmir

Purpose: Irrigation

#### **Beas project:**

River: Beas (A tributary of Indus)

State: Joint venture of Punjab, Haryana and Rajasthan

Purpose: Hydro electricity

#### Sharda Sahayak Project:

River: Ghagra (left bank tributary of Ganga)

State: Uttar Pradesh

Purpose: Irrigation

#### Ramganga multipurpose project

River: Chuisot stream near Kalabagh

State: Uttar Pradesh

Purpose: Irrigation, hydroelectricity

#### Banasagar project

River: Son

State: M.P., Bihar and U.p.,

Purpose: Irrigation

Rihand scheme Reservoir: Govind Ballabh Sagar (U.P)

River: Rihand

State: Uttar Pradesh

Purpose: Hydroelectricity for the development of south eastern industrial region of U.P.

#### Damodar Valley multipurpose project

Four dams: Tilaiya and Maithon (on the Barakar River), konar (konar River) and

Panchet (Damodar River)

River: Damodar

State: West Bengal(also shared by Jharkhand)

Purpose: Flood control, Irrigation, Hydroelectricity.

#### Mayr kashi project

River: Mayrkashi

State: West Bengal (also shared by Jharkhand)

Purpose: Flood control, Irrigation, Hydroelectricity.

#### Mayur Kashi project

River: Mayrkashi

State: West Bengal

Purpose: Irrigation, Hydroelectricity

#### Hirakud multipurpose project (world's longest main stream dam)

River: Mahanadi

State: Orissa

Purpose: Irrigation, Hydroelectricity

#### **Poochampad Project**

River: Godavari

State: Andhra Pradesh

Purpose: Irrigation

#### Jaykawadi Project:

River: Godavari

State: Maharashtra

Purpose: Irrigation

Nagarjuna Sagar

River: Krishna

State: Andhra Pradesh

Purpose: Irrigation, Hydroelectricity

#### **Upper Krishna Project**

River: Krishna

State: Andhra Pradesh

Purpose: Irrigation

#### Tunghbhadra multipurpose project

River: Tungbhadra (A tributary of Krishna)

State: Joint venture of Andhra Pradesh and Karnataka

Purpose: Irrigation, Hydroelectricity.

#### **Ghat Prabha project**

River: Ghatprabha ( A tributary of Krishna)

State: Andhra Pradesh and Karnataka

Purpose: Irrigation

#### Malprabha project:

River: Malprobha( A tributary of Krishna)

State: Karnataka

Purpose: Irrigation

#### **Bhima project:**

River: Bhima

State: Maharashtra

Purpose: Irrigation

#### Mettur projects

River: Kavery

State: Tamil Nadu

Purpose: Hydroelectricity

Shivasamudram Scheme on Cauvery Falls

River: kavery

State: Karnataka

Purpose: Hydroelectricity

#### Kundah project:

River:Kundah

State: Tamil Nadu

Purpose: Hydroelectricity

#### Sharavati project (near Jog falls)

River: Sharavati

State: Karnataka

Purpose: Hydroelectricity

Chambal project:(Gandhi Sagar Dam M.P), Rana Pratap Sagar and Jawahar

#### Sagar Dam or Kota Dam

River: Chambal (a tributary of Yamuna)

State: Rajasthan, Madhya Pradesh

Purpose: Irrigation, Hydroelectricity

#### Kakrapara Project

River: Tapi

State: Gujarat

Purpose: Irrigation

#### Ukai project

River: Tapi

State: Gujarat

Purpose:Irrigation

#### Sardar Sarovar Project

River: Narmada

State: Gujarat, M.P., Rajasthan Maharashtra

Purpose: Irrigation, Hydroelectricity

#### Tawa project:

River: Tawa ( A tributary of Narmada)

State: Madhya Pradesh

Purpose: Irrigation

#### Mahi project (Jamnalal Bajaj Sagar)

River: Mahi

State: Gujarat

Purpose: Irrigation

#### Matatila project:

River: Betwa

State: Uttar Pradesh, Madhya Pradesh,

Purpose: Irrigation, Hydroelectricity.

### FOOD CROPS DISTRIBUTION

#### **RICE(KHARIF CROP)**

#### **Conditions Required**

**Temperature:** not below 21° C

Rainfall: More than 125cm

Soil: Clayey loam best suited

#### **Distribution (in order of Production)**

1. West Bengal

- 2. U P
- 3. Andhra Pradesh
- 4. Punjab
- 5. Tamil Nadu
- 6. MP
- 7. Orissa
- 8. Bihar
- 9. Assam
- 10.Karnataka
- 11.Maharashtra
- 12.Haryana
- 13.Kerala

### WHEAT (RABI CROP)

#### **Conditions Required**

**Temperature:**  $10 - 15^{\circ}$  C (winder)  $21^{\circ} - 26^{\circ}$  C (Summer)

Rainfall: 75cm -100cm (moderate)

Soil: Well drained fertile, friable loams, and clay loams

#### **Distribution (In order of Production)**

- 1. Uttar Pradesh
- 2. Punjab
- 3. Haryana
- 4. Madhya Pradesh
- 5. Rajasthan
- 6. Bihar
- 7. Gujarat
- 8. Maharashtra

# MILLETS

### BAJRA

#### **Condition Required**

**Temperature:**  $25^{\circ} - 30^{\circ} C$ 

Rainfall: 40 – 50cm

Soil: Poor light sandy soils, black and red soils

#### **Distribution (in order of Production)**

- 1. Rajasthan
- 2. Maharashtra
- 3. Gujarat
- 4. Uttar Pradesh
- 5. Haryana

#### BARLEY

#### **Condition Required**

**Temperature:** 10 - 15° C

Rain fall: 75 cm to 100cm

Soil: Light clay and alluvial soil

#### **Distribution**(In order of production)

- 1. Uttar Pradesh
- 2. Rajasthan
- 3. Madhya Pradesh
- 4. Haryana
- 5. Punjab
- 6. Bihar
- 7. Himachal Pradesh
- 8. West Bengal

# **CASH CROPS**

### COTTON

#### **Conditions Required**

Kharif crop of tropical and subtropical areas.

#### **Temperature :** $21^{\circ}$ - $30^{\circ}$ C but not below $21^{\circ}$ C.

210 frost free days.

**Rainfall:** 50 – 100cm or irrigation facility.

Soil: Deep black soil (regur), even grows in alluvial soils and laterite soils.

#### **Distribution ( In order of Production)**

- 1. Punjab
- 2. Maharashtra
- 3. Gujarat
- 4. Haryana
- 5. Andhra Pradesh
- 6. Rajasthan
- 7. Karnataka
- 8. Tamil Nadu
- 9. Madhya Pradesh

### JUTE

#### **Condition Required**

Second important fibre crop of India, crop of hot and humid climate.

#### **Temperature:** 24° - 35° C

**Rainfall:** heavy rainfall of 120 - 150 cm with 80 - 90 percent of relative humidity.

Soil: light sandy or clayey loams.

#### **Distribution ( In order of Production)**

- 1. West Bengal (70 percent of the production, over 60 percent of the area)
- 2. Bihar
- 3. Assam
- 4. Orissa

### SUGAR CANE

#### **Temperature:** 21° - 27° C

**Rainfall:** 70 – 150 cm or irrigation facilities with high humidity.

Soil: tolerate any type of soil that can retain moisture.

#### **Distribution (In order of Production)**

- 1. Uttar Pradesh
- 2. Maharashtra
- 3. Tamil Nadu (highest yield/hectare)
- 4. Karnataka
- 5. Andhra Pradesh
- 6. Gujarat
- 7. Bihar
- 8. Haryana
- 9. Punjab
- 10.Orissa

### TOBACCO

#### **Condition Required**

Plant of tropical and subtropical climates and frost is harmful

**Temperature:** 16° - 35° C

**Rainfall:** 50 – 100 cm or irrigation facilities

Soil: Well- drained friable loam

#### **Distribution (In order of Production)**

- 1. Gujarat (90 percent of Tobacco from Vadodara and Kheda districts).
- Andhra Pradesh (West and East Godavari, Prakasham, Kurnool and Nellore are the main producing districts) Other areas of minor production (a) Uttar Pradesh (b) Karnataka (c) West Bengal.

### **PLANTATION CROPS**

#### TEA

#### **Condition Required**

Tropical and subtropical plant, which thrives well in hot and humid climate.

#### **Temperature:** $20^{\circ} - 30^{\circ} C$

**Rainfall:** 150 – 300cm (well distributed)

Soil: forest soil rich in humus and iron content is the best suited.

#### **Distribution ( In order of Production)**

- 1. Assam (the Brahmaputra valley, Soorma valley)
- 2. West Bengal (the Duars, Darjeeling)
- 3. Tamil Nadu (highest yield per hectare)
- 4. Kerala (Kottayam, Kollam and Tiruvananthapuram district).

Other areas of minor production

- (a) Tripura
- (b) Karnataka
- (c) Uttar Pradesh
- (d) Himachal Pradesh (Kangra valley)

### COFFEE

**Condition Required** 

Crops of hot and humid climate

**Temperature:** 15° - 28° C but does not tolerate frost.

**Rainfall:** 150 – 250cm

Soil: well drained rich friable loams with rich in humus, iron and calcium.

#### **Distribution (In order of Production)**

- 1. Karnataka (80 percent of total coffee production)
- 2. Kerala (13 percent of total production)
- 3. Tamil Nadu

### RUBBER

### **Condition Required**

**Temperature:** 25° - 35° C

Rainfall: about 300 cm (well distributed throughout the year)

Soil: well drained loamy soil of hilly region.

#### **Distribution ( In order of Production)**

- Kerala(above 90 percent of total production, Kottayam, Ernakulum, Kozhikode and Kollan are the main producing districts)
- 2. Tamil Nadu
- 3. Karnataka

# **OTHER CROPS**

### MAIZE

#### **Condition Required**

Rainfall Kharif Crops

**Temperature**: 21° - 27° C

**Rain fall**: 50 – 100 cm

Soil: well drained alluvial, or red loams

#### **Distribution (In order of production)**

- 1. Bihar
- 2. Uttar Pradesh
- 3. Karnataka
- 4. Andhra Pradesh
- 5. Madhya Pradesh
- 6. Rajasthan
- 7. Himachal Pradesh

### JOWAR

#### **Conditions Required**

Both Kharif and Robi crops

**Temperature:** 26° - 33° C for kharif crops and not below 16°C for rabi crops

Rainfall: >30 cm but <100 cm; rainfed crop in dry farming areas

#### Soil: Variety of soil including clayey, sandy

#### **Distribution ( In order of Production)**

- 1. Maharashtra
- 2. Karnataka
- 3. Madhya Pradesh
- 4. Andhra Pradesh
- 5. Tamil Nadu
- 6. Uttar Pradesh
- 7. Rajasthan
- 8. Gujarat

### RAGI

**Conditions Required** 

Temperature:  $20^{\circ} - 30^{\circ} C$ 

Soil: red, light black and sandy loams

#### **Distribution ( In order of Production)**

- 1. Karnataka
- 2. Tamil Nadu
- 3. Maharashtra
- 4. Uttar Pradesh
- 5. Andhra Pradesh

### GRAM

**Conditions Required** 

Most important of all pulses

Temperature: 20° - 25° C

Rainfall: 40 – 45cm

Soil: Grows well in loamy soil

#### **Distribution (In order of Production)**

1. Madhya Pradesh

- 2. Uttar Pradesh
- 3. Rajasthan
- 4. Haryana
- 5. Maharashtra (These five states produce over 90 percent gram of India)

### NON METALLIC MINERALS

### MICA, ASBESTOS, GYPSUM, LIMESTONE, DOLOMITE, ATOMIC MINERALS DIOMAND

### MICA:

(Abhrak) valuable mineral in electrical and electronic industry.

**Distribution:** Bihar – Gaya, Hazaribagh (now in Jharkhand), (Largest mica producing state of India)

Andhra Pradesh – Nellore.

Rajasthan – Ajmer, Bewar, Tonk, Bhilwara, Udaipur, and Banswara.

### LIME STONE:

75% used in cement industry 16% in irons and steel industry. 4% in chemical industry.

#### **Distribution:**

Madhya Pradesh- Satna, Jabalpur, Betul, Sagar and Rewa.

Chhattisgarh – Bilaspur, Raigarh, Raipur and Durg.

Andhra Pradesh-Adilabad, Warangal, Nalgonda, Mohboobnagar, Guntur

Karnataka – Bijapur, Gulbarga, Shimoga (cement grade limestone)

Rajasthan – Jhunjhunu, Bikaner, Nagaur, Jodhpur, Pali, Sirohi, Udaipur

Chittorgarh, Ajmer, Sawai Madhopur, Bundi, Banswara.

Gujarat – Banaskantha, Amreli Junagadh, Surat, Kachchh, Kheda and Panchmahals.

### **DOLOMITE:**

#### **Distribution**:

Bihar – Rohtas

Jharkhand – Chaibasa in Sighbhum district and Palamau district.

Orissa (largest produces)-Sundargarh, Sambalpur, and Koraput districts

Madhya Pradesh - Chhindwara, Jhabua, Jabalpur, Balaghat,

Chhatisgarh – Bilaspur, Durg and Bastar district.

Gujarat - Bhavnagar and Vadodara district.

### **ASBESTOS:**

Used for making fire proof cloth, rope, paper, paint, etc. and also asbestos cement products like sheets etc.

#### **Distribution:**

Rajasthan - Alwar, Ajmer, Pali, Udaipur and Dungarpur districts,

Andhra Pradesh – Cuddapah district.

Karnataka – Shimoga, Chickmagalur, Hassan, Mandya and Mysore districts.

### GYPSUM:

Mainly used in making of ammonia sulphate fertilizer in cement industry and in making plaster of paris, etc.

#### **Distribution:**

Rajathan – (largest producer of gypsum in India): Churu, Ganganagar, Bikaner, Jaisalmer, Nagaur and Pali districts produce 95 percent of the total gypsum of India.

Jammu and Kashmir – Baramula and Doda districts.

Tamil Nadu – Tiruchirapalli

### **DIAMON:**

#### **Distribution:**

Madhya Pradesh – Panna Andhra Pradesh – Anantpur, Kurnoot

Marnataka – Bellary.

# **ATOMIC MINERALS**

# (URANIUM, THORIUM)

Dream Dare Win

Courtesy : Saidai Manithaneyam

#### **URANIUM:**

#### **Distribution:**

Bihar – Gaya

Jharkhand – Hazaribagh and Singhbhum.

Uttar Pradesh – Saharanpur

Rajasthan – Udaipur.

Kerala – Uranium from monazile sand of coastal regions.

### **THORIUM:**

#### **Distribution:**

Bihar, Tamil Nadu, Kerala and Rajasthan.

#### **METALLIC MINERALS**

# (IRON, BUXITE, COPPER, LEAD/ZINC, MANGNESE, MAGNESIUM, GOLD.)

#### **IRON:**

#### **Distribution:**

Jharkhand: Singhbhum (Noamundi, Sindurpur, Kiriburu)

Orissa - Mayurbhanj( Gurumahisani., Badampahar, Sulaiput), Keonjhar

Madhya Pradesh – Jabalpur, Balaghat

Chhatisgarh – Durg (Dalli Rajara), Bastar (Bailadila)

Andhra Pradesh – Guntur, Kurnool

Tamil Nadu – Salem, Tiruchirapalli

Maharashtra - Surajgarh, Lohra-Piplagaon Ratnagir.

Kerala – Kozhikode

#### **BAUXITE:**

Distribution: Jharkhand – Palamanu, Ranchi

Madhya Pradesh – Katni, Amarkantak, Maikata Range.

Chhattisgarh – Sarguja, Raigarh and Bilaspur.

Orissa - Kalahandi, Koraput

Tamil Nadu – Salem, Nilgiri, Coimbature and Madurai.

Gujarat – Sabarkanha, Jamnagar, Surat.

Maharashtra – Kalaba, Ratnagiri, Kolhapur.

Karnataka – Belgaum.

### COPPER

#### **Distribution:**

Jharkhand – Hazaribagh, Singhbhum.

Madhya Pradesh – Balaghat (Malanjkhand belt)

Andhra Pradesh – Khammam, Guntur and Kurnool

Rajasthan – Jhunjhunu, Khetri, Alwar, Bhilenara and Udaipur.

Maharashtra – Chandrapur

Karnataka – Chitradurga, Hassan.

### **LEAD AND ZINC:**

#### **Distribution:**

Sikkim, Meghalaya, Andhra Pradesh (Cuddapah)

Rajasthan- Zawar(Udaipur) Aguncha – Rampura (Bhilwara)

Gujarat \_ Banaskantha, Panchmaha, Vadodra, Surat.

### LIGNITE COAL:

#### **Distribution:**

Tamil Nadu – Neyveli

Jammua and Kashmir, Rajasthan (Palana in Bikaner dist.)

Gujarat (Umrasar)

### **TERTIARY COAL FIELD:**

### Distribution:

Assam – Makum (Sibsagar), Najtra, Janji Meghalaya, Arunachal Pradesh(Namchik, Namphuk)

### **OIL FIELDS:**

#### **Distribution:**

Assam – Digboi, Naharkatia, Moran, and Sibsagar.

Gujarat - Mehsana, Cholka, Kalol, Nawagam, Ankaleshwar and Kosamba

### **OFF SHRE OIL FIELDS**

#### **Distribution:**

- 1. Mumbai High
- 2. Bassein
- 3. Ravva
- 4. Aliabet

### **OIL REFINERIES:**

#### **Distribution:**

Assam – Digboi(IOC), Guwahati (IOC), Bongaigaon

Bihar – Barauni (IOC)

Uttar Pradesh – Mathura

Gujarat – Koyali, Jamnagar (largest oil refineries)

Maharashtra - Mumbai (BPCL)

Karnataka - Mangalore(MRPL)

Kerala – Kochi(CRI)

West Bengal – Haldia (IOC)

Andhra Pradesh – Vishakhapatnam (HPCL)

Tamil Nadu – Chennai (MRI)

### **IMPORTANT INDUSTRIES OF INDIA**

### **COTTON TEXTILE INDUSTRY:**

The oldest and the larges t organized modern industry of India.

### MANUFACTURING CENTRES:

Maharashtra (122mills)

- Mumbai (63 mills), largest centre,
- Other centre: Nagpur, Amaravati, Wardha, Jalgaon, Aurangabad, Pune, Satara, Scholapur, and Kolhapur.

#### **Dream Dare Win**

Gujarat (118 mills)

- Ahmedabad (73 mills), Second largest centre after Mumbai
- Other centres: Porbandar, Rajkot, Vadodra, Surat.

#### Madhya Pradesh:

• Bhopal, Indore, Dewas, Ujjain, Ratlam, Gwalior, Jabalpur, etc

Tamil Nadu

• Coimbatore. (Most important centre). Other centres – Chennai, Perambur, Salem, Tirchirapalli, Madurai, Tirunelveli, Tuticorin, etc,

West Bengal

- Kolkata (Most important entre).
- Other centre: Howrah, Serampur, Murshidabad, etc.

#### Uttar Pradesh

• Kanpur (largest centre). Other centres: Varanasi, Mirzapur, Lucknow, Agra, Modinagar, Saharanput, etc.

Rajasthan

• Jaipur, Pali, Bhilwar, Kota, Udaipur, Ganganagar.

Karnataka

• Bangalore, Mysore, Mangalore, Chitradurga, Belgaum.

Orissa

• Cuttack

Punjab

• Amritsar, Dhariwal, Phagwara, Ludhiana.

Kerala

• Thiruvananthapuram, Alleppey

#### Bihar

• Patna, Gaya, Bhagalpur.

Andhra Pradesh

• Hyderabad, Secundarabad, Rajahmundry, East Godavari and Udayagiri.

# JUTE TEXTILE INDUSTRY

- First large scale industry was established in 1855 at Rishra,(near Serampur) in Bengal.
- This industry suffered a great setback because of partition in 1947 because 80 percent of Jute producing area went to Bangladesh while all Jute mills remained in India

### MANUFACTURING CENTRES

West Bengal (56 mills)

- Kolkata (Calcutta)
- Other centres: Rishra, Serampore, Titagarh etc. mainly along the both banks of Hooghli river.

### ANDHRA PRADESH

- Vishakapatna, Eluru, Guntur and Ongole.
- Other important states:

### UTTAR PRADESH

• Kanpur, Gorakhpur and Shahjawan.

#### BIHAR

• Darbhanga, Samastipur, Purnea, Katihar and Gaya

### CHHATTISGARH

• Raigarh

### ORISSA

• Cuttack

# WOOLLEN TEXTILE INDUSTRY

• One of the oldest textile Industries of India

### MANUFACTURING CENTRES

### PUNJAB (257 mills)

- Dhari (largest centre).
- **Other centres:** Amristsar, Ludhianan and Patiala

### MAHARASHTRA (31 mills)

- Mumbai (industry based on imported wool)
- Other centres: Jalgaon, Ambernath.

### UTTAR PRADESH

- Kanpur(Largest Woollen Textile centre in the state)
- Other centres: Modinagar, Allahabad, Varanai and Mirzapur.

### **GUJARAT**

• Jamnagar, Kalol, Vadodara.

Other important states:

Karnataka: Bangalore, BellaryTamil Nadu: Chennai, SalemJammu and Kashmir: SrinagarHimachal Pradesh: KulluWest Bengal: Kokata.

# SILK & SYNTHETIC FIBRE INDUSTRY

### MANUFACTURING CENTRES

Karnataka: Bangalore, Kolar, and Mysore West Bengal: Murshidabad, Bankura, 24 Parganas and Birbhum district Jammu and Kashmir: Srinagar(big centre); Other Centres: Baramula, Anantnag, Udhampur, Jammu Other important states: Bihar: Bhagalpur (famous for silk industry), Patna, Gaya. Jharkhand: Palamu, Hazaribagh. Madhya Pradesh: Birlanagar, Viragram and Indore. Uttar Pradesh: Varanasi

### **CHEMICAL INDUSTRIES:**

Fourth largest set of industries after textiles, iron and steel and engineering industries.

Products of chemical industry are more multifarious than of nay other industries of equal importance.

#### HEAVY INORGANIC CHEMICALS

Alkali Chemicals:

#### **Caustic Soda**

Widely used to manufacture paper, textile, soaps and detergents and alumina.

#### Manufacturing Centres

West Bengal: Kolkata, Titagarh Gujarat: Porbandar, Mithapur

Maharashtra: Thane, Nepa paper mills in Nagpur

#### Soda Ash

Sodium Choride and Limestone mainly used in the manufacture of soap, paper,

textile, glass, detergents and refined petroleum.

Manufacturing Centres:

Gujarat: Mithapur, Okha, Uttar Pradesh: Varanasi Punjab: Nangal

Tamil Nadu: Tuticorin

#### Acids

Sulphuric Acid:

Used for manufacturing synthetic fibre, fertilizer, plastics, paints and dyestuffs.

Nitric Acid:

Bulk of production from fertilizer factory.

Manufacturing Centres:

Rajasthan: Hindustran Zinc, Debari, Hindustan Copper, Khetri

Maharashtra: Mumbai, FCI in Trombay (largest producer)

Tamil Nadu: Chennai Jharkhand: Jamshedpur Kerala: Alwaye

West Bengal: Kolkata, Delhi

# **ORGANIC CHEMICALS**

### **Petrochemical Industry:**

Raw materials derived from petrochemical resources and industries are concentrated near petroleum and coal fields region.

Used to produce petroleum byproducts like synthetic fibres, plastics and rubber.

Manufacturing centres:

Trombay: UnionCarbide India Lid. (First petrochemical industry)

Koyali: Udex plant Vadodara: Indian Petrochemical Ltd (IPCL), first public

sector enterprises. Chennai: Madras Petrochemical Ltd. Thane: National Organic

Chemicals Ltd. Bongaigon: Second public sector enterprises.