

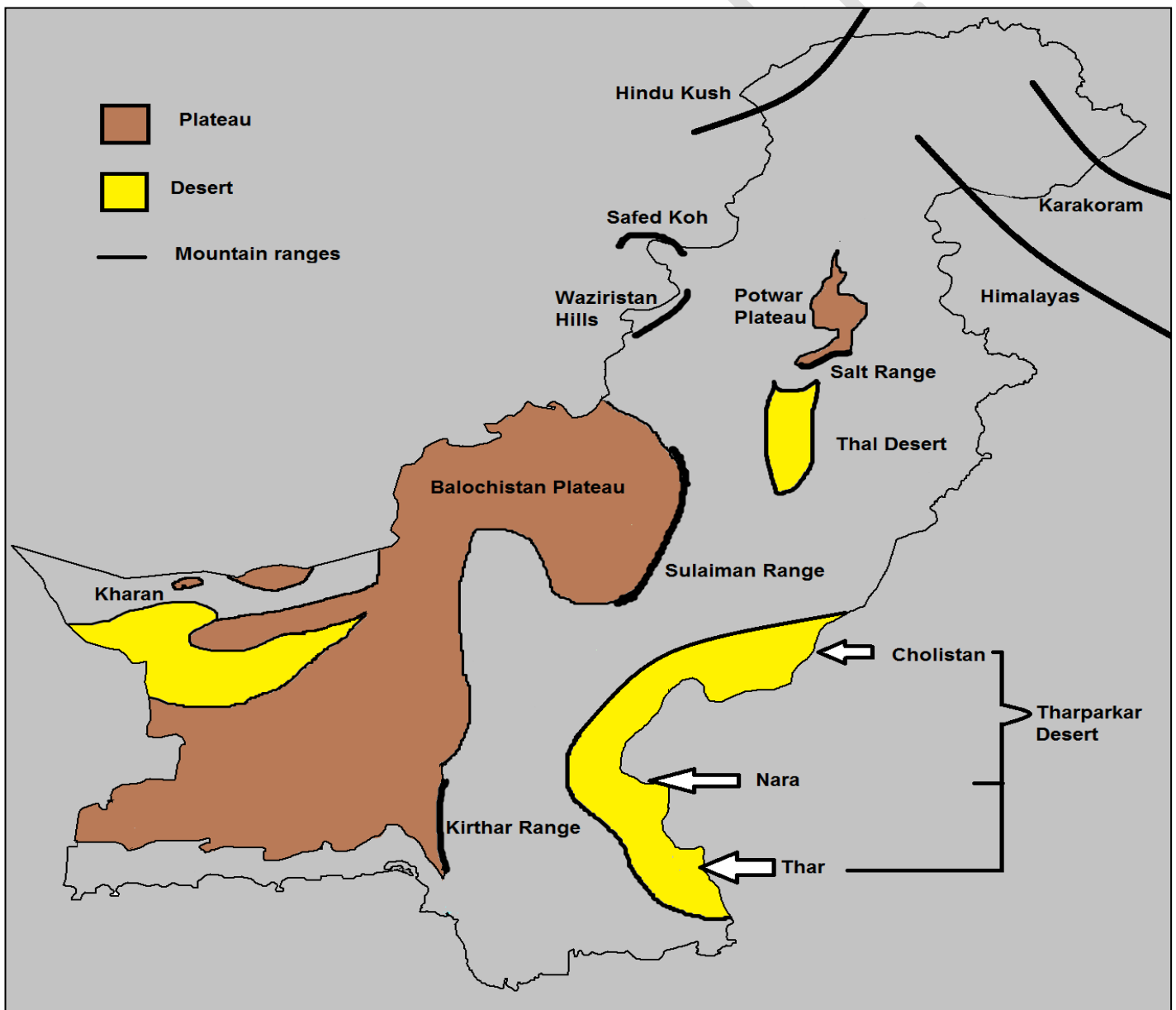
Unit 1

PAKISTAN: THE NATURAL TOPOGRAPHY

What the topography means:

Topography is the study and description of the surface features of land .Pakistan can be divided into **six** major natural topography areas.

- (i) The **northern mountains** and north western mountains.(Himalayas, Hindukush, the Karakorum)
- (ii) The **western mountains** (Safedkoh ranges, Waziristan hills, Suleiman range, kirthar range)
- (iii) The **Baluchistan plateau**
- (iv) **Potwar plateau** and Salt ranges
- (v) The **Indus plain**
- (vi) **Desert** areas. (kharan desert, Thar desert, Thal desert).



KARAKORAM RANGE:

Karakoram is situated in the north of Himalaya in which Northern Kashmir and the regions of Gilgit are situated. Its highest top is **K-2** which is 8.611 meters high.

Relief:

- Average altitude about **6000 m**
- Karakoram means black gravel
- Mass of **rock & ice** located at the extreme north of Pakistan.
- Extending for more than 400 km from Hunza to Shyok River.
- Range runs in an east to west direction & forms a very **rugged landscape**.
- **Snow covered peaks, valleys, gorges, cliff** and **gully** are important features are found there.
- **Steep sided peaks** and **deep narrow valleys** are located there.
- Cold winds blow during winters and temperature falls below freezing point in winters.
- Precipitation is mainly in the form of snow fall at higher altitude and rainfall at lower altitude during winter.
- Winters are long and cold while summers are mild and short.
- **Alpine forests** are located.
- Siachen (78km), Biafo (62.5) Baltoro, Batura and Hispar are famous **glaciers** here.
- Khunjerab & Karakoram **pass** are located in the Karakoram Range.

Drainage of Karakoram Range: (how water is carried from one place to another)

- Drainage is called total run off of water.
- **River Shyok** and **river Gilgit** are the main source of drainage.
- As main **glaciers** are located in the region so the melting of **snow** gives rise to the water table.
- As the rivers are in the upper course so the flow of rivers is very fast.
- Whatever comes in the flow of the rivers like pebbles stones etc. are carried forward and is deposited in the reservoirs in the form of silt.
- Due to the deposition of silt the storage capacity of reservoirs is decreasing.

HIMALAYAN RANGE:

Himalaya is surrounded by most of the part of Pakistan towards North. Himalaya means “the **house of ice**”. These mountains are spread up to Gilgit. The name of one of its top mountain is **Nanga Parbat**.

Relief

- Located at the South of Karakoram Range.
- Runs in east to west direction.
- Himalayan range comprises of

- (i) **Siwaliks** (600-1200 meters) these hills are located near Attock.
- (ii) **Lesser or lower Himalayas** (1800 -4500meters) are represented by Pir Panjal Range and consists of Murree, Nathia gali, Gora gali etc.
- (iii) **Central Himalayas or great Himalayas** (5000-8126 meters) are located between Pir Panjal Range and Karaoram range. Nanga Parbat (8126 meters the highest peak of this range) and Rakhiot (7074 meters) are located there.
 - **Snow covered mountains** are found here.
 - **Steep sided mountains & deep narrow valleys** are located here.
 - Extreme cold winds blow during winters.
 - Winters are cold & long while summers are mild & short.
 - Snowfall at higher altitude & rainfall at lower altitude is experienced during summers.
 - Alpine & **coniferous forests** are found here.

Drainage:

- **River Indus & River Chenab** is the main sources of drainage.
- **Melting of snow** gives rise to the water table.
- As the rivers are in the upper course, so the flow of the river is very fast.
- Whatever comes in the flow of the river is carried forward & deposited in reservoirs in the form of silt.
- Due to the deposition of silt, the storage capacity of the reservoirs is decreasing.

HINDUKUSH RANGE

The Hindukush range lies in the North West of Karakoram Range. Most of the mountains of this range are in Afghanistan. The highest top of this range is **Tirichimir** which is 7690 meters high. In this range **Chitral** and **Dir** are situated.

Relief:

- Hindu Kush lies where the borders of Afghanistan & China meet on Pakistan's north & North West border.
- Located to the South West of Karakoram range.
- Average height of mountains is 5000 meters.
- Runs in North of South Direction.
- Tirch Mir (7690 meters) & Noshaq (7484 meters) is the highest peak.
- **Snow covered peaks** are found here.
- **Steep sided mountain & deep narrow valleys** are located here.
- Many **passes** including Khyber Pass, Lawari Pass, Shandur Pass etc. are located there.
- Winters are cold & long while summers are mild to hot & short.
- Extreme cold winds blow during winters.

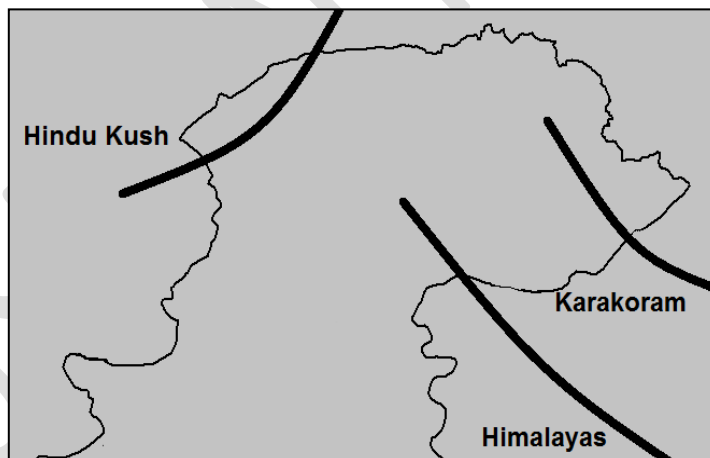
- Temperature falls below freezing point.
- **Snowfall** at higher altitude & rainfall at lower altitude is experienced during winters.
- Alpine & coniferous **forests** are found here.

Drainage:

- **River Swat & river Kabul** are the main sources of drainage.
- **Warsak Dam** on river Kabul is the main source of irrigation, drainage and power of generation.
- Melting of **snow** gives rise to the water table of the rivers.
- As the rivers are in the upper course, so the flow of the rivers is very fast.
- Whatever that comes in the flow of the river like stone pebbles etc. are carried forward & deposited in the reservoirs in the form of silt.
- Due to the deposition of silt, the storage capacity of the reservoir is decreasing.

Lifestyle & Economic Activities :

- **Nomadic** to semi nomadic lifestyle is common at higher altitude areas.
- **Animal rearing** is the main profession of the nomadic & semi nomadic people.
- **Transhumance** is practiced at higher altitude areas.
- **Agriculture** is also practiced on smaller scale.
- Warsak dam on river Kabul provides irrigation, drainage & power generation.
- **Mining** is also one of the professions (on Hindu Kush).
- Primary, secondary & tertiary industries are found here.
- Tobacco, wheat, rice & sugarcane are grown here.
- Apple, apricot, grapes, and peaches are common here.



GLACIERS:

- **Glaciers are a mass of snow on the mountains.**
- Many of the world's glaciers lie in the mountains of Pakistan.
- Some of the important glaciers are
 - (i) Baltoro, 58 km long, the the Karakoram Range.
 - (ii) Batura , 58 km long in the Hunza valeey in the Karakoram range.
 - (iii) Siachen, 78 km long locate in the Karakoram Range.



IMPORTANCE OF THE NORTHERN MOUNTAINS:

- Historical passes connect Pakistan to China and Afghanistan. A land route through Karakoram Highway has been opened to carry out **trade**.
- Snowcapped peaks melt during summer to drain **water** into river Indus and its tributaries which irrigate vast Indus plain.
- A source of valuable **minerals, timber** and **fruits**. Provides raw material to several industries e.g. Furniture, paper, chipboard industry, chemical industries.
- Mountain peaks provide **protection** to Pakistan against the cold winds from central Asia. The temperature does not go below freezing point over the upper Indus plain & climate remains tolerable throughout the year.
- Scenic beauty promotes **tourist** resorts which are source of Income to local people during summer.

WESTERN MOUNTAINS:

SAFED KOH:

Relief:

- Located at the south of Kabul river
- They are called safed koh (White Mountains) because their peaks are often covered with **snow**.
- **Steep sided mountains & deep narrow valley** are located here.

- Height reaches up to 4712 meters.
- **Snowfall** at higher altitude & rainfall at lower altitude is experienced during winters.
- Winters are cold and long while summers are mild, hot & short.
- **Passes** like Kurram pass is found there which provides a route to Afghanistan.
- Cities like Peshawar, Kohat are located there.
- Alpine & coniferous **forests** are located here.

Drainage:

- **River Kabul** & **river kurram** drain these areas.
- Warsak dam on river Kabul & **kurram dam** on river kurram are the main source of drainage, irrigation and power generation.
- **Melting of snow** gives rise to the water table.
- As these rivers are in the upper course so flow of the rivers is very fast.

WAZIRISTAN HILLS:

Location:

- Waziristan hills are located ***between River Kurram & River Gomal***.
- They reach up to a height of 3513 meters.
- These hill ranges form a rampart between Afghanistan & Pakistan.
- **Passes** like Tochi & Gomal pass located there.
- **Snowfall** at high altitude is experienced.
- Winters are long & cold while summers are mild to hot & short.
- Coniferous **forests** are found here.
- Dera Ismail Khan & Bannu Valley are the famous towns. (important military center)
- These hills are highly **mineralize**.

Drainage:

- **River Kurram** & **River Gomal** drain this range.
- **Kurram Dam** on river Kurram provides irrigation, drainage & power generation.
- Melting of **snow** gives rise to the water table.
- As the rivers are in the upper course so the flow of the rivers is very fast.

SULAIMAN & KIRTHAR RANGE:

Location:

- Sulaiman Range is ***located to the west of river Indus***.
- Takht-e-sulaiman at 3500 meters is the highest peak.
- Moving southward of Sulaiman Range is joined by Kirthar Range, which is later backed by the Pab range.
- Lime stone and sandstone are the main minerals in this area.

Drainage:

- **Rivers Hub, Porali & Hingoli** drain these rivers.
- Braided river channels drain the Suleiman range.
- **Hub dam** on river Hub provide irrigation, drainage & power generation.

Life style & Economic Activities (western mountains):

- The WM are mostly bare of vegetation and climate & relief do not support farming.
- Canal irrigation is not impossible.
- Transportation is very limited. Except Peshawar and Kohat rest of the area is not connected with air or rail.
- The cost of infrastructure is very high.
- **Nomadic to semi nomadic lifestyle** is common at higher altitude areas.
- **Animal rearing** is the main profession of the nomadic & semi nomadic people.
- Western mountains are rich in **mineral resources** like Natural Gas, Coal, Iron ore, Copper etc.
- In the winters in house **cottage industry of carpet making** & hand knotted articles become very common.

1: Khyber Pass: leads to the fertile vale of Peshawar.

2: Kurram pass: a route to Afghanistan

3: Tochi pass: connects Ghazni to Bannu.

4: Gomal Pass: connects Afghanistan to Derajats

5: Bolan: connects the Kachhi Sibi Plain to Quetta.

THE BALUCHISTAN PLATEAU:

- BP is located in the southwest of Pakistan with altitude from 600-3010.
- Total area is 347190 sq KM.
- It has the following natural **topographical features**.

a) Basin of northern Baluchistan:

- BP has a number of irregular depressions such as Zhob & Loralai basins situated between Toba Kakar Ranges & the Sulaiman Ranges.
- South west of the Loralai Basin is the Quetta valley.
- Rain is infrequent over here.
- The deposition of material brought by the river channels form alluvial fans on the piedmont plains.

b) Basins of western Baluchistan:

- There are a number of basins between the mountain ranges such as the Chagai hills, Ras Koh, Siahan & central Makran.

- Area is devoid of vegetation & little rainfall.
- These basins have no outlet to the sea. So rainfall makes temporary rivers & streams which often soak into the ground.
- These basins are known as inland drainage basins.
- The **temporary lakes are called Hamuns** in the local language.
- There are Salt Lakes & when the water evaporated, a salty crust is left behind and it is then called **Salt Pan**.
- The largest of these temporary lakes is called the **Hamun-i-mashkel** located at the western part of Kharan desert.

c) Mountain ranges:

- Baluchistan Plateau is covered with a number of barren mountain ranges with an altitude of 600-3010 meters.
- These ranges are highly mineralized especially the Chagai Hills including Copper, Gold & sulphur.
- Some of the important hills of Balochistan Plateau are:

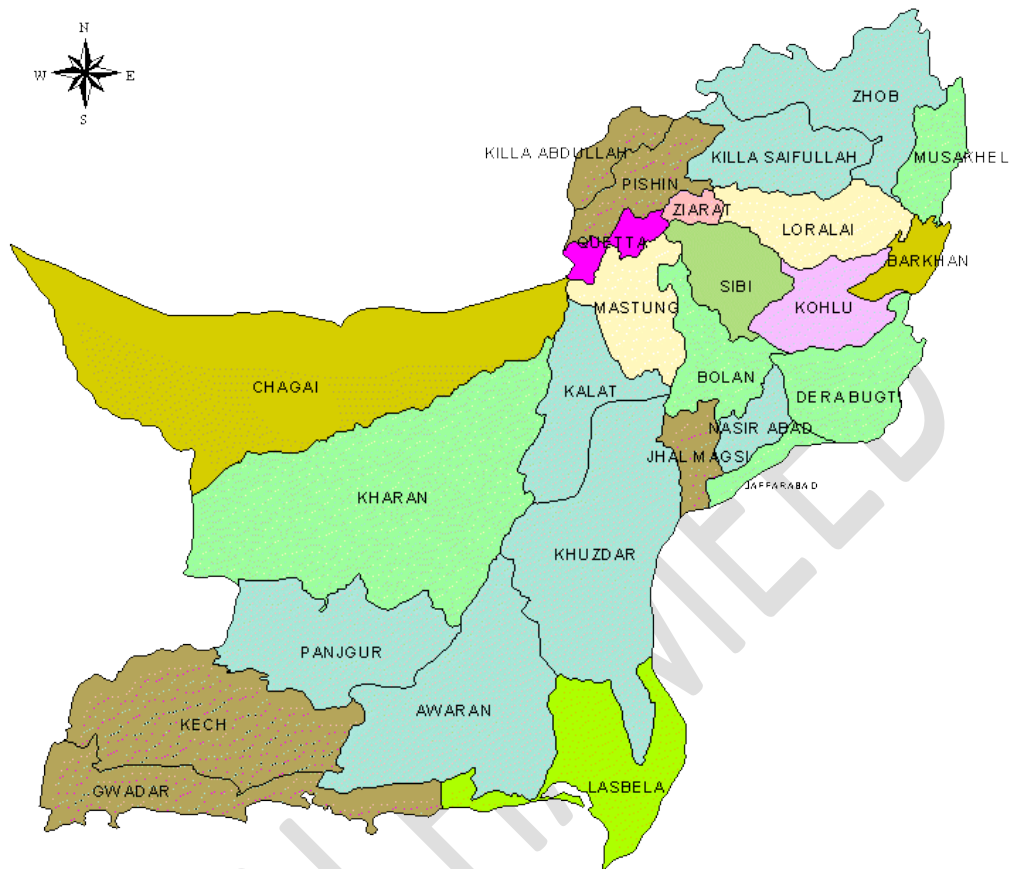
Toba Kakar Range
 Central Barahvi Range
 Chaghai range
 Ras koh range
 Makran range
 Siahen range

d) The Coastal areas:

- The coastal areas of the Baluchistan Plateau can be divided into eastern and western parts.
- The eastern part comprises the Lasbela Plain and the western part is known as the Makran coast.
- The important rivers are the Hab, Porali, Hingol & Dasht which flow into the Arabian Sea.

Lifestyle & Economic activity:

- **Nomadic to semi nomadic** lifestyle is common at higher altitude.
- Animal rearing is the main profession of nomadic & semi nomadic people.
- **Agriculture** is performed.
- Irrigation is obtained through the canals linked with dams & Barrages.
- Fruit orchards grow apple, apricot, peach etc. in large quantities.
- Baluchistan plateau is a **mineralized** zone & natural gas, coal, limestone, copper etc. are extracted.
- People living on coastal areas perform **fishing** & marine fishing is the main profession.
- Mangrove **forest** is the main vegetation of the coastal areas of Baluchistan Plateau.



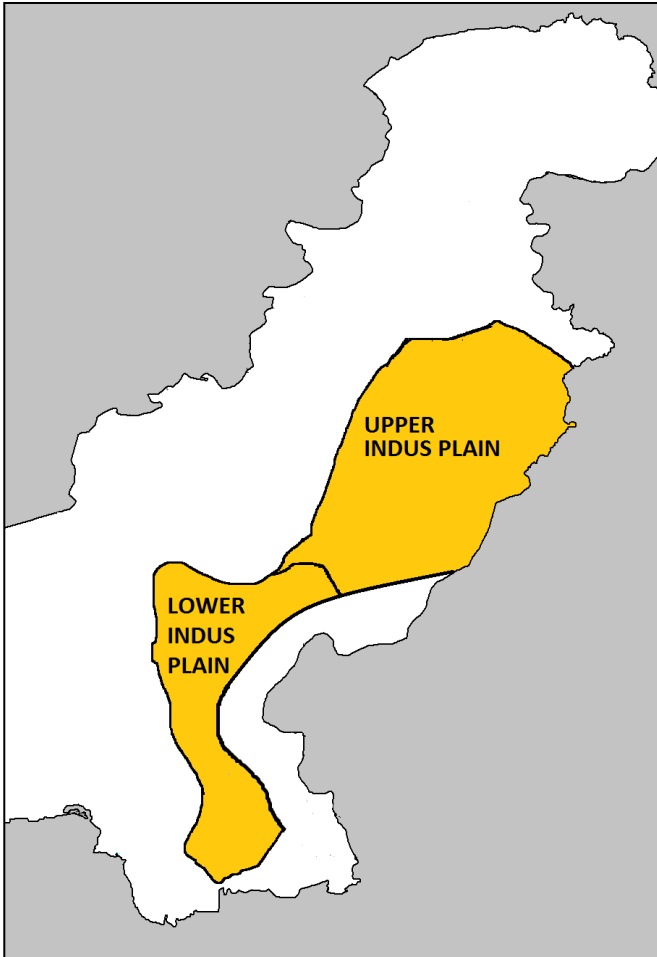
POTWAR PLATEAU & SALT RANGE:

Location, Relief & Drainage:

- PP and the salt range are located to the south of Islamabad between the river Indus and river Jhelum
- Height of PP varies from 300 to 600 meters.
- It is generally referred to as ***bad land topography***.
- It is dominated by ***limestone ridges, salt, coal & oil mines & ravines***.
- Kalar- Kahar Lake & Khabaki Lake is two ***salt lakes***.
- Kala- Chitta & Khairi – Murat Range are the two prominent hill ranges (1000 meters).
- ***River Jehlum & River Soan*** is the two main source s of drainage.
- ***Mangla Dam*** on River Jhelum is the main source of irrigation, drainage, & power generation.

Lifestyle & Economic Activity:

- Potwar Plateau is a ***mineralized*** zone & minerals like coal, rock salt & Limestone are found in abundance.
- ***Agriculture*** is practiced on very small scale.
- Attock ***Oil refinery*** is also located here.
- It has a high population density & contains all three types of industries.



- Rawalpindi, Jhelum & Chakwal are the important towns of Plateau.
- It is a very developed place.
- It is linked throughout the country via roads, rail & airways.

THE INDUS PLAIN:

- **The plains that are formed by River Indus & its tributaries.**
- Indus plain located **throughout most of Punjab & the central part of Sindh.**
- Northern part is known as the **upper Indus plain.**
- Five main tributaries of the Indus joined at **Panjnad.**
- River Panjnad flows 72 km before joining the Indus near **Mithankot.**
- Below Mithankot in Sindh, the Indus flow as a gigantic river till it falls into the Arabian Sea.

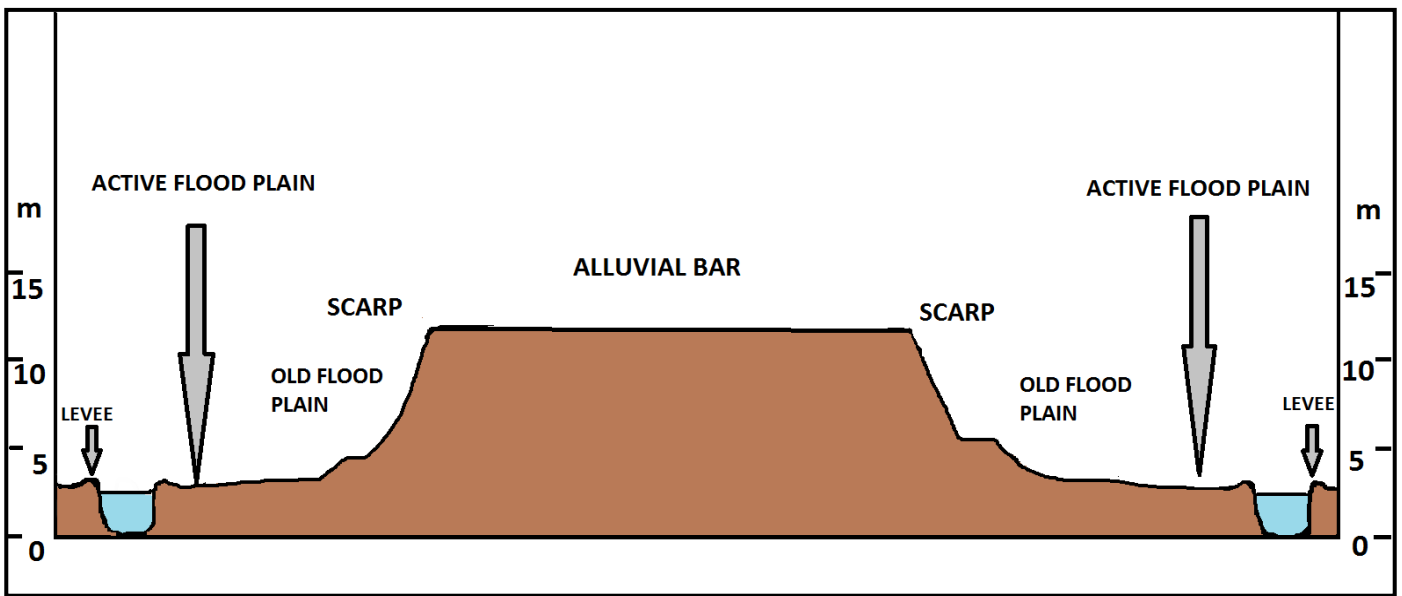
- This part is known as **lower Indus plain.**

1: Active Flood Plain areas:

- **Narrow strip of land on both sides of the River** Indus & its tributaries. These plains are actively inundated.
- It is locally called as Bet or Khaddar land.
- These plains have fertile top soil formed by the annual deposition of fresh alluvium.
- These plains are annually inundated.
- Flood plain is around 40 km wide which makes it an important farming area.
- The top fertile soil is carried to infertile areas to make them fertile.
- **Meanders, oxbow lakes & levees** are the important feature of Active flood plain.

2: The old flood plain areas:

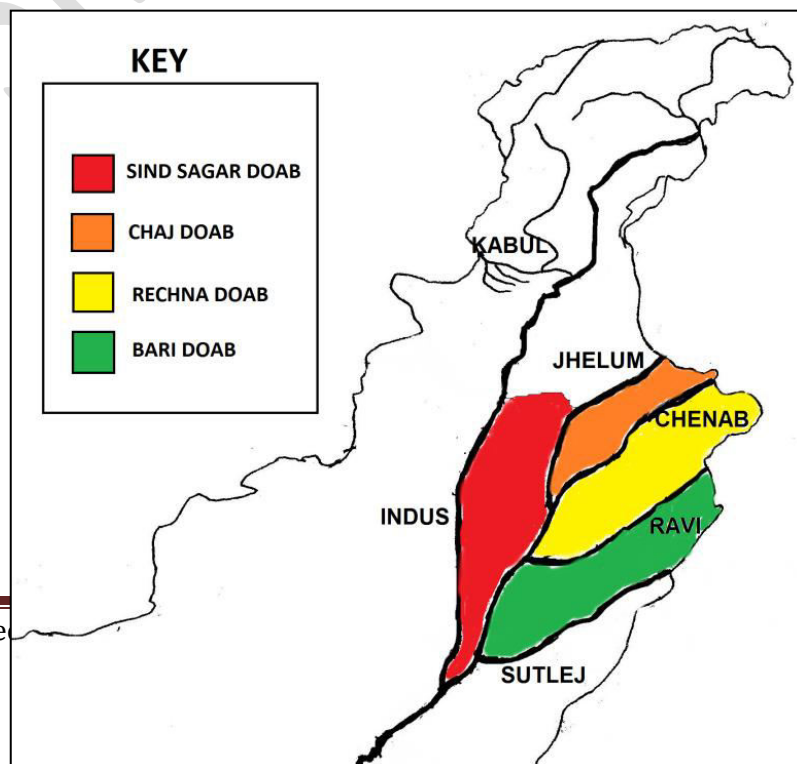
- These plains are formed by the deposition of old alluvium.
- These plains are higher in height than the active flood plains & are inundated once a decade or in heavy monsoon.
- These are among the most fertile plains in the world.
- Meanders scars, oxbow lakes, old levees are also found there. Large quantities of crops are grown there.



3: Alluvial Terraces:

- They are locally *called Bars*.
- Bars are *found in the Doab*.
- *Doab is the land between two rivers.*
- Doabs are favored as areas for a number of human activities such as farming, construction of settlements, buildings of transport and other industrial and business activities.
- There is a high population density in doab areas of Pakistan.
- Bars are 15 to 20 meters high.
- They are considered ideal for agriculture with the help of irrigation facilities.
- *Sindh-Sagar Doab between River Indus & River Jhelum.*
- *Chaj Doab between River Jhelum & River Chenab.*
- *Rachna Doab between River Ravi & River Chenab.*
- *Bari Doab between River ravi & River Beas.*
- *Kirana Bar between Sind Sagar Doab.*
- *Sandal Bar between Chaj doab*
- *Neeli bar between Bari doab*
- *Ganji*

Bari



Bar
between
doab

4: Piedmont plains:

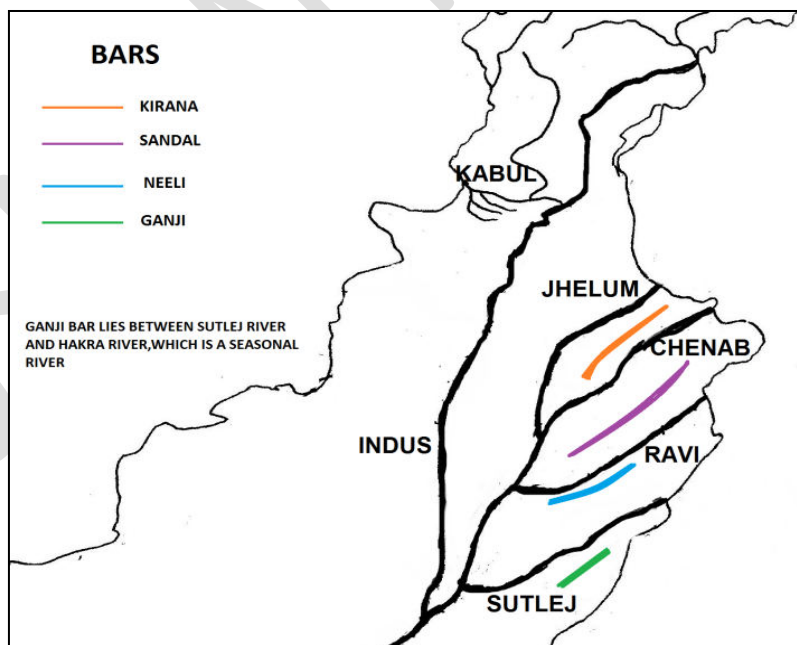
- PP is located at the **foot hills** of the Suleiman, kirthar and Himalayan mountains.
- The most dominant features of the pp are the **alluvial fans**.
- They become active only during the rainy season.
- The gravel, sand and alluvium deposited by rivers form alluvial fans.
- The Suleiman PP is also known as **Derajat**.
- The pp is mainly agricultural.

5: Tidal delta:

- The Indus delta is located to the **south of Thatta**.
- A delta is often triangular or fan shaped.
- When river flows into sea, its speed is soon checked and its load of alluvium is dropped on the sea floor.
- The Indus delta has mangrove swamps.
- The coastal area is generally low and flat.

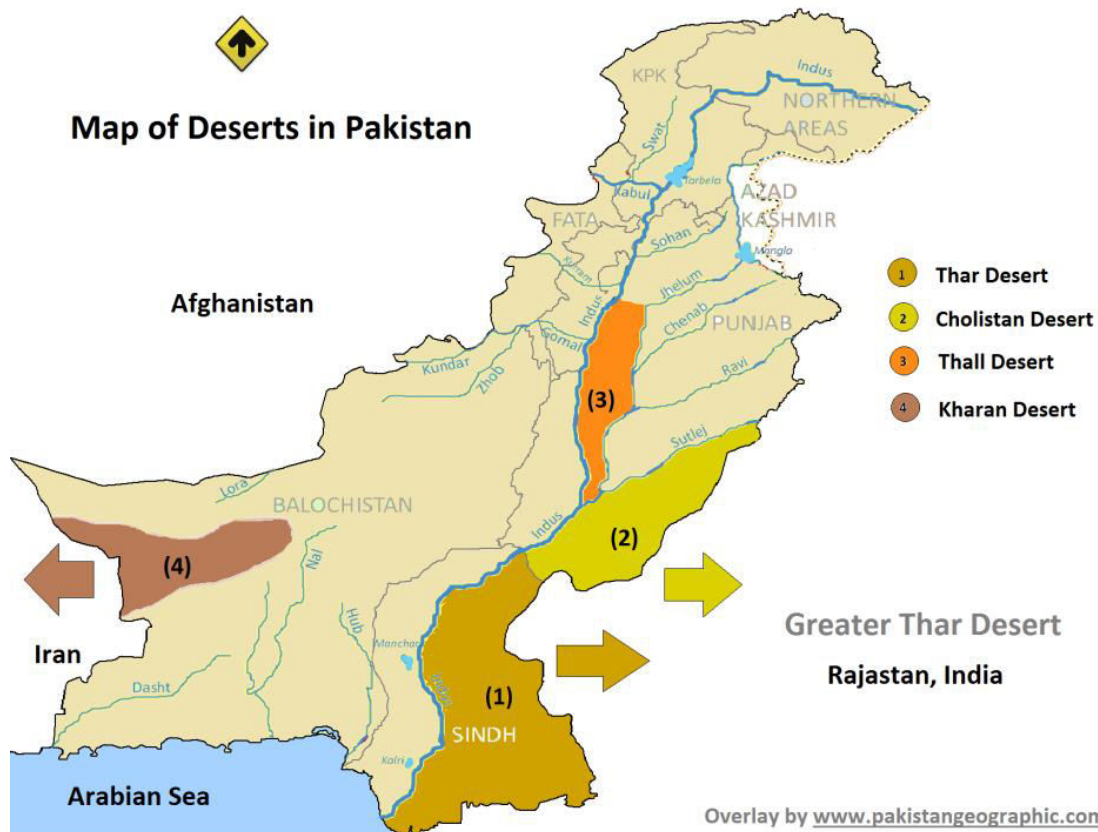
6: Cuestas:

- Cuestas are **the limestone ridges** (mound).
- These ridges are the small variable height features.
- Rohri Cuesta attains the height of about 80 meters & is about 40 km long.
- These limestone ridges provide a firm foundation for the construction of barrages for irrigation.
- Cuestas also provide scenic beauty and flat landscape.



The desert areas:

- Desert areas in Pakistan are located at three places.
 - (i) the Sindh Sagar Doab or **Thal desert**, located between the river Indus and river Jhelum
 - (ii) The **Thar Desert** is located towards south eastern Pakistan. It can further be divided into three main regions:
 - (a) Cholistan
 - (b) Nara
 - (c) Tharparkar (thar)
 - (iii) The **Kharan desert**.
 - *Rolling sand dunes, weathering of rocks, lack of vegetation and bare rocks are the main features in the desert areas of Pakistan.*
 - *Rainfall is scanty and the water table is extremely low.*



IMPORTANT TERMS - **Avalanche:** A huge mass of snow that moves down the slope. **Bar:** Alluvial terrace an old flood plain fairly high to active flood plain. **Bet:** Active flood plain. **Doab / Interfluvies:** Land between two rivers. **Dhand :** Small salt lake. **Khaddar:** Fresh Alluvium. **Karez:** Irrigation Method used in Baluchistan which consists of a water- tunnel or a narrow underground canal. **Landslide:** landslide is the movement of rocks and soil down the mountain slopes. **Mountain:** A raised part of the earth with a peak, steep slope attaining over 1000 meters height than a hill. **Range:** A group of mountains is called a range. **Plateau:** An area of fairly level high ground. **Plain:** A flat land with fertile soils used to grow crops. **Topography:** The arrangement of the natural and artificial features of an area. The synonyms of topography are land forms/ physical features/ physiography and configuration of earth surface. **Relief:** The specific forms of a physical feature. **Economic activities:** All activities which are carried out to produce something.