GEOGRAPHY OF RAJASTHAN

The Indian state Rajasthan is located in the north western region of the country and shares boundary with our neighbour country Pakistan. Rajasthan shares boundary with Indian states Punjab, Haryana, U.P., M.P. and Gujarat. Total land area of Rajasthan is about 342,239 sq. km, which makes it the largest state of India geographically.

Geographical location

- Rajasthan is geographically located between 23 degrees 3 to 30 degrees 12 northern latitudes and 69 degrees 30 to 78 degrees 17 East longitudes.
- The Tropic of Cancer passes through the southern portion of the state.

The Direction of The State

- Also called the warriors land, Rajasthan is in the north-western direction of India.
- It encompasses the long-expanding desert.

Neighbours

- Rajasthan has different neighbours on different sides in its surrounding areas. For example, Rajasthan is surrounded by states like Haryana and Delhi in the northeast.
- It is surrounded by Uttar Pradesh in the east.
- Gujarat surrounds Rajasthan on the southwestern side, while Punjab is neighbouring state on the northern side.
- It is also surrounded by Madhya Pradesh in the southeast direction.

Shape area and size of Rajasthan

- From the perspective of Rajasthan geography, the shape of Rajasthan is irregularly Rhomboid.
- The length of Rajasthan is 826 km from north to south. It is calculated to be 869 km from west to east.
- The total area of the state of Rajasthan is 3,42,239 sq. km.
- The state of Rajasthan is credited with the honour of being the largest state in India.
- In terms of area, the state of Rajasthan is five times that of Sri Lanka.
- It is 17 times bigger than Israel.
- It is more than double in terms of area when compared to England.

International Boundaries

- On the Northern side, the international boundary starts 10 km south of Fazilka and reaches the Gulf of Kutch.
- India has a total boundary of 1070 km with our neighbouring nation Pakistan.
- The districts Bahawalpur Mirpur Khas in Khair Pur are located towards the boundary of our neighbouring nation Pakistan and separate our country India from Pakistan on the Western side.

Physiographic Divisions Of Rajasthan

Rajasthan is divided into four physical or physiographic divisions, which are

- Western Sandy plains
- Aravali Range And the hilly region
- Eastern plains
- Southeastern Rajasthan Pathar

Let's discuss each of them one by one.

Western Sandy Plains

These plains comprise a large chunk of the area of the state. As the name suggests, this region is primarily a sandy desert. It stretches along the lofty Arravali mountains. It is bound by Gujarat in the southwestern region and Pakistan on the western side. It extends to Punjab on the northern side of the country.

The marshy desert under the western sandy plains comprises of following regions:

- Churu
- Sikar
- Jhunjhunu
- Nagaur
- Pali
- Jodhpur
- Sirohi

The western sandy plains are further classified into the following subcategories discussed below.

Semi-Arid Plain

This part of the semi-arid desert comprises more than 60% of the western Sandy Plain in Rajasthan. This region accommodates nearly 40% of the total population.

- This area treasures a major proportion of limestone found in the state.
- The semi-arid plain area comprises regions like
    - Jaisalmer
    - Barmer
    - Bikaner
    - Shriganganagar
    - Hanumangarh
- This area is dry and has very scanty vegetation due to water scarcity.

Marustalli

This part comprises the huge expanding Thar desert of Rajasthan. It covers the following regions:

- Jaisalmer
- Jodhpur
- Nagaur
- Churu
- Bikaner

Dune-Free Tract

The area under dune free tract is smaller as compared to the Marustalli region. This area is a storehouse of limestone and sandstone reserves. Dunes are not found in this region. As it owns the characteristic feature of being a rocky terrain, the major area around Jaisalmer is hilly, and many rocks are found there.

- Water availability in this area is sufficiently good, and the water table is stable.
- This area also centres around a major proportion of granite reserves.

Rajasthani Bangar/Semi-Arid Basin

This category covers around 7500 sq km of area. This land includes areas like Jaipur, Jodhpur, Nagaur, and Pali.

- The Shekhawati tract is present to its north, a semi-arid transitional plain area.
- Comprising different characteristics like inland drainage streams like Deewana and Sambhar Lake.

Dungarpur Luni Basin

The Luni Basin comprises areas like Udaipur, Rajasamand Nagaur, and Pali. It is a seasonal river that only flows in the rainy season. Luni River basin comprises alluvial plains in the region due to the floods due to water flow.

Shekhawati Region

It includes places like Churu and Sikar Jhunjhunu Nagaur. The characteristic feature of this region is the sandy desert. This tract divides Arravali into two halves.

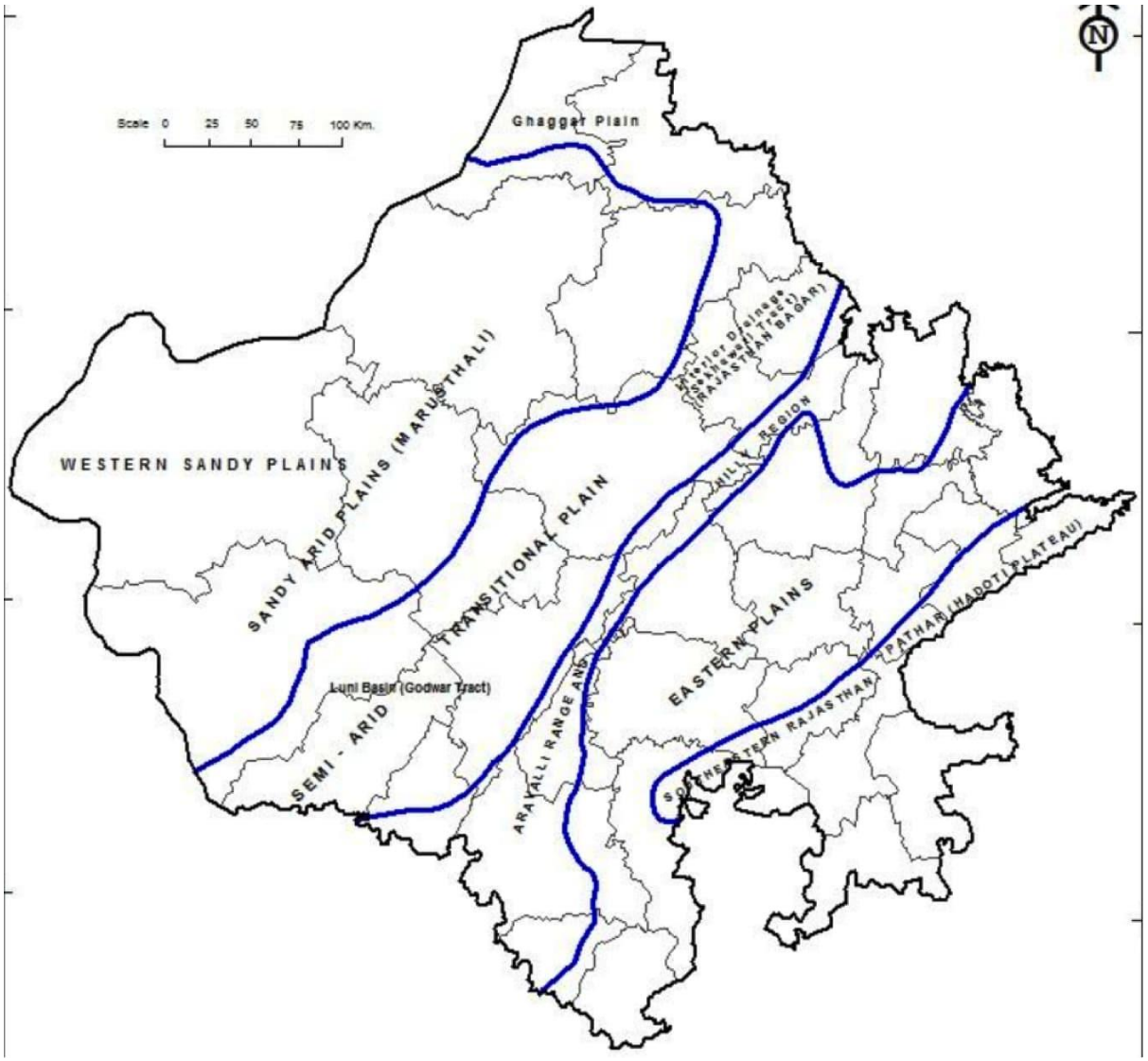
Nagaur Upland

This subcategory of physiographic divisions in Rajasthan includes areas surrounding the Nagaur region. The whole terrain is accompanied by sandy desert and low depressions regarding its topography.

- This area in Rajasthan faces the issue of high temperatures. Evaporation takes place at a very high rate.
- During the monsoon, this area receives 25 m to 30 m of rainfall.
- Floods happen in the region due to low depression terrain. Saline water gets stored there. It also leads to the formation of the salt in the region due to the presence of the sun's high heat.

Ghaggar Plain

This place gets its name from the river Ghaggar flowing in the region. Its chief characteristics are Sandy plains and marshy dunes varying from 6 to 30 meters.



Arravali Range- A Hilly region

Rajasthan is divided into two major portions by the Aravali Range. These are Southeast Rajasthan and Southwest Rajasthan.

- The extension of the Aravali Range is approximately 692 km having extensions to the Gujrat, Haryana, and Dehli regions.
- Aravali in Rajasthan is divided into different subdivisions for clarity. They are North Eastern Aravali Range, Central Aravali Range, Abu region, and Bhorat plateau.

Let us briefly understand the different subdivisions of the Aravali ranges.

Alwar Hills or Eastern Hill Tract

Alwar Hills, or Eastern hill tract, comprises hills ranging from a height of 300 m to approximately 670 meters. Important features of these hills are that these hills are variably wide.

- This part of Aravali Hill is flat from the top.
- This region comprises areas like Dehli, Alwar, and Jaipur.
- Districts covered under these sub-sections of the Aravali ranges are
    - Jaipur
    - Sikar
    - Jhunjhunu
    - Alwar
    - Sawai Madhopur
- This area of the Aravali range also has a few lakes. The lakes associated with the northeastern hill tract are Pandupole, Ramgarh and Sambar.
- Some of the hills associated with this section of the Arravali ranges, are Torawati and Malkhet.

The Central Aravali Range

This section of the Aravali Range has a few distinct characteristics:

- The height of this section is about 700 m.
- It extends from Sambhar Lake to borrowed plateau.
- This region is surrounded by
    - Alwar hills on the northern side.
    - The Karauli table on the eastern side.
    - The Banas plains extend on the southern side.
    - The Sambhar basin on the Western side.

Mewar Rocky Region and Bhorat Plateau

It includes areas such as Udaipur, Pali, and Dungarpur, Bhorat plateau. Bhorat Plateau is one of the highest tablelands in the region. It has acquired an area of around 1700sq km. It has an average height of 1225 meters.

Abu Region

This area under the Aravali subsection lies in the Sirohi region in Rajasthan. It has an acquired area of 5180 square kilometres. West Banas separates this region from the main Aravali section.

Some of the prominent Arravali ranges are discussed below.

Important Peaks Of Aravali	**Names With Height**
Guru Shikhar	Mount Abu Sirohi, 1732 meters
Ser	Sirohi, 1532 meters
Delwara	Sirohi, 1442 meters
Jarga	Udaipur, 1431 meters
Achalgarh	Sirohi, 1380 meters
Kumbhalgarh	Rajsamand, 1224 meters
Hrishkesh	Udaipur, 1017meters
Kamalnath	Udaipur, 1001meters

Eastern Plain

Eastern plains are located in southwestern Rajasthan. It covers around 23.3% of the total area of the state of Rajasthan. It has been further classified into the following:

- Chambal Basin
- Mahi Basin
- Banas Basin

Chambal Basin

River Chambal is a tributary of river Yamuna. It is a basin formed by the river Chambal in Rajasthan. The areas covered by river Chambal include

- Sawai Madhopur
- Kota
- Bundi
- Baran
- Jaipur
- Alwar
- Tonk

This basin is Approximately 10 km wide and covers approximately 4500 sq km.

Banas Basin

The Banas Basin lies entirely in Rajasthan. It is drained by river Banas. It is an elevated plain. It covers the following regions:

- Udaipur
- Chittorgarh
- Bhilwara
- Tonk
- Jaipur
- Alwar

The Banas basin is further classified into two categories, briefly discussed below.

Mewar Plain

As the name suggests, this plain is located in the Mewar region of Rajasthan. It is an Archean granite and gneiss plain. It is naturally elevated up to 280-500 meters above sea level in the east and northeast directions. Banas and its tributaries, such as Kothari, Khari, Mansi, Menal, Bandi, and Berach, flow throw this plain.

Malpura Karauli Plain

It comprises a schist and guess and is a flat upland. It is naturally elevated at approximately around 250-300 meters. It has a thick alluvial deposit in the Kishangarh Malpura region.

Mahi Basin

It is also known as Chappan Basin. It covers around 7056 sq. km of area. This covers the whole area of Dungarpur. It is strategically located east of Mewar Hill and south of Banas plains. The western side of the Mahi plain is steeply accompanied by lush plains in the central and eastern regions.

- These plains are naturally fertile, therefore are associated with farming.
- This region is naturally elevated to 200-400 Meters above sea level.
- The hill tract surrounding the Dungarpur Baswara region is called the Bagar region.

South Eastern Plateau

This region extends to the south and south-eastern parts of the state. Its chief characteristics are:

- It comprises 9.6% of the total area of Rajasthan.
- It touches the Rajasthan border on the eastern side.
- It extends to a great boundary fault in the state's north-western region.
- This region is also known as Pathar or uparmal.
- It is popularly identified as the Hadoti plateau.

This region is further classified into the following categories discussed below.

Deccan Highland

This physiographic division of Rajasthan is also known as the Uparmal Plateau. It covers the area of Kota and Bundi. River Chambal and its tributaries, Parwan, Parvati, and Kali Sindh, flow through this region. This region is blessed with huge amounts of black soil deposits due to Deccan lava traps.

Vindhyan Range

Characteristic features of this physiographic division of Rajasthan are boulders, depressions, and blocks. This region naturally extends up to a height of 350 to 550 meters. Due to the presence of sandstone, scarp lands are formed in the region. Scarps are located between Chambal and Banas rivers, extending towards the Bundelkhand.

Conclusion

Rajasthan is a blessed state in terms of its topography and physical features. Rajasthan is broadly divided into four physiographic divisions. They are the Western sandy plains, the Aravali Range and the hilly region, the Eastern plains and Southeastern Rajasthan Pathar. Each of these divisions has unique features which make them important for the state.

Climate of Rajasthan

Climate means the weather conditions that have prevailed for a long time. The climate of different locations is given different names. The name monsoon climate is given to the climate of India. The climate is an important component of nature. It is an important component associated with geography that creates and impacts any place's socio-economic conditions.

There are different elements of climate, namely temperature, atmospheric pressure, winds, rainfall, and span of the day, etc. Different types of climatic variations are seen in Rajasthan. There are extremely dry climatic conditions in parts of western Rajasthan. Sub-humid climatic conditions are experienced In parts of eastern Rajasthan. The two variations in climatic conditions found in different parts of Rajasthan are opposite, discussed below in detail.

Climatic Conditions In Western Rajasthan

The dry climatic conditions in western Rajasthan comprise regular low rainfall and high temperature. Extremely high temperatures and scorching heat are the characteristic features of this kind of climatic condition prevalent in Western Rajasthan. The scorching heat wave prevalent in the region is locally termed as **loo**.

Climatic Conditions In Eastern Rajasthan

Eastern Rajasthan generally receives high rainfall as compared to western Rajasthan. Temperatures are generally low in Eastern Rajasthan.

Features of Climate in Rajasthan

Some features of the climate of Rajasthan are discussed below.

- Rajasthan is blessed with a sub-humid and dry climate.
- Rajasthan receives scattered rainfall.
- The daily and annual temperatures are high mostly due to the availability of higher amounts of sand in the desert region.
- Monsoon season brings rainfall in Rajasthan, and rain received by the Eastern parts of Rajasthan is comparatively higher in the Western regions.
- The climate of Rajasthan faces variations in terms of temperature. Generally, the temperature during winter is very low, leading to freezing temperatures in some areas.
- Temperatures during summer are mostly very high.

The climate of Rajasthan has been classified into different categories based on the amount of rainfall received; and the variations in temperature, which are discussed below in detail.

Climatic Regions In The Rajasthan

The climate of Rajasthan is classified into the following types for easier understanding which are as follows.

Classification of Climate of Rajasthan	Important Details
Arid Region	○ The arid area is also known as a desert area. ○ The climate in the area is primarily, hot and dry. ○ In this location, during summer, the maximum temperature varies from 45° to 49°C ○ During the winter, the temperature ranges from 0° to 8°C. ○ The average rainfall is less than 25 cm in this area. ○ Due to the amount of sand, dust storms are common during the summer. ○ A wide variety of daily and annual temperatures characterize this region. ○ Jaisalmer, Barmer, and Bikaner all have this kind of weather.
Semi-Arid Region	○ It stretches between the western Aravallis. ○ Average annual precipitation ranges from 25 to 45 cm ○ The temperatures in winter range from 10° to 17°C. ○ During summer, temperatures range from 36° to 42°C.
Humid Climatic Region	○ This climatic region of Rajasthan receives rainfall between 50 to 75 cm. ○ This area gets more rain as compared to other parts of Rajasthan. ○ Bharatpur, Dholpur, Sawai Madhopur, Bundi, Kota, Barmer and Rajsamand and the northeastern parts of Udaipur have this type of climate.
Very Humid Climate	○ The area gets more than 75 cm of rain annually. ○ The southern portion of Chittorgarh includes the districts of Kota, Baran, Jhalawar, Banswara, Dungarpur, Sirohi, and Udaipur have this type of climate. ○ The monsoon continues to be the most active here.

The vast geographic area of Rajasthan shows variation in climate. On the basis of temperature and distribution of rainfall, Rajasthan has been divided into four climatic zones:

1. Arid climate zone

2. Semi – arid climate zone

3. Humid climate zone

4. Excessively humid climate zone

1. Arid Climate Zone:

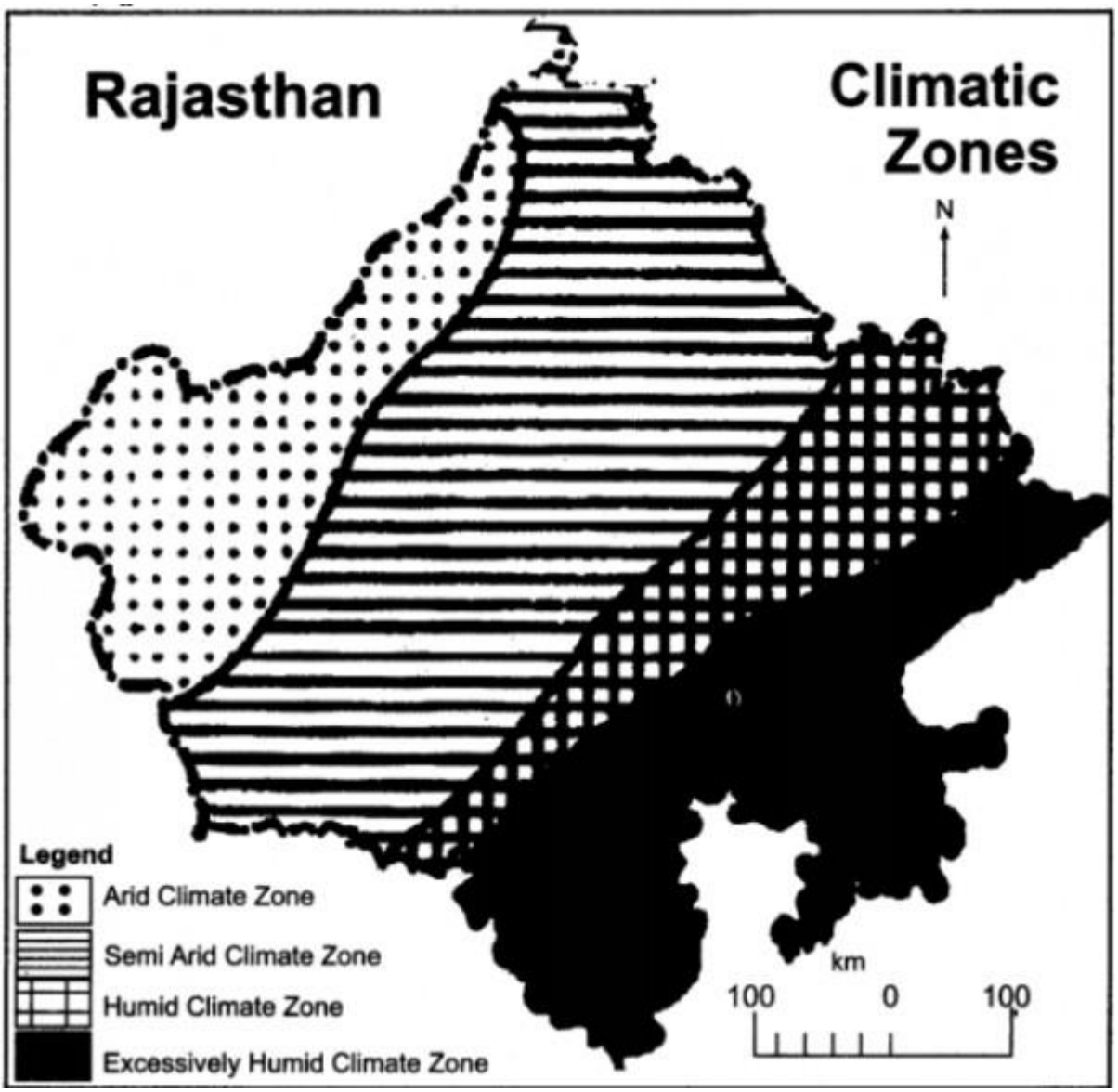
It is also called as desert region. In this region, dry and hot climate is found. During the summer, the temperature in this region goes up to 45° – 49°C and in the winter, it falls down to 8° to 0° C. Less than 25 cm annual rainfall occurs in this zone. Due to excess of sand, strong dusty storms commonly blow here. Excessive daily and annual thermal difference is the main characteristic of this region. This type of climate is found in the districts of Jaisalmer, Barmer and Bikaner.

2. Semi – arid Climate Zone:

It is spread between the western part of Aravalli and arid climatic zone. The annual average rainfall in this region is 25 cm to 45 cm. During summer, the temperature of this region remains between 36° to 42° C and in winter it remains between 10° to 17° C.

3. Humid Climate Zone:

The average annual rainfall in this region is from 50 to 75 cm. The temperature during summer season is from 32° to 34° C and it is from 12° to 18° C in the winter. The districts of Alwar, Bharatpur, Dholpur, Sawai Madhopur, Tonk, Bundi, Rajsamand and northern part of Chittorgarh are included in this region. 4. Excessively Humid Climate Zone: More than 75 cm average annual rainfall is found in this region. Under this zone, districts of Kota, Jhalawar, Dungarpur, Sirohi, Udaipur, and southern part of Chittorgarh are included.



DRAINAGE SYSTEM OF RAJASTHAN

Due to its vast geographical area, Rajasthan also shows variations in the drainage system. The Aravalli Mountain range situated in the middle of Rajasthan divides the drainage system of Rajasthan into two parts. This water divider line extends to the south of Sambhar lake along the Aravalli range. The different rivers originate from two sides of this water divider.

The drainage system of Rajasthan has been divided into three parts on the basis of rivers flowing in Rajasthan:

1. The drainage system of Bay of Bengal.

2. The drainage system of Arabian Sea.

3. Inland drainage system.

1. The Drainage System of Bay of Bengal:

Rivers that drain into Bay of Bengal are:

(a) Chambal: The river Chambal originates from Janapava hill in Madhya Pradesh and finally joins river Yamuna at Etavah in Uttar Pradesh. It is an important river of this system. The major tributaries of Chambal are Banas, Parvati, Kali Sindh etc.

(b) Banas: It originates from the Khamnor hill of Bhorath plateau and finally joins the river Chambal at Rameshwar in Sawai Madhopur district. Its major tributaries are Berach, Kothari, Khari, Mainal, Bandi, Mansi, Dhundh and Morale.

(c) Banganga: It originates from Viratnagar of Jaipur and joins river Chambal.

(d) Parvati: It originates from Vindhyan range, flows in Baran district and merges into Chambal at a place called Pali.

(e) Kali Sindh: It originates from Vindhyan mountains, flows in Jhalawar and then ends into River Chambal. Parvan is its tributary.

2. Drainage System of Arabian Sea:

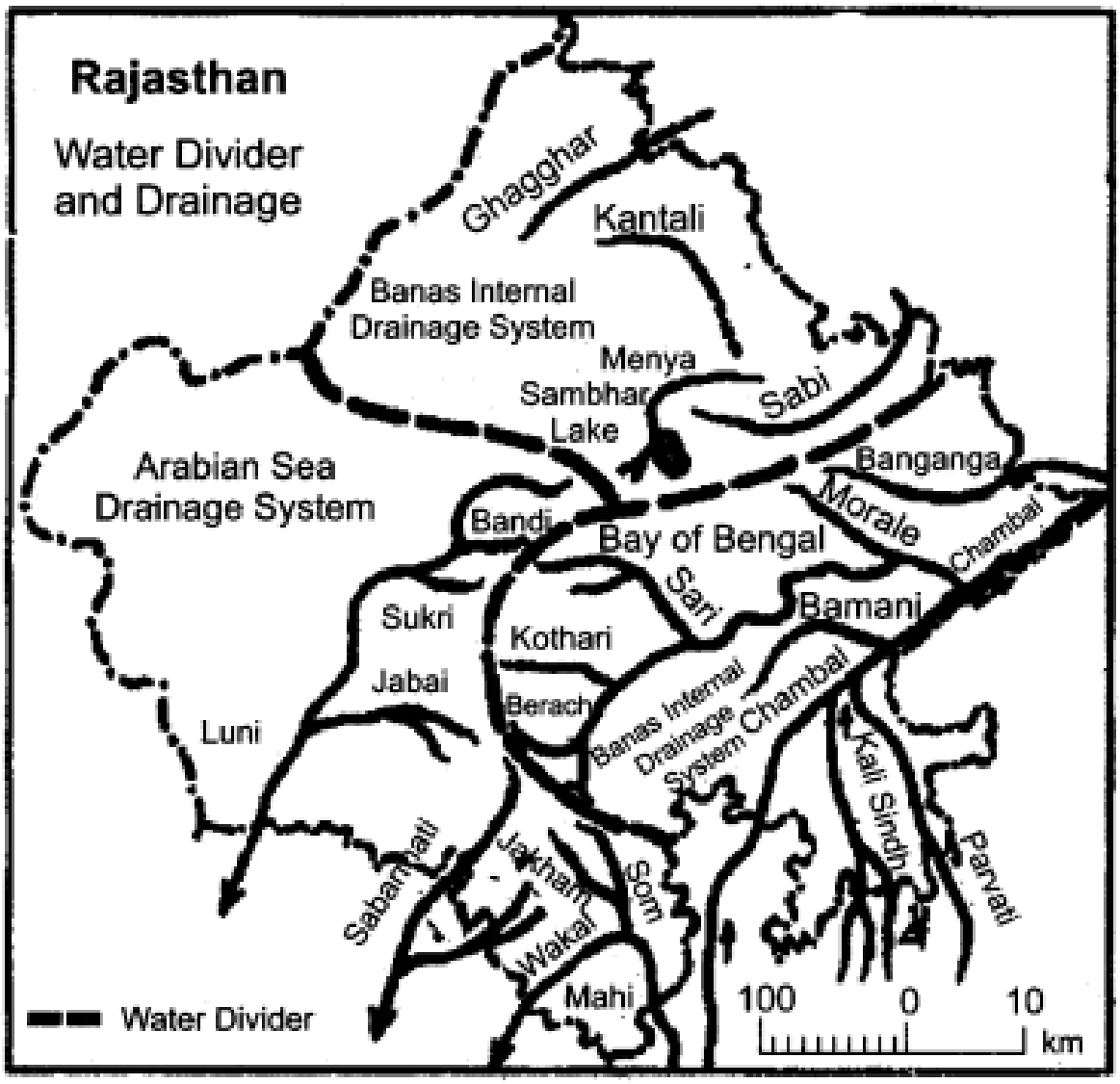
(a) Luni: It originates from the Naga hills of Ajmer and falls into Rann of Kutch. Water of this river is fresh up till Balotara and after this it becomes saline. The chief tributaries of Luni are Jojari, Sukri, Javai and Bandi.

(b) Mahi: The river Mahi originates from Amjhor in Madhya Pradesh. It flows in the districts of Dungarpur and Banswara and at last it drains into the Bay of Kambhat. Mahi and its tributaries Som and Jakham rivers form the Triveni confluence in Veneshwar Dham. This Dham is a holy piligrimage for the tribal community of Rajasthan. A dam named Mahi Bajaj Sagar has been constructed on the river Mahi in Banswara.

(c) Sabarmati: The river Sabarmati originates from the western hills of Udaipur. It flows for only 44 km in the state of Rajasthan and flows in the Bay of Khambhat in Gujarat.

3. Inland Drainage System:

There are many small rivers in Rajasthan which cover a little distance and then disappear into the sand. Rivers like Kantali, Sabi, Kankani, Ghagghar etc. are the important rivers of inland drainage system. Sometimes, these rivers overflow and cause floods, when it is heavy rainfall.



Lakes of Rajasthan

In Rajasthan, Lakes are divided into two categories

1. Saltwater Lake and
2. Fresh (Sweet) Water Lake

1. Salt Water Lakes

Sambhar Lake

- It is India's largest inland Salt Water Lake.
- It has been designated as a Ramsar site because this wetland is a favourite spot for migratory birds like Pink Flamingo.
- The total area of the lake is 150 km^2.
- The lake receives water from five rivers Medtha, Samaod, Mantha, Rupangarh and khandel.

Didwana Lake

- It is located in Nagaur district.

Pachpadra Lake

- It is located in Barmer district.

Lunakarnasar Lake

- It is located in Lunakarnasar, 80 km away from Bikaner.

Some other famous Salt Water Lakes are Faloda, Kuchaman, Kovaad, Kachhor, Rewasa, etc.

2. Fresh (Sweet) Water Lake

- Due to the scarcity of water in Rajasthan, this freshwater lakes act as boons for people of Rajasthan.
- Following are some important Fresh Water Lakes of Rajasthan

Jaisamand Lake

- It was constructed by MaharanaJaising by building the dam on Gomati River from 1685 to 1691.
- It is located 51 km southeast of Udaipur.
- It is also called Dhebar Lake.
- It is the biggest natural lake of Rajasthan.

Rajsamand Lake

- It was constructed by Maharana Rajsingh in 1662.
- On the bank of this, lakes many inscriptions are there which tells about the history of Mewar.

Pichhola Lake

- It has two islands.
- One has Jag Mandir (Temple) and second has Jag Nivas named palaces.

Fateh Sagar Lake

- It was constructed by Maharana Fateh Singh near Udaipur city.

Anasagar Lake

- It was constructed by Anaji in Ajmer.
- On its bank, there's a garden called "Daulat Baug".

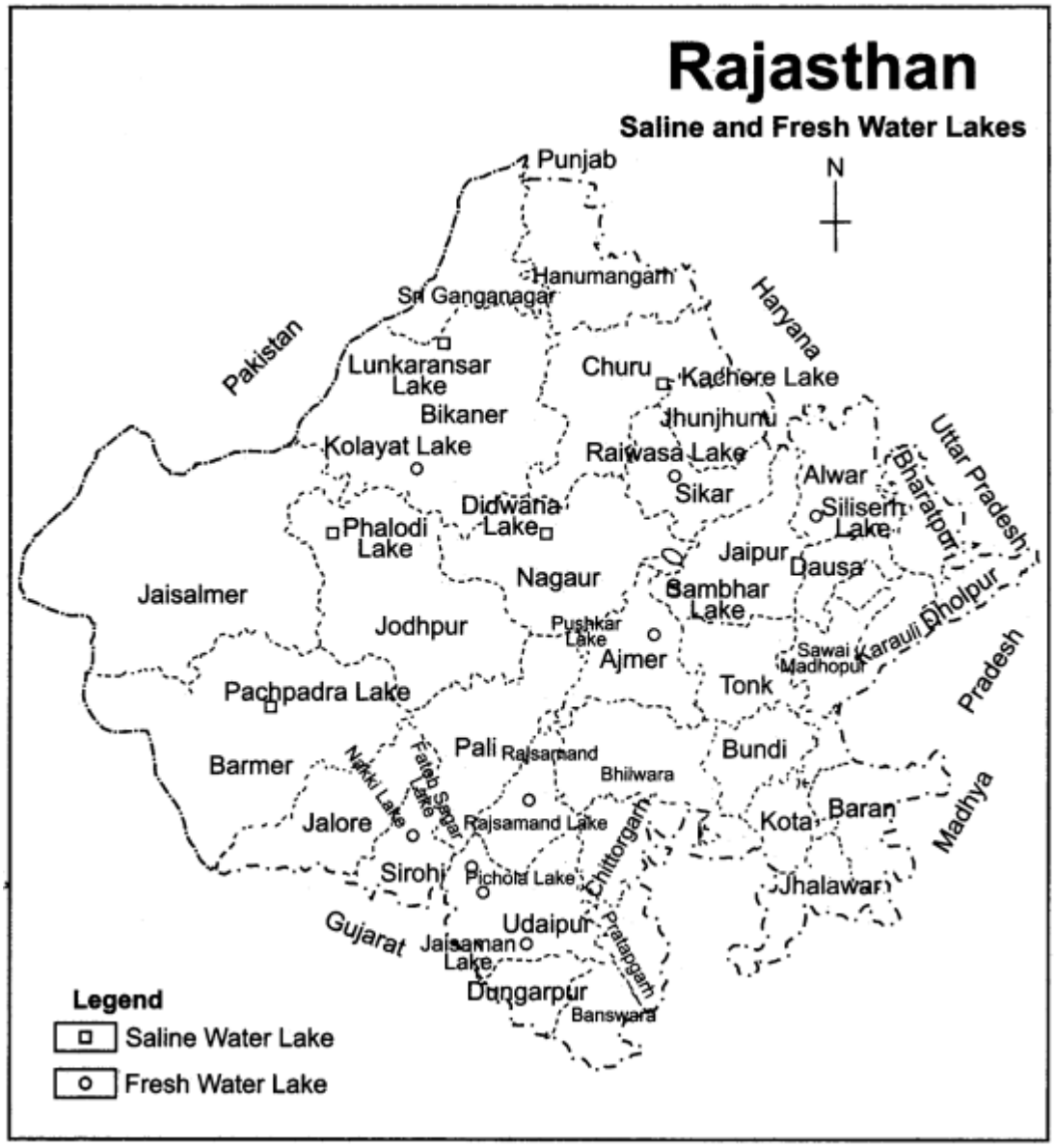
Pushkar Lake

- It is located in Ajmer district surrounded by mountains.
- It's a religious spot.

Silisedh Lake

- It is located in Alwar district in between Aravalli Range.

Some other famous lakes are Navlakkha Lake (Bundi), Kolayat Lake (Bikaner), Shaiv Sagar (Dungarpur), Galata and Ramgarh (Jaipur), Balsamand Lake (Jodhpur), Kailana Lake (Jodhpur), etc.



SOILS OF RAJASTHAN

Soil is a loose inorganic material that is present on Earth for life to thrive and flourish on planet Earth. Soil is a life source of nourishment for flourishing vegetation and agricultural produce. Plant and vegetation also get their water intake through soils. In this article, a reader will learn about soil and old classifications of soil of Rajasthan.

As per this system, various soils found in Rajasthan are classified into the following categories: Desert soil, Dunes, and associated soil, Brown soil, Sierozems, Red loams, Hill soils(Lithosols), Saline-Sodic soils(Solanchacks), Alluvial soil and black soil. Different types of soil have different types of characteristics and features. Every soil is unique in itself and has different physical and chemical properties.

Different Types of Soils in Rajasthan

Every soil has unique characteristics that take many years to develop. To understand differences in detail about climate and mineralogy, the soils of Rajasthan are classified into two categories.

Let us understand the classification of Soil of Rajasthan briefly through the following table below.

Types of Soil	**Description**
Desert soil	○ This soil of Rajasthan covers a large portion of the area, such as Churu, Sri Ganganagar, Jalore, Jodhpur, Barmer, and Hanumangarh. ○ This soil is mainly found in areas that receive rainfall less than 400 m. ○ The percentage of calcium carbonate varies in the soil. ○ This soil of Rajasthan has a large percentage of salt present in it. ○ This soil is pale brown. ○ It has a texture of Sandy to Sandy loam. ○ The surface horizon is non-calcareous with a slightly calcareous B horizon. ○ Calcium carbonate is primarily present in the soil as kankar nodules. ○ In areas such as Nagaur and Sikar along with Jhunjhunu district. Where the amount of rainfall received is around 40 to 50 cm, the present soil is primarily non-calcareous. ○ This particular type of soil in Rajasthan is mostly darker in its tone. ○ Nitrogen plays a vital role in the growth of plants and vegetation. ○ The percentage of nitrogen in the soil is low in this area. It approximately lies between 0.2 to 0.7%. ○ The nitrogen deficit in the soil is compensated by nitrate present in the soil. ○ The presence of phosphate and nitrate in the soil has ensured high fertility. ○ The fertility levels of the desert soil ensure a high level of agricultural production. ○ This soil of Rajasthan supports Kharif crops generally.
Dunes And Associated Soils of Rajasthan	○ The texture of this soil varies from fine loamy sand to coarse sand. ○ It may or may not be calcareous. ○ The color of the soil is light yellowish brown. ○ The area surrounded by this soil is often considered favourable for cultivation. ○ This soil is impacted by the wind storms happening in the region. That is why agriculture is practised in the region at the time of monsoon. ○ The crop Bajra is grown in the region mostly. ○ This soil supports kharif crops.
Brown Soil	○ This soil of Rajasthan is mainly found in the areas where the Banas River flows. ○ This soil varies in color. It is available in greyish brown to yellowish brown. ○ Abundant amounts of calcium salts are present in this soil. ○ It is generally moderately well drained. ○ The saline water presents a high amount of salt in the soil. ○ This soil supports kharif crops, with rainfall around 50 to 75 cm. ○ No rainfall is required to support the Kharif crops. ○ This soil supports Rabi crops when irrigation is possible. ○ This soil is present in areas such as Udaipur, Chittorgarh, Sawai Madhopur, Bundi, and Tonk
Sierozems	○ This soil of Rajasthan is present in areas where hills are discontinuous and a lot of wind gap is present. ○ The color of this soil is primarily yellowish brown. ○ The texture of this soil is sandy loam to sandy clay loam. ○ It has a weak structure. ○ This soil of Rajasthan is moderately calcareous. ○ There is the presence of lime in the soil at a depth of 100-150 cm. ○ This soil is found in areas with 50 -75 cm of rainfall. ○ This soil supports kharif crops like Jowar,bajra pulses, and sesame are supported.

	○ It also supports Rabi crops such as wheat.
Red loam	○ This Red soil is primarily found in the southern part of Rajasthan, such as Dungarpur, Banswada, Udaipur, and Chittorgarh. ○ The texture of this soil is sandy to sandy loam. ○ It has a granular or crumb structure. It is well-drained too. ○ This soil faces many variations in terms of its depth. ○ It is shallow sandy, or gravelly on the hilltop. ○ Deep reddish loam is often available in the valley region. ○ This soil is primarily present in areas where annual rainfall is around a minimum of 70cm to a maximum of 100 cm. ○ This soil of Rajasthan supports the agricultural production of crops such as maize and Chillies in the category of Kharif crops. ○ Barley, wheat, and rape seed are rape grown in the vicinity of this soil. ○ This soil has an abundant amount of iron oxide in it. ○ Calcium salts are not present in this soil.
Alluvilial and Black Soil Of Rajasthan	○ Scholars define Alluvial soil as unique Because this soil is formed as a result of alluvium bought and collected from different rivers. ○ The Alluvial soil in the different regions varies a lot because the source of alluvium varies depending on the river. ○ For example, the soil deposited through river Ghaggar and the floodplain areas of Sri Ganganagar and Hanumangarh region of Rajasthan are different. ○ It is yellowish brown. ○ It has a texture of loam to silty loam. ○ It has Calcareous nature and has a rocky structure generally. ○ Stratification is a common feature of this variety of soil. ○ Many a time, this soil of Rajasthan intermixes with sandy material present in the region. ○ This soil expands to the Western, eastern and southeastern plains in Rajasthan. ○ The alluvial soil present in the areas such as Jaipur, Bharatpur, Kota, Baran, Ajmer, Bundi, and Alwar has been collected in the region due to deposition by various rivers. ○ Due to the difference in the time of soil collection, this soil has been categorized into two different categories: old alluvium and new alluvium. ○ The soil formed due to old deposition by different rivers flowing in the region is called old Alluvillum. ○ Old Alluvial soil is mainly found in areas such as Ajmer, Udaipur, Chittorgarh, and Tonk. ○ The color of the soil varies from greyish brown to yellowish brown. ○ The texture of old alluvial soil is sandy loam to clay loam. ○ On the contrary, the soil formed due to recurring deposits by rivers in the region is termed new alluvium. ○ The characteristic feature of the new and the old alluvial soil is The time at which the deposits are formed due to the flow of different rivers. ○ Another factor that places a key role in separating is the nature of deposits. ○ The Dausa, Jaipur, and Alwar regions of Rajasthan are associated with new alluvial soil. ○ The new alluvial soil is yellowish Brown to Brown. ○ It is structured weakly and is calcareous. ○ The presence Of lime can be easily observed in the new alluvial deposit. ○ It should be considered that Black soils in areas like Kota Bundi Jhalawar and the Baran region of Rajasthan also fall in the category of Alluvial soil. ○ The presence of lime concretions or lime-encrusted gravels results in the variation of depth of the soil. ○ This soil has its origin In the Deccan trap and Vindhyas. ○ The texture of this subsection of soil under the category Alluvial soil is generally clay loam to clay in nature. ○ This soil is mostly slowly permeable.

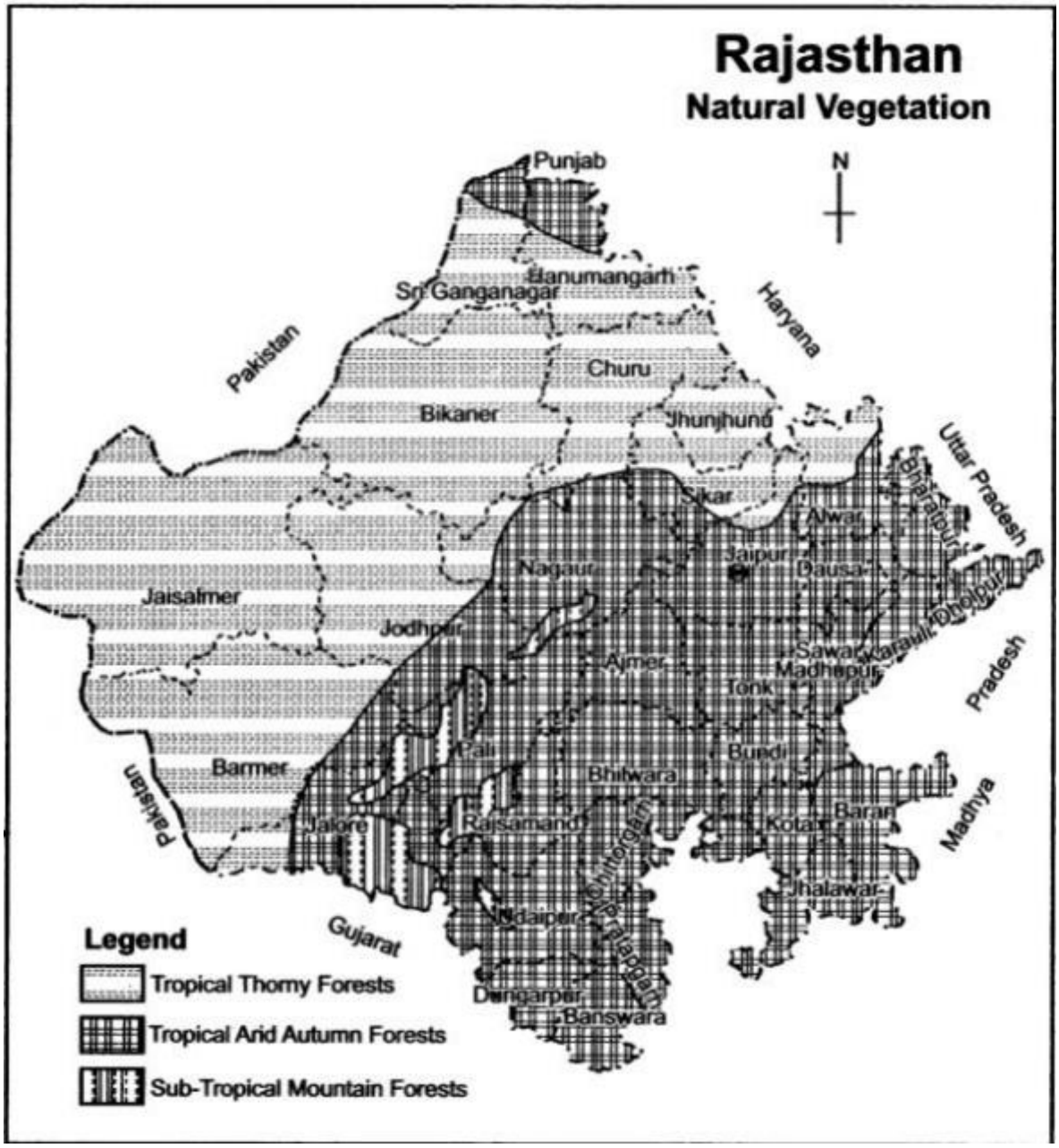
	○ It generally develops cracks up to a depth of 50 cm in the hot and dry seasons. ○ Another characteristic concerning the soil is that it is primarily non-saline and non-alkali. ○ Because its colour varies between medium to dark black, This soil is sometimes classified as black soil. ○ This category of Alluvial soil ensures higher productivity and good agriculture practices in the region where this soil is present in Rajasthan. ○ It generally supports the production of crops like wheat, cotton, tobacco, and rice.
Hill Soils Of Rajasthan	○ This soil of Rajasthan is also called Lithosols. ○ This soil of Rajasthan is found at the foothills in the hilly region of Rajasthan. ○ This soil is found in Rajasthan's Ajmer, Bhilwara, and Chittorgarh regions. ○ This soil is sandy to clay loam in texture. ○ It is well-drained too. ○ It has color variations. Also, It is sometimes reddish to yellowish red and red to yellowish brown tone. ○ Due to its shallow nature, this soil only supports agriculture a little compared to the other variety of soils in Rajasthan. ○ This soil is also impacted by soil erosion due to the presence of water.
Saline-Sodic soils	○ This soil of Rajasthan is primarily found in areas where natural depressions are already in place, for example, Sambhar, Barmer, Rann of Jalore, Didwana, and Pachpadra region. ○ Saline soils are also readily available in the floodplain areas of river Ghaggar and parts of the Luni basin. ○ Saline or salt-affected soils are also available in fragments in Rajasthan's arid and semi-arid regions. ○ The color of this soil varies from dark grey to pale brown. ○ This soil does not support vegetation due to a lack of water and a high degree of salinity.

Conclusion

Soils of Rajasthan are deeply impacted by changing topography, drainage issues, geological factors and land use that has been taking place in Rajasthan. Different soils present in Rajasthan impact the state. Differently, Soils Of Rajasthan include a variety of soils such as desert soil, Alluvial soil, and black soil, among a few others.

FOREST OF RAJASTHAN

The floral prosperity of Rajasthan state is affluent and diverse. The western part is partly desert terrain; the majority of the vicinity under forests is constrained to Southern and Eastern parts of Rajasthan. The forests in Rajasthan are erratically disseminated in the different districts. Most of the forests in the state are in the hilly regions i.e. in **Rajasamand, Udaipur, Baran, Kota, Chittorgarh, Sirohi, Sawai Madhopur, Alwar, Bundi, Banswara** and **Jhalawar** districts. Thick natural forests are in sheltered patches, typically restricted to different wild-life sanctuaries and national parks. Some of the enduring forests of Rajasthan state are in diverse stages of plant expansion. The forests of Rajasthan state can be separated into 4 extensive forest categories:



- **Tropical Thorn Forests**

The Tropical thorn forests are instituted in the dry and semi-arid areas of West Rajasthan. These expand from Western India - Pakistan boundary and steadily combine with the parched deciduous forests of **Aravalli hills** as well as the South East plateau. The major species of this type of forests are **Acacia leucophloea, Prosopis cineraria, Capparis aphylla, Zizyphus spp., Flacourtia spp.** and **Acacia nilotica,** etc. These forests are essentially found in the Western parts of Rajasthan specifically **Pali, Jodhpur, Barmer, Jalore, Churu, Bikaner** and **Nagaur** etc.

- **Tropical Dry Deciduous Forests**

The Tropical Dry Deciduous forests are generally found in little pieces in few parts of Rajasthan, Eastern and Northern slopes of **Aravalli** ranges, mostly in **Alwar, Bharatpur** and **Dholpur** districts, are enclosed with this kind of forests. Intermittent expansion of definite species of parched deciduous forests is found beside the arid river beds of **Nagaur, Jalore, Bikaner** and **Ganaganagar** districts.

The chief species of this type are **Anogeissus latifolia, Anogeissus pendula, Terminalia tomentosa, Acacia catechu, Terminalia arjuna, Terminalia balerica, Dendrocalamus strictus, Boswellia serrata** and **Lanea grandis.**

- **Central Indian Sub - tropical Hill Forests**

The Central Indian Sub - tropical Hill forests are the most plentiful in Central part of India, as in **Madhya Pradesh, Gujarat** and **Maharashtra**. They are also found in **Sirohi**, Rajasthan, frequently on the hills near **Mount Abu**. These forests have some evergreen and partially evergreen species of trees. The foliage of **Mount Abu** comprises of several plants which are analogous to the sub - tropical area of Himalayas.

- **Mixed Miscellaneous Forests**

Mixed Miscellaneous Forests are mostly found in the South-Eastern and Eastern region of Rajasthan including **Kota, Chittorgarh, Sirohi, Udaipur, Dungarpur, Banswara, Jhalawar** and **Baran** districts. The Forests chiefly includes **Anogeissus latifolia, Terminalia tomentosa, Anogeissus pendula, Terminalia arjuna , Albizia lebbeck, Terminalia chebula** and **Dalbergia paniculata** and its associates.

Forest Area of districts as per Legal Status in Rajasthan

Rank	Name of District	Total area under forest cover (31.3.2007)	Reserved forests	Protected forests	Unclassified forests
1	Udaipur	4,587.42	2,961.25	1,626.17	0.00
2	Chittoragarh	2,766.62	1,584.70	1,181.36	0.56
3	Baran	2,239.32	0.00	2,226.74	12.58
4	Karauli	1,802.81	62.99	1,675.55	64.27
5	Alwar	1,784.14	1,006.06	636.83	141.25
6	Sirohi	1,638.65	866.60	749.75	22.30
7	Bundi	1,559.98	837.29	706.65	16.04
8	Jhalawar	1,349.79	413.45	930.62	5.73
9	Kota	1,310.04	874.83	412.58	22.63

10	Bikaner	1,248.73	0.00	234.29	1014.45
11	Banswara	1,236.67	0.00	1,236.67	0.00
12	Pali	963.58	819.45	141.62	2.51
13	Sawai Madhopur	953.71	792.88	154.16	6.67
14	Jaipur	948.68	679.34	263.10	5.63
15	Bhilwara	794.18	437.80	289.62	66.77
16	Dungarpur	693.25	251.29	433.25	8.71
17	Dholpur	638.45	7.92	597.78	32.75
18	Sikar	637.68	9.92	619.18	8.59
19	Ganganagar	633.44	0.00	50.65	582.79
20	Ajmer	613.10	194.99	418.09	0.02
21	Barmer	609.10	0.00	568.33	44.77
22	Jaisalmer	581.29	0.00	199.77	383.52
23	Jalore	450.68	122.24	298.05	30.40
24	Jhunjhunu	405.36	6.02	392.57	6.77
25	Rajsamand	396.58	277.44	119.14	0.000
26	Bharatpur	382.39	0.00	369.57	12.82
27	Tonk	335.97	101.42	230.75	3.80
28	Dausa	282.63	133.37	148.69	0.57
29	Jodhpur	242.89	4.68	175.52	62.70
30	Nagaur	240.93	0.80	206.23	33.89
31	Hanumangarh	239.46	0.00	113.25	126.21
32	Churu	71.22	7.20	10.84	53.18

Top 5 districts as per total area under forest cover

Rank	**Name of District**	**Total area under forest cover (31.3.2007)**	**Reserved forests**	**Protected forests**	**Unclassified forests**
1	Udaipur	4,587.42	2,961.25	1,626.17	0.00
2	Chittoragarh	2,766.62	1,584.70	1,181.36	0.56
3	Baran	2,239.32	0.00	2,226.74	12.58
4	Karauli	1,802.81	62.99	1,675.55	64.27
5	Alwar	1,784.14	1,006.06	636.83	141.25

Bottom 5 districts as per total area under forest cover

Rank	Name of District	Total area under forest cover (31.3.2007)	Reserved forests	Protected forests	Unclassified forests
1	Churu	71.22	7.20	10.84	53.18
2	Hanumangarh	239.46	0.00	113.25	126.21
3	Nagaur	240.93	0.80	206.23	33.89
4	Jodhpur	242.89	4.68	175.52	62.70
5	Dausa	282.63	133.37	148.69	0.57

Wildlife of Rajasthan

Rajasthan is a state of the royals and it has numerous evidence of the royal culture in its rich heritage and society. Along with its cultural abundance, Rajasthan also has enough of wildlife beauty in it. Some famous wildlife sanctuaries & national parks in Rajasthan are Ranthambore National Park, Sariska Tiger Reserve, Keoladeo Ghana National Park in Bharatpur, Kumbhalgarh Sanctuary, Sitamata Sanctuary, Tal Chappar Wildlife Sanctuary, Gajner Sanctuary, Mount Abu Sanctuary, Desert National Sanctuary, Darrah Sanctuary and Sajjangarh Wildlife Sanctuary. Major national parks and bird sanctuary are Ranthambore national park, Sariska tiger reserve, and Bharatpur bird sanctuary.

Rajasthan Wildlife means Ranthambore National Park and it is defined through Tigers. And among other creatures you can watch birds like Owlets, the Ubiquitous Langur, Leopard, Caracal, Hyena, Jackal, Jungle Cat, Marsh Crocodiles, Wild Boar, Bears and various species of Deer.

If you are going towards the famous Kumbalgarh Wildlife Sanctuary then you will find Sloth Bear, Wolf, Leopards, Jackal, Hyena, Jungle Cat, Sambhar, Nilgai, Chinkara, Chaisingh and Hare. You can also see birds like Grey jungle Fowl, Peacocks, Doves, Red Spur Owls, Parakeets, Golden Oriole, Grey Pigeons, Bulbul and White Breasted Kingfisher Other wildlife sanctuaries of Rajasthan have their own collection of wild beauties which are to be explored through a long visit in Rajasthan.

Desert National Park

Desert National Park was established in the year 1980 with an objective to preserve both desert flora and fauna. Scores of tourists visit this place so that they can get the glimpses of rolling sand dunes and exotic animal species in the midst of desert landscapes. It is situated in Rajasthan and demonstrates the remarkable ecological biodiversity of the known Thar Desert. The pleasant ecosystem comprises

varied flora and fauna, along with rich wildlife that offer a cherished experience through the rugged mountains, cracked land, and sand dunes of the desert.

The charming beauty of stony rocks, roadways and dense salt lake arrests the heart and soul of every visitor who visit this place. The region is a haven for migratory and resident birds of the desert. Many eagles, harriers, falcons, buzzards, kestrel and vultures. Among the birds the Short-toed Eagles, Tawny Eagles, Spotted Eagles, Laggar Falcons and kestrels are the most common among these. Sand grouse are spotted near small ponds or lakes. The endangered Great Indian Bustard is a magnificent bird found in relatively fair numbers in this place. It migrates locally in different seasons. The most suitable time to visit the area is between November and January. The Desert National Park has a collection of fossils of animals and plants of 180 million years back. Some fossils of Dinosaurs of 6 million years old have been found in the area. The Desert National Park is mostly famous for the Indian Blackbuck which is a rare species among the deer's and antelopes.

Desert National Park Attractions

The vegetation is in scarce, at this place and patches of sewan grass and aak shrub or the Calotropis can be seen. The landscape includes craggy rocks and compact salt lake bottoms, as well as intermediate areas and both fixed and shifting dunes. Around 20 percent of the vast expanse is covered with sand dunes. There are some lakes which are a worth visit in the Desert National Park are Padam Talao Lake, Rajbaugh Lake, Milak Lake are the main water sources for the animals dwelling in this sandy environment.

Keoladeo National Park

Rich of natural flora and fauna, spread in over 29Km2 of area, the Keoladeo National Park (formerly known as the Bharatpur Bird Sanctuary) is a prime attraction for the wildlife and migratory birds and is a World Heritage Site. The Keoladeo national park consists of grasslands, wetlands, woodlands any many other diverse habitats which are home to more than 300 species of birds and floras each, also home to around 50 species of fishes, 13 species of snakes, 7 species of turtles and many more wild animals. The Keoladeo Ghana National Park is a man made and managed wetland area and amongst the best bird areas of the world.

Interesting Facts of Keoladeo National Park

The Keoladeo Park was a being a hunting ground in the times of Maharajas used to be host to a number of Duck shoots organized here by the Maharajas for the British dignitaries. In 1938, then Governor General of India, Lord Linlithgow killed over 4000 birds in one shoot.

The Keoladeo National Park is the only National park in India that is completely covered with a 2 Meter high wall boundary that denies possibilities of any biotic disturbances or any Buffer Zone.

Things to Consider When Planning to Visit Keoladeo Ghana National Park

Do carry a binocular for watching the birds, as its very tough to focus with naked eyes, on the distant birds in the park.

Your personal vehicle will be allowed inside the park but is permitted up to Shanti Kutir only (about 1.7 kilometers inside the gate, at Rs100 per vehicle). After this you can opt to walk, bicycle, or go by cycle rickshaw. Tonga or boats are also available at places where the water level is high.

Khichan Bird Sanctuary

Khichan Bird Sanctuary is located at a distace of 171 kms from Jaisalmer city in the village of Khichan. This natural sanctuary serves as home to three types of birds called Kurjan, Karkara and Kunch that migrate from South West Europe, Black Sea region, Poland, Ukraine, Kazakhstan, North and South Africa and Mongolia. These birds can be seen in large numbers at this bird sanctuary between October and March as they migrate to India during this time to avoid the cold winters of Europe. Khichan Bird Sanctuary is popular world wide as the Demoiselle Crane village.

A large number of these birds visit India every year, however, only about four to six thousand come to the bird sanctuary at Khichan. Kurjan, which makes a typical ‘kur-kur’ sound, weighs 4 to 6 kg and has a height of about three feet. It is for the typical sound they make that they are called Kurjan in the local language. The bird is capable of flying long distances at speeds varying from 40-60 km per hour. Although Kurjans have typical features which make their appearance quite attractive.

Kumbhalgarh Wildlife Sanctuary

Kumbhalgarh Wildlife Sanctuary situated in the Rajsamand District of Rajasthan and surrounds the Kumbhalgarh fortress. The sanctuary spreads across the Aravalli Range, covering parts of Rajsamand, Udaipur, and Pali districts. It is in the region of 105 kilometers from Udaipur city and south of Jaipur. The city of Kumbhalgarh is very well-known for the Kumbhagarh Fort, the most outstanding Fort out of 84 forts, which stood during the Mewar kingdom of Rajasthan. The city is famous for its forts, palaces, temples and wild life sanctuary. The Kumbhalgarh city is one of the main tourist's spot across the globe.

Attractions in Kumbhalgarh Wildlife Sanctuary

Kumbhalgarh Wildlife Sanctuary is home to a very large variety of wild life, and some of them are highly dying out species. The wild life includes wolf, leopards, sloth bear, hyena, jackal, jungle cat, sambhar, nilgai, chausingha or the four horned antelope, chinkara and hare. The bird life at Kumbhalgarh is also enjoyable. The normally shy and untrusting grey jungle fowl can be spotted here. You will also see the peacocks and doves can be seen on a regular basis feeding on grains provided by the jungle guards and caretakers. Bird like the red spur owls, parakeets, golden oriole, grey pigeons, Bulbul, and white breasted kingfisher can also be seen near the water holes. Kumbhalgarh’s natural

beauty attracts hundreds of tourists and because of its easy conveyance connectivity from Udaipur, which is 100 km from here. Foot trekking and horse safari organized by local tour operators are proving to be very popular. A typical jungle safari route enters the sanctuary from the Kumbhalgarh Fort and cutting across the sanctuary to reach Ghanerao, and then borders an old abandoned road. On this road, one can sight Chinkaras, Neelgais, four horned Antelope and many birds.

Kumbhalgarh Wildlife Sanctuary is a well-known tourist attraction counted majorly on Rajasthan Tourism. It attracts not only adults but mostly children as it is an abode to a large number of wild species and birds. In this sanctuary tourist can enjoy exclusive jungle safari and gain a great experience especially in the winters.

Mount Abu Wildlife Sanctuary

Mount Abu Wildlife Sanctuary is located in the hill station of Mount Abu which is the only hill station of Rajasthan and one of the oldest mountain ranges of India, the Aravalli range. Mount Abu rises like a tower of ice in the surrounding of green in the middle of the arid zone with its forests, lakes and waterfalls. As it is a rocky area the rocks are igneous and due to the weathering effect of wind and water, large cavities are common in them. Mount Abu Wildlife Sanctuary which is a favorite among nature lovers as it has wonderful prospective for Eco-tourism.

Flora and Fauna

Being a hill station Mount Abu is very rich in floral bio-diversity starting from xenomorphic sub-tropical thorn forests in the foot hills to sub-tropical evergreen forests along water courses and valleys. The sanctuary is rich in herbal medicinal plants also. There are very nearly 81 species of tree, 89 species of shrubs, 28 species of climbers and 17 species of tuberous plants of medicinal significance have been found here. Mount Abu is the only place in Rajasthan where people can see a variety of orchids. The sanctuary is also rich in bryophytes and algae. You can also see about three species of wild roses and sixteen species of feras some of which are quite rare have also been reported from here. The south-west part of the sanctuary is rich in bamboo forests.

As far as the wildlife of Mount Abu Wildlife Sanctuary is concerned then it will not be wrong if saying as a home to various wild species which are disappearing from earth. You can see some of the most unique wildlife here including rare, helpless and endangered species of hyena and jackals which are found in this sanctuary. The past evidences of Mount Abu indicates the presence of lion which was last recorded in 1872 and tiger which was last reported in 1970. In the recent times the leopard is the top killer of the jungle and you can find it in this sanctuary. Other animals found here are sambhar, jungle cat, small Indian civet, wolf, hyena, jackal, Indian fox, common langur, wild boar, pangolin, common mongoose, Indian hare, porcupine and hedgehog. The sanctuary is an ideal environment for the sloth bear too. It is unique thing that more than 250 species of birds are found here, but the beauty of the Mount Abu sanctuary is the grey jungle fowl which distinct it from the others.

Ranthambore National Park

Ranthambore National Park is one of the largest national parks in northern India situated widely in the state of Rajasthan. This wonderful national park is located in the Sawai Madhopur and the wonderful experience lies with the glimpse of the wild animals and plantations. Ranthambore was established as the Sawai Madhopur Game Sanctuary in 1955 by the Government of India, and was declared one of the Project Tiger reserves in 1973. The park is known for its tiger population, and is one of India's Project Tiger reserves. Other major wild animals include leopard, nilgai, wild boar, sambar, hyena, sloth bear and chital. It is also home to wide variety of trees, plants, birds and reptiles. Ranthambore is also the site of one of the largest banyan trees in India. A mix of rolling hills and crags, and meadows, lakes and rivulets, this dry-deciduous forest system is home to an incredible variety of flora and fauna. Apart from the tiger, you can also spot sloth bear, leopard, caracal, jackal, fox, hyena and mongoose at Ranthambore.

Ranthambore History

Many royal guests including Queen Elizabeth II and Prince Phillip came to Ranthambore to shoot tigers during the times for the Maharajas until tiger hunting was banned in 1970. Many of the tiger cubs were separated from their parents due to tiger poaching but Government of India has taken few potential steps to stop this and till 2008 the number of tigers which have been recorded in Ranthambore National Park is 44 and many of the cubs are also taken exclusive care to save the national beauty.

Safari in Ranthambore National Park

The major attraction in the park is following the tiger on safari rides. Rides are carried out at two different times of the day. Each ride takes about three hours. The entire park area has been divided into several zones and the safari vehicles go on one of these zones. Other sites of interest include the majestic fort, built in the 10th-century, towering the park area. The fort stands at a height of 700 feet above the surrounding plain. Inside the fort, there are three red Karauli stone temples devoted to Hindu Gods such as Ganesh, Shiva and Lord Rama. There is a huge lake called Padam Talao is the largest of the all the lakes located inside the park, and the beautiful red sandstone Jogi Mahal is located at the very edge of this lake. A gigantic banyan tree, considered to be India’s second largest, is in the garden of the Jogi Mahal.

There are near about 539 species of flowering plants in the park which adds extra charm to the park. Ranthambore National Park is a home for tigers and many of the flowering species and that is why it is also considered as a National Reserve.

Sajjangarh Wildlife Sanctuary

Sajjangarh Wildlife Sanctuary, which encloses the Sajjangarh palace, was established in 1987 in the city of Udaipur of Rajasthan. It covers an area of 5.19 square kilometers. It is a well-maintained

wildlife sanctuary now with solid wall of Kishan Pol protecting the sanctuary. The hillside around the sanctuary is thickly wooded and the former kings of Udaipur maintained this area as a royal shooting preserve. When Udaipur was attacked by the Scindhias in 1764, the hill was used as an artillery dump; and some cannons are still found out here.

Flora and Fauna

The palace oversees the sanctuary, which is a home for reptiles, tigers, nilgai, sambhar, wild boars, hyenas, panthers, and jackals. It is also popular for bird watching. The reserve can be a good trekking point by a trek and also go for a jungle safari as an adventure starting from the Gorilla Point to the Jiyan Sagar or the Bari Lake to enjoy the scenic beauty of the Aravalli hills and the wildlife of the reserve forest.

Attractions in Sajjangarh Wildlife Sanctuary

The major attraction of Sajjangarh Wildlife Sanctuary is an artificial lake named Jiyan Sagar, which is widely known as "Bari Lake" or "Tiger Lake". Maharana Raj Singhji, the ex-ruler of Mewar, made this lake and named it after his mother, Jana Devi. The lake has an area of 1.25 square miles with a storage facility of 400 million cubic feet of water. This is an ideal spot for picnics and swimming as it is a clean lake. You can view herbivores like chital, sambar, blue bull, wild boar, etc. from close quarters in this safari park. A network of jungle roads are created to arrive at diverse parts of the safari park.

From Gorilla viewpoint you can go to Bari Lake through the Maharana Pratap nature trail and can watch the beautiful natural beauty of Aravalli hills along with rich flora and fauna in the area. There is a Jhar Water Hole, which is a constant source of water, is situated on Western phase of Bansdara hills. It is bounded by number of ancient Mahua trees. Near the waterhole, there is a temple dedicated to Lord Shiva. This place is an ideal place to experience the effect of micro-climate with surrounded forest area by sitting at this place. During the rainy season, the springs flowing through the area add the extra beauty to the sanctuary. Sajjangarh Sanctuary is a place rich with wildlife as well as abundance of flora and fauna.

Sariska Tiger Reserve

The Sariska Tiger Reserve is an Indian national park located in the Alwar district of the state of Rajasthan. This area was a hunting preserve of the erstwhile Alwar state and it was declared a wildlife reserve in 1955. In 1978, it was given the status of a tiger reserve making it a part of India's Project Tiger scheme. Many of the wild species are found in this national park are four-horned deer, wild boar, langur, caracal, sambar and chital. It also includes jackal, hyena, jungle cat, leopard, Bengal tiger and some species of birds. This national park's tiger population almost disappeared in the year 2005. However, after some sustained efforts by the Rajasthan state government and WII or Wildlife Institute of India, the disaster was averted.

History

This area has historical legends associated with Maharajas of Alwar including the Sariska Palace. This palace was used to be as the royal hunting cabin of the famous and legendary Maharaja Jai Singh. Sariska Tiger Reserve, once a part of the ancient 'Matsya' kingdom is also supposed to have sheltered the exiled Pandavas. It is believed that Bhima smote the rock face of a cliff with his cudgel at Pandu Pol and made a passage through a gorge in the sanctuary as these stories are mentioned in the great Hindu epic of "The Mahabharata".

Flora and Fauna

The best and the most attractive feature of the Sariska Tiger Reserve has always been its Bengal Tigers. Apart from the Bengali Tiger, Sariska Tiger Reserve includes many wild-lives like leopard, jungle cat, caracal, striped hyena, golden jackal, chital, sambhar, nilgai, chinkara, four-horned antelope 'chousingha' wild boar, hare, hanuman langur, Rhesus monkeys, and plenty of bird species and reptiles. Birds include peafowl, grey partridge, bush quail, sand grouse, tree pie, golden-backed woodpecker, crested serpent eagle and the Great Indian Horned Owl.

The various species of trees which are found in Sariska National Park are salar or Boswellia serrata, kadaya or Sterculia urens, dhak or Butea monosperma, gol or Lannea coromandelica, ber or Ziziphus mauritiana and khair or Acacia catechu, Bargad or Banyan or Ficus benghalensis, arjun or Terminalia arjuna, gugal or Commiphora wightii or bamboo can also be met at some places. Shrubs are also found such as kair or Capparis decidua, adusta or Adhatoda vesica and jhar ber or Ziziphus nummularia.

Sariska is also famous for old temples, palaces and lakes such as Pandu Pol, Bhangarh Fort, Ajaibgarh, Pratapgarh, Siliserh Lake and Jai Samand Lake.

Tal Chhapar Sanctuary

Tal Chhapar Sanctuary is a sanctuary located in the Churu district of Bikaner division in Rajasthan. Before independence Tal Chappar sanctuary was a Private Hunting Reserve of the Maharaja of Bikaner. This sanctuary is 210 km from Jaipur on the peripheral of the Great Indian Desert and situated on road from Ratangarh to Sujangarh. The Tal Chhapar sanctuary lies in the Sujangarh Tehsil of Churu District.This sanctuary is a flat saline depression locally known as "Tal" that has a unique ecosystem in the heart of the Thar Desert. Tal Chappar Sanctuary has open grassland with spread all over Acacia and prosopis trees which give it a look of a typical Savanna.

In the Tal Chhapar Sanctuary, a special type of grass is found. The shape of the seed of this grass is like very fine round shaped pearls. For this reason this grass is known as "Mothiya" or pearl and has a very sweet taste. People enjoy eating it, but it is found in very small quantities.

Flora and Fauna

The sanctuary area is mostly covered by grasses with a very few trees. It lies on the way of the passage of many migratory birds such as harriers. These birds pass through this area during September. Birds commonly seen in the sanctuary are harriers, Eastern Imperial Eagle, Tawny Eagle, Short-toed Eagle, sparrow, and Little Green Bee-eaters, Black Ibis and Demoiselle Cranes, which stay there till March. There are many other birds like skylark, crested lark, Ring Dove, brown dove and blue jay are seen throughout the year. Desert fox and desert cat can also be spotted along with typical avifauna such as partridge and sand grouse.

Tal Chappar wild life sanctuary comes alive with the chirping of various migratory birds including montagur's, marsh harrier, pale harrier, imperial eagle, tawny eagle, short toed eagle, sparrow hawk, skylark, crested lark, ring drove, brown dove, blue jay, green bee- eaters, black ibis and demoiselle or the Kurja cranes. You can also see the Kurja these migratory bird from far off countries as Siberia, Magnolia, Tajikistan, central Asia and starts to migrate in the month of September.

Among the other wildlife beauties then it is a fact that Tal Chhapar Sanctuary is famous for black-bucks. Talchhapar wildlife sanctuary is the sole place having a good population of Black buck in such a small area. The sanctuary is a home to nearly 1680 Black Bucks. Being a natural home of Blackbucks and you can easily see 500-700 animals in a single herd. It is the only sanctuary in India in which is having a good number of blackbucks in an almost tree-less, saline and flat-land. These black bucks have "Mothiya" for their food.

Population of Rajasthan

Rajasthan is one of state in India with population of 68548437. There are 33 districts, 244 Tehsils, 44672 villages and 320 towns in Rajasthan.

As per the Census India 2011, Rajasthan has 12711146 households, population of 68548437 of which 35550997 are males and 32997440 are females. The population of children between age 0-6 is 10649504 which is 15.54% of total population.

The sex-ratio of Rajasthan state is around 928 compared to 943 which is national average of India. The literacy rate of Rajasthan state is 55.84% out of which 66.63% males are literate and 44.21% females are literate. The total area of Rajasthan is 342239 sq.km with population density of 200 per sq.km.

Out of total population, 75.13% of population lives in Urban area and 24.87% lives in Rural area. There are 17.83% Scheduled Caste (SC) and 13.48% Scheduled Tribe (ST) of total population in Rajasthan.

With area point of view, Rajasthan ranks first, while in population, it stands at the 8th position in Indian states. According to the census of 2011, the population in Rajasthan was 6.85 crores and the average population density was 200 people per square kilometre. Population Distribution: Highly dense population is seen in some areas of Rajasthan state, while some areas have rare population. The main features of population distribution in Rajasthan are given below: Features Affecting population distribution: The distribution of population in Rajasthan is affected and controlled at large by the quantity of rainfall, availability of water, fertility of soil and economic development. The factors affecting population distribution in Rajasthan are given below:

1. Physical Factors: Fluctuation of climate, soil, vegetation and natural water sources.

2. Economic Factors: Availability of minerals, urbanization, industrial development, etc.

3. Socio – Cultural Factors: Human migration and availability of labour, etc.

4. Political factors.

Density of Population: The number of people living per square kilometre is called the density of population. According to census of 2011, average population density in Rajasthan is 200 people per square kilometre.

The districts of Rajasthan are divided into 5 classes at the base of population density:

1. Districts with most population density (more than 400): They are only four in number. Jaipur, Bharatpur, Dausa and Alwar are included in this category.

2. Districts with high population density (300 – 400): The number of these districts is 7 and they are Dholpur, Banswara, Kota, Dungarpur, Jhunjhunu, Sikar and Ajmer.

3. Districts with medium population density (200 – 300): The number of these districts is 7 and they are: Sawai Madhopur, Sirohi, Bhilwara, Karoli, Udaipur, Rajsamand and Jhalawar.

4. Districts with low population density (100 – 200): The number of these districts is 12 in all. Under this category, Tonk, Chittorgarh, Pratapgarh, Bundi, Nagaur, Hanumangarh, Sri ganganagar, Baran, Jalore, Pali, Jodhpur and Churu districts are included.

5. Districts with minimum population density (less than 100): Only three districts are included in this category – Bikaner, Barmer and Jaisalmer.

On the basis of population density, following trends are found in Rajasthan.

1. In eastern plains, there is high population density.

2. In the western desert region, population density is very low.

3. The district of Jaipur has the most population density – 595 people per square kilometer.

4. Jaisalmer has the minimum population density – 17 people per square kilometer.

LITERACY

According to the 2011 Census of India, Rajasthan's literacy rate was 66.11% for people aged 7 and older, which means that 66.11% of the state's population was literate. This was an increase of 5.71% from 2001, when the literacy rate was 60.40%. The literacy rate varied by region and gender, as follows:

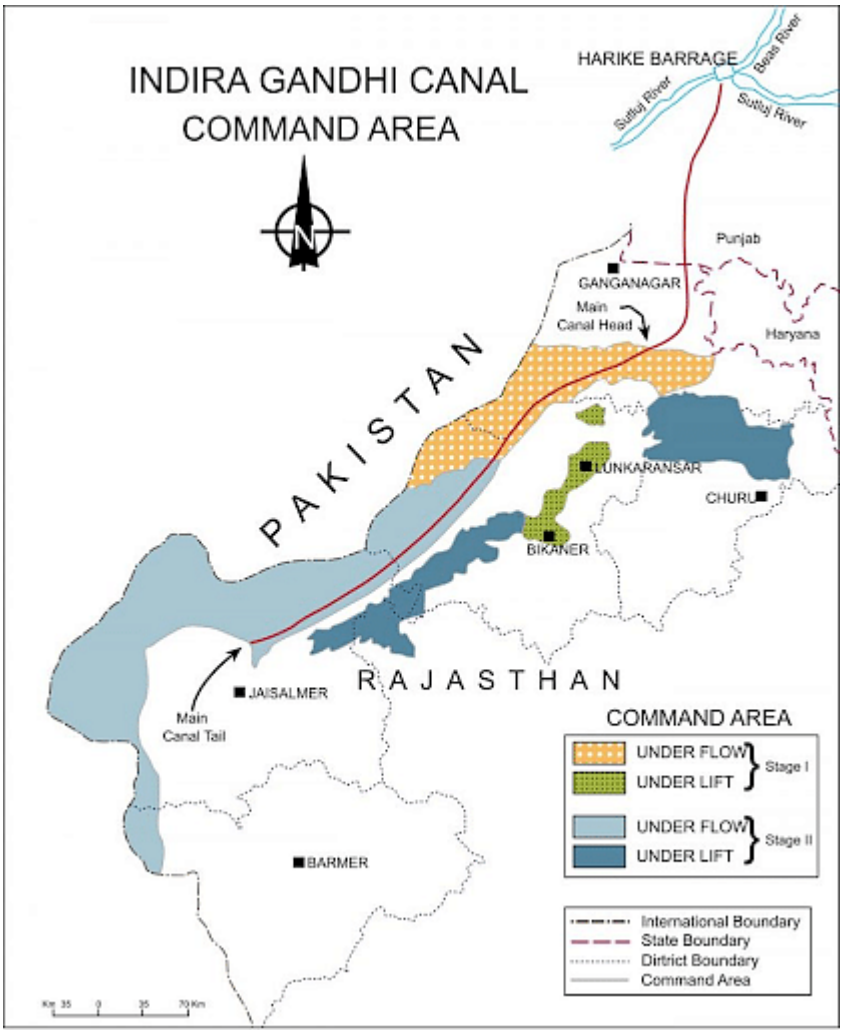
- Rural: 61.44%
- Urban: 79.68%
- Males: 79.19%
- Females: 52.12%

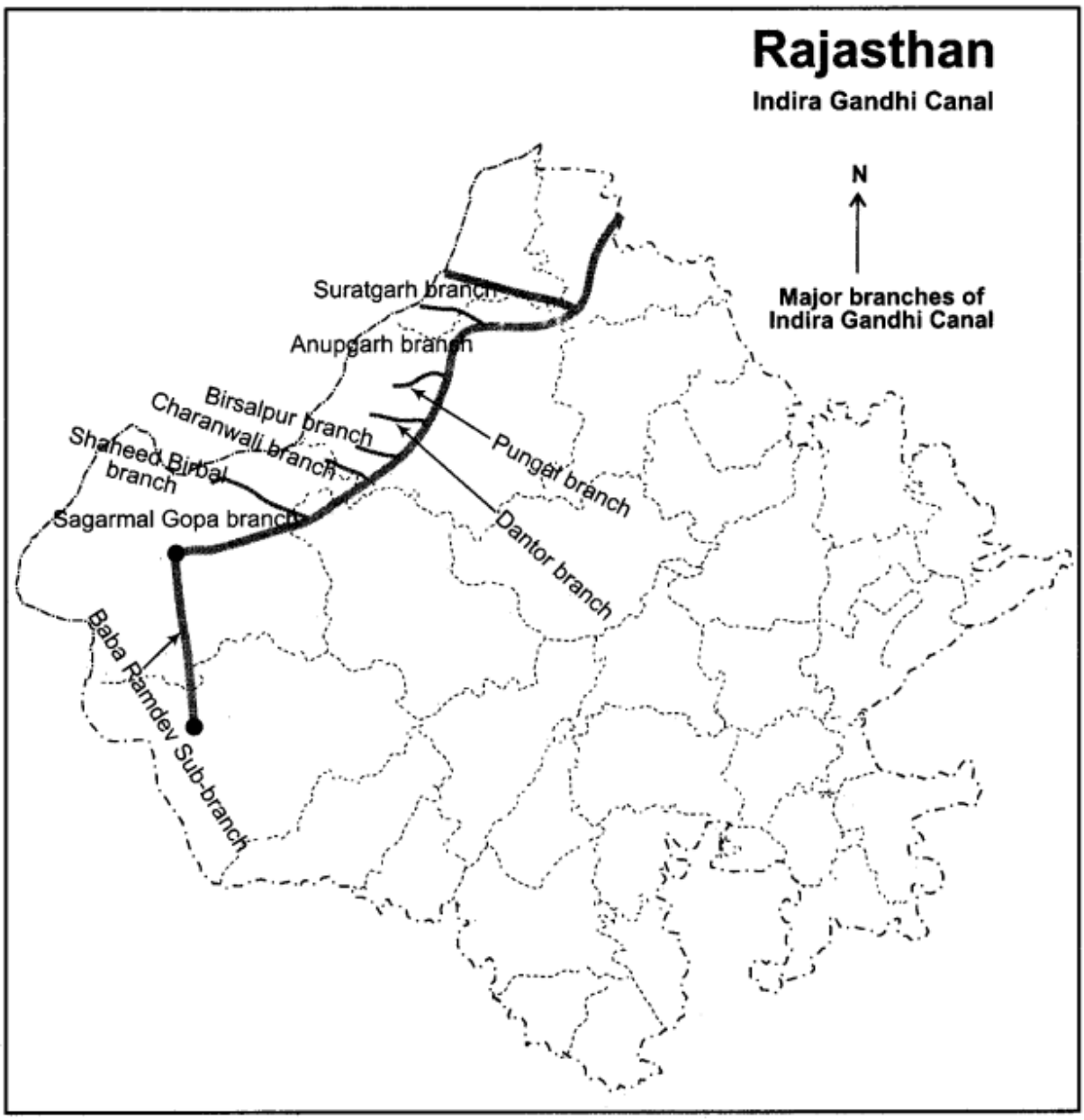
The census defined a literate person as someone who could read and write with understanding in any language. People who could only read but not write were not considered literate.

Indira Gandhi canal project

Indira Gandhi canal project is the largest irrigation project of the world to provide irrigation to semi – arid and arid areas of Rajasthan and it has given a face lift to its economy and economic development. It is also known by the names 'Lifeline of Rajasthan' and 'Maruganga'. Its present name is Indira Gandhi canal. Kanwar Sen, the then irrigation engineer of Bikaner, had planned for this canal in 1948. Its construction started in the same year. The origin of this canal is from Harike barrage near the confluence of Sutlej and Beas rivers in Ferozepur district in Punjab. This canal supplies water to Sriganganagar, Hanumangarh, Bikaner, Jaisalmer, Barmer, Jodhpur, Churu and Nagaur districts. Total length of this canal is 649 km, it is 40 meters wide at the bottom and 6.4 meters deep. The construction of Indira Gandhi canal project was completed in two phases – feeder canal and main canal. The brief description of these two phases is given below: Phase First: Under this phase, feeder canal was constructed. Total length of feeder canal from Harike barrage to the head of Masitawali is 204 km. Also, under this phase, many distributory canals of length 345 km were also constructed. Phase Second: Under this phase, main canal was constructed. It starts from the historically famous town Pugal in Bikaner and it goes to Mohangarh in Jaisalmer which is nearest to Gadra road in Barmer. Under this phase, the length of constructed canal was 445 km, and the length of its distributary canals of length 5112 km were also constructed. 30 per cent of area is irrigated through

lift canals and remaining 70 per cent area by distributaries. Since the extension of the Thar desert is towards the west, therefore, lift canals are also built to supply its water to the east of Rajasthan.





Map : Indira Gandhi Canal Project

Chambal River Project

The **Chambal river project** is a collaborative venture that was developed in 1954 to maintain the water flow of the Chambal River, which is situated between Rajasthan and Madhya Pradesh. The project aims to deal with the prevention of soil erosion. The **Chambal Valley project** has helped to pave the path for firm economic distribution through the firm construction of the downstream flow

management mainly for managing the slow erosion of the valley. The development aspect related to the valley is to support the land and to deal with the comparative management areas.

The **Chambal Valley project** is a concept of managing the soil erosion and to manage the two ends of the Chambal river that exists in the middle of Rajasthan and Madhya Pradesh. The river is the tributary area that is related to the Yamuna River and is known as the **Chambal river** which is situated in the Central part and the northern area of India. The main target of developing the **Chambal river** dam is dealing with river flow from the northwest side of the Madhya Pradesh. **Chambal River** is a legendary river known for its long existence.

Mainly is scriptures the details about the river are found. The **Chambal river** is pollution-free and home to multiple creators who live underwater and some of them live both in or above the water. The **Chambal Valley project** is a part of the system that was engaged to maintain the constructive soil erosion prevention forces and the consistency of the area that comprises massive sandstones that manipulate the major landforms at the sides of the **Chambal River.** The quality establishment of the dam is based on the Malwa plateau, which ensures the valley integration and initiates the quality establishment of the unplanned topography establishment based on the characteristics features of the Chambal valley.

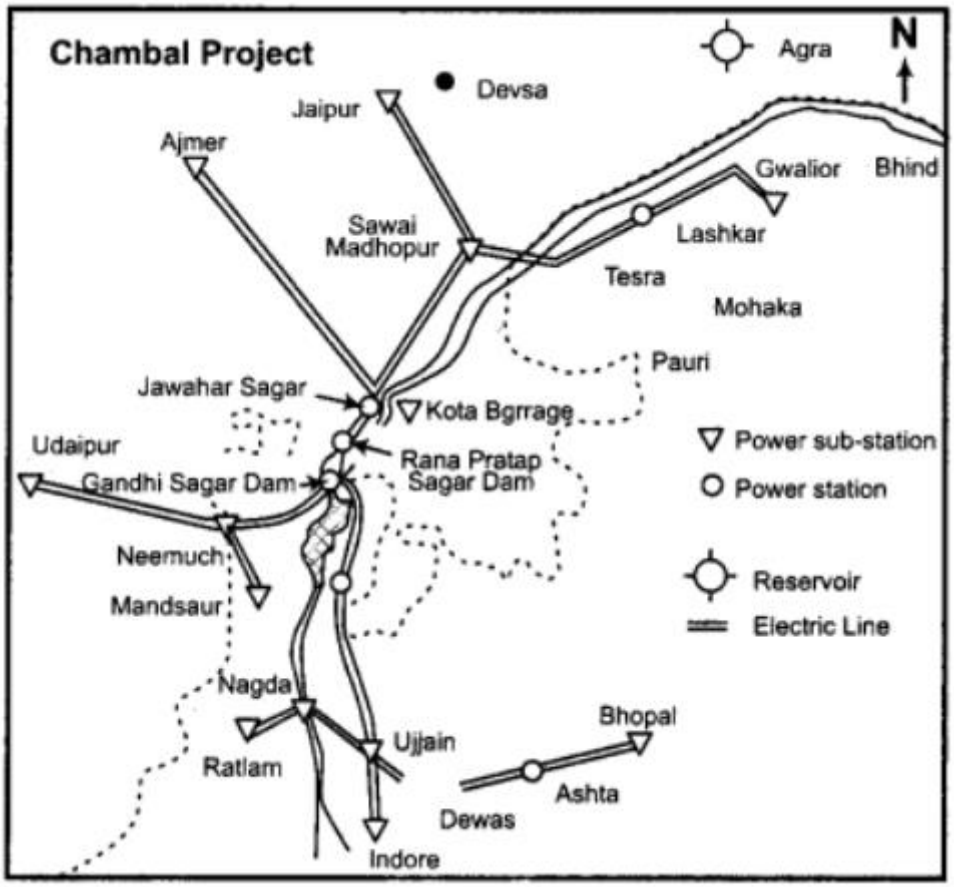
The Benefit of the Project

The prime benefit of the **Chambal project** is related to the supportive areas of environmental security. The main target for developing the dam indicates the establishment of environmental support that has questioned the government's initiation in this context. The quality force of the ideal areas for the project intensifies the main agenda and penetrates the growth-related aspects based on the related source of the **Chambal river.** The main beneficial aspects related to the development of the **Chambal Valley project are** some specific areas like Kota, Bharatpur, Jaipur, Ajmer, Sirohi, Udaipur, and other districts of Rajasthan and Mandsaur. The main beneficial areas are the management of the immigration purpose and the interrogation of water supply and usage purpose. The prime areas that are focused on based on the project aim to consider the establishment of irrigation, power generation, prevention of soil erosion with control, and focusing on the net utilization of water in a specific time frame.

Conclusion

The **Chambal project** is a constructive project that is ideal to manage the quality enforcement of the ecosystem and prevent soil erosion. The management and prevention aspects also indicate the chances of the frequent growth in carrying stock and also support the areas with a fertile nature. The quality enforcement of the irrigation area indicates the changes and extends the project development to an extent. The **Chambal Valley project** is enforced with the government's initiation that engages the

irrigation process of the **Chambal project**. This joint venture is related to the tributary enforcement of the river Yamuna which has helped to maintain the river with its volume and the voluminous areas are supporting the growth of life and changing the quality establishment of the ecosystem and economic areas.



Mahi Bajaj Sagar project

Mahi Bajaj Sagar project is just like nectar for the tribal population of Banswara and Dungarpur districts. It is a joint venture of Rajasthan and Gujarat which Rajasthan and Gujarat share in a ratio of 45 : 55. Situation: Mahi Bajaj Sagar dam is a dam built across the Mahi river at Borkhera, 16 km away from Banswara. Besides of it, two canals, two hydro – power plants, two electricity generating plants and a Kagadi pickup dam are also built there. Phases: Mahi Bajaj Sagar project was constructed in three phases: 1. Phase First: Under this phase, dam construction in Borkhera (Banswara) with captive capacity of water storage 2,070,000,000 M3 or 20.70 million cubic meters. It is spread over in

an area of 6240 km2 and the dam catchment capacity is 72.70 TMC. 2. Phase Second: Under this, two canals, Anandpuri and Sagvadha in Dungarpur are released from the dam. The total length of two canals is 854 kilometers. 3. Phase: Under this phase, two electricity power plants were built which are generating 140.95 Megawatt of electricity per day. Effects: After construction of Mahi Bajaj Sagar Dam, the social-economic lifestyle and living standard has positively changed. Also, agricultural and industrial development is seen everywhere. Due to this project, this tribal-dominated region has embarked on the path of rapid development.

Metallic Minerals

COPPER:

In the State copper deposits are located in the districts of Jhunhunu, Sikar, Sirohi, Udaipur, Bhilwara, Ajmer, Alwar, Bharatpur, Chittorgarh, Rajsamand and Dungarpur. With resources of 809.09 million tonnes, the State possesses substantial share of 54% of the total resources of country. The State is the second leading producer of copper concentrate contributing 41% of the nation's output. Details of important deposits are given below:

Copper			
District	**Area**	**Resources (million tonnes)**	**Grade (%)**
Ajmer	Hanotiya	1.463	1.48

Ajmer	Sawar	2.37	0.7-1
Ajmer	Mohanpura-Pharkiya	1.12	0.67
Alwar	Bhagoni	5.2	1.07
Bharatpur	Khankhera & Ker	1.0	1
Bhilwara	Pur-Dariba	1.65	1.03
Bhilwara	Banera (Forest Block)	1.0	0.5
Bhilwara	Devpura - Banera Block	4.68	1.33
Bhilwara	Dev-Talai	1.0	1.0
Chittorgarh	Wari	2.52	1.07
Chittorgarh	Akola	2.5	0.75
Dunagpur	Padar Ki Pal	1.07	1.30
Jhunjhunnu	Kolihan Cenetral Block	3.5	0.88
Jhunjhunnu	Banwasa	1.37	2.33
Jhunjhunnu	Dholamala	1.5	0.91
Jhunjhunnu	Chinchori	1.0	0.92
Jhunjhunnu	Satkui	3.88	0.99
Jhunjhunnu	Surhari	1.02	0.97
Jhunjhunnu	Tunda	0.5	1.62
Jhunjhunnu	Karmari	5.2	0.51
Jhunjhunnu	Madan Kudan	85.60	1.00
Jhunjhunnu	Akawali	1.65	1.5
Rajsamand	Majera, Karoli & Gopakura Blocks	0.162	0.6 to 2.3
Pali	Kalabar	1.39	0.368 Cu & 3.053 Zn
Sikar	Baleshwar	1.50	1.1
Sirohi	Golia	1.00	1.00
Sirohi	Pipela	1.2	1.20 to 1.22
Sirohi	Deri	1.00	1.98
Sirohi	Basantgarh	3.29	1.29
Udaipur	Anjani	1.213	1.19
Udaipur	Bedawal Ki Pal	1.00	1.2
Udaipur	Chani	1.8	1.4
Udaipur	Nandvel - Akodra	0.52	1.00

GOLD

A total of 118.88 million tonnes of Gold ore resources were estimated in the State including 105.81 million tonnes resources of Bhukhia-Jagpura-Delwarabelt (Banswara) with 0.50gm/t cut-off grade. Gold was also proved along with Copper in Dhani-Basri area of Dausa district, Khera-Mundiawas area of Alwar district and Dokan area of Sikar district. Beside above, gold is also extracted as by product in Khetri Copper-Belt (district Jhunjhunu).

IRON

The Iron-Ore Deposits are located in the district of Jaipur, Udaipur, Jhunjhunu, Sikar, Bhilwara, Alwar, Bharatpur, Dausa and Banswara. About 2621 million tones resources of Iron–Ore (Both Hematite & Magnetite) are estimated in the State. The important localities of Iron-Ore are Morija-

Neemala (Jaipur), Lalsot (Dausa), Rampura, Dabla (Sikar), Taonda (Jhunjhunu), Pur-Banera, Bigod (Bhilwara), Nathara-Ki-Pal, Thur (Udaipur), Indergarh, Mohanpura (Bundi), Dedrauli, Liloti, Todupura, Khora (Karauli). Details of important deposits are given below:

Iron-Ore			
District	**Area**	**Resources (million tonnes)**	**Grade (%)**
Bhilwara	Pur-Banera belt	522 million tonnes upto 05 mtr depth	30 to 40 Fe beneficiated
Dausa	Morija	5.42	60 Fe
Jaipur	Lalsot	1.39 2.52	64.67 Fe 50 Fe
Jaipur	Nimla	1.00	56 to 55 Fe
Jaipur	Ravsola, Bomani	0.13	50 to 55 Fe
Jaipur	Dabla	0.48	60 Fe
Udaipur	Nathara Ki Pal	14.2	50 Fe
Karauli	Dedrauli	584.43	34.52 (avg. grade)
Karauli	Khora	589.20	31.20 (avg. grade)
Karauli	Liloti	263.90	25.00 (avg. grade)
Karauli	Todupura	518.10	22.00 (avg. grade)

LEAD, ZINC AND SILVER

Rajasthan is endowed with the largest lead-zinc ore deposit having resources of 629.92 million tonnes. The important lead-zinc-silver deposits in the State are located at Zawar (Udaipur), Rajpura-Dariba-Bethumi, Sindesar Kalan-Sindesar Khurd (Rajsamand), Rampura-Agucha and Pur-Banera (Bhilwara), Dehri (Sirohi) and Kayer–Ghugra, Sawar (Ajmer). The Country enjoys self-sufficiency in respect of Zinc. Details of important deposits are given below:

LEAD, ZINC AND SILVER			
District	**Area**	**Resources (million tonnes)**	**Grade (%)**
Ajmer	Ghugra belt	5.52	1.88 Pb and 3.35Zn
Ajmer	Kayar	7.50	1.20 Pb and 12.0 Zn
Ajmer	Tikhi	1.47	1.60 Pb and 2.38 Zn
Bhilwara	Tiranga	0.59	1.75Pb and

			1.13 Zn
Bhilwara	Samodi	1.02	1.75 Pb and 1.13Zn
Bhilwara	Dewas South	3.65	1.50 Pb and 2.61 Zn
Bhilwara	Devpura	6.09	1.50 Pb and 2.60 Zn
Bhilwara	Rewara	0.21	4.90 Pb and 0.4 Zn
Bhilwara	Rampura-Agucha	58.88	1.98 Pb &13.5 Zn
Rajsamand	Mokhampura East block	62.50	0.65Pb & 2.23 Zn
Rajsamand	Rajpura-Dariba	18.74	2.10 Pb & 7.88 Zn
Pali	Kalabar	1.39	3.053 Zn & 0.368 Cu
Rajsamand	Rajpura-Dariba B & C block	2.07	3.37 Pb & 1.0 Zn
Rajsamand	Dariba East	1.02	0.84 Pb & 5.78 Zn
Rajsamand	Bamania	4.07	2.5 Pb & 5.7 Zn
Rajsamand	Sindesar Khurd (North)	7.00	2.89 Pb & 6.80 Zn
Rajsamand	Sindesar Kalan S-C Block	9.68	1.15 Pb & 3.69 Zn
Rajsamand	Sindesar Kalan East	77.78	0.59 Pb & 2.09 Zn
Rajsamand	Mokam Pura East Block	62.50	0.65 Pb & 2.23 Zn
Udaipur	Zawar group of mines	50.00	2.00 Pb & 4.66 Zn

Non Metalic Minerals

Barytes

In the State 2.99 million tonnes resources have been assessed. Important deposits of barytes occur in districts of Udaipur and Alwar. In Udaipur it is found near village Relpatliya where about 1 million tonnes resources containing 80-95% BaSO4 has been estimated. In Alwar it occurs in the area of Sainpuri, Zahir ka Kera, Ramsinghpura, Bhankhera, Karoli, Jamroli, Umrain, Girara, Dholera and resources of 75000 tonnes containing 95% $BaSO_4$ has been estimated. In Rajsamand it occurs in Delwara-Kesuli-Nathdwara belt and about 41,000 tonnes containing 60-95% BaSO4 has been assessed. In Bundi it is found in Umar area where 1650 tonnes of resources containing 78.6% BaSO4 has been assessed. In Bhilwara district resources of 1600 tonnes containing 80-90% $BaSO_4$ has been calculated.

Calcite

A total of 10.39 million tonnes calcite resources have been estimated in the State. The important deposits are located in Belka Pahar, Khila in Sirohi district (0.88 million tonnes), Dhinkali, Gayphal and Rabcha in Udaipur district (0.40 million tonnes), Dwarikpura and Nazar in Jaipur Dist. (51,000 tonnes), Maonda and Raipur in Sikar district (40,000 tonnes) and Khera Tarla, Dhinkali Gayphal, Rabach, Teja ka Was, Daulatgarh, Amalda, Gharta and Jetpura in Bhilwara district.

Clay

Ball Clay, Fire clay and China clay have their known resources in the State of the order of 31.81 million tonnes, 66.42 million tonnes and 432.51 million tonnes respectively. The important locations of clay deposits are: Bikaner district (Nal, Kolayat, Kotri, Barsinghsar, Motawta, Indo ka Bala, Maukha, Mudh, Gura, Chani etc.), Pali district (Lithriya, Khardiya etc.), Jaisalmer district (Devi kot, Mandai, Narai etc.), Nagaur district (Mundwa, Khajwana, Rol, Indawar, Luniyas, Badgaon, Basni etc.), Badmer district (Gunja, Kapurdi, Jalipa etc.), Bhilwara district (Mangrup, Kotri, Jahajpur etc.), Chittorgarh district (Eral, Sawa, Kanthariya, Banesti, Sahahva.), Jaipur district (Torda, Buchara, Fatehpur etc.), Bundi district (Devakhera), Karoli district (Sapotra, Toda Bheem), Sawai Madhopur district (Basu, Raesena etc.), Sikar district (Mahawa, Maonda etc.), Ajmer district (Maliya, Lughiya etc.), and Jodhpur district (Jewasiya, Ramasani-Rampura, Kheradiya etc.).

Dolomite

A total of 599.40 million tonnes resources of Dolomite are estimated in the State. The important Dolomite deposits are at Bajla-Kabra -13 million tonnes (Ajmer); Mandal -20 million tonnes, Koshithal - 28 million tonnes (Bhilwara), Chittoriya-Gorela-Chanda Kheri-45 million tonnes (Chittorgarh), Kotputli, Manwa Ramgarh, Bhaislana - 31 million tonnes (Jaipur), Chacha, Odania-3.15 million tonnes (Jaisalmer), Indo-ki-Dhani, Indolai-ka-Talab, Rathoro-ka-Dhora - 5 million tonnes (Jodhpur), Iswal, Kalora (Udaipur) and Seemal, Haldi Ghati, Achhibaori, Odan-Lal Madri, Ghodach, Nerach, Karoli-Kasoli – 2.55 million tonnes (Rajsamand).

Feldspar

The State is a major producer of Feldspar in the country, having about 87.94 million tonnes resources. Ajmer district is the leading producer of feldspar in the State. Other important producers of feldspar are Bhilwara, Rajsamand, Pali, Tonk, Sikar districts. Minor productions come from Dungarpur, Sirohi, Udaipur, Chittorgarh and Jaipur districts.

Emerald

Emerald deposit is found in the 221 km. long belt stretching from Gam Gurha in Rajsamand district to Bubani and Muhami in Ajmer district. Important localities are Rajgarh, Tikhi & Kalaguman (Rajsamand). The occurrences are highly sporadic and variable.

Fluorite

The important deposits of fluorite in Rajasthan are Mando ki pal, Kahila in Dungarpur district where 0.7 million tonnes and 2.5 lac tonnes of resources with 17% and 20% CaF_2 content respectively have been proved. In Karaka, Jalore district 0.07 million tonnes resources with 20-80% CaF_2

Garnet

State was principle producer of Gem and abrasive variety of garnet till 2004-05. Garnet deposits are located in Udaipur, Ajmer, Bhilwara, Rajsamand and Tonk districts covering a strike length of 250 kms. Most important gem variety is found in Tonk district in a 11 km belt running from Kalyanpur to Rajmahal. Abrasive variety is found in Bhilwara and Rajsamand district.

Gypsum

Rajasthan alone accounts for 82% resources of gypsum in the country having total resources of 1055.55 million tonnes. The State is continued to be the leading producer, contributing 99% of total output. The entire production of Selenite is from Rajasthan State. Gypsum is found in the districts of Bikaner, Nagaur, Barmer, Hanumangarh, Jaisalmer, Shri Ganganagar, and Jalore.

Lignite

In Rajasthan, large deposits of Lignite occur in tertiary formation of middle Eocene age spread over 70,000 sq.km. area in the Barmer-Sachore, Jaisalmer and Nagaur basins falling in Barmer, Jaisalmer, Bikaner, Nagaur and Jalore districts. A total of about 5720 million tonnes resources of Lignite have been estimated in 78 localities in Barmer, Bikaner, Nagaur, Jaisalmer and Jalore districts of western and north- western parts of the State. Lignite is being exploited at Giral (distt. Barmer), Kapurdi-Jalipa (distt.Barmer), Palana-Barsinghsar (distt.Bikaner) and Mata Sukh-Kasnau-Igiyar (distt.Nagaur) for Lignite based power plants and captive use. Lignite based power plants are operating at Kapurdi-Jalipa(distt. Barmer), Giral (distt.Barmer), Palana-Barsinghsar (distt.Bikaner) and Gurha (distt. Bikaner).

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