## Lesson - 12

# Rajasthan : Introduction, Physical Features and Drainage System

**Introduction**

Rajasthan has special significance in Bhartiya history due its magnificent historical traditions. Rajasthan happens to be the centre of old civilizations of the world. Their proofs are available in the remains found at Tilwara in Luni basin (Barmer), Ahar (Udaipur), Gilund (Udaipur), Kalibanga (Ganganagar) and Ganeshwar Tila (Sikar). Drainage of Saraswati and Drashaddhati rivers have also flourished Rajasthan in ancient times.

Rajasthan is considered as the land of heroes and sacrificers. The state has repeatedly protected Bhartiya pride. The people of the state have shown bravery and wisdom even after adapting with adverse and difficult situations.

Different areas of Rajasthan used to have their special identities in ancient and medieval periods, viz. Yoddhaiy (Ganganagar), Ahichhatrapur (Nagaur), Gurjaratra (Jodhpur-Pali), Valla / Dungal / Maad (Jaisalmer), Swarngiri (Jalore), Chandravati (Abu), Shiv / Medpat / Mewar (Udaipur-Chittorgarh), Vagad (Dungarpur, Banswara), Kuru (Alwar), Shursen / Brijbhumi (Bharatpur, Karauli, Dholpur), Hay-Hay / Hadauti (Bundi-Kota), Virat / Bairath (Alwar, Jaipur), Jangal (Bikaner - Jodhpur), Shakambhari (Sambhar) and Dhundhar (Jaipur-Tonk).

There was rise and fall of several dynasties in Rajasthan between 11th and 18th centuries. Rajasthan was known as Rajputana in British period due to the dominance of princely states and thikanas of Rajput kings. The main princely states were Jaipur-Amer, Marwar, Mewar, Kota, Bundi, Bharatpur etc. Present Rajasthan came into existence by the merger of 19 princely states and 3 chiefships of Rajputana, and centrally administered Ajmer-Merwara after independence. Table 12.1 shows the successive phases of unification of Rajasthan.

The present Rajasthan is administratively

**Integration of Rajasthan**
Seven Stages of formation of Rajasthan
(1948-1956)

| S.No. | Name of Group | States | Date of Integration |
|---|---|---|---|
| 01. | Matsya Union | Alwar, Bharatpur, Dholpur, Karauli | 17-03-1948 |
| 02. | Rajasthan Union | Banswara, Bundi, Dungerpur, Jhalawar, Kishangarh, Kota, Pratapgarh, Shahpura, Tonk. | 25-03-1948 |
| 03. | United State of Rajasthan | Udaipur also joined with the other Union of Rajasthan. | 18-04-1948 |
| 04. | Greater Rajasthan | Bikaner, Jaipur, Jaisalmer & Jodhpur also joined with the United State of Rajasthan. | 30-03-1949 |
| 05. | United State of Greater Rajasthan | Matsya Union also merged in Greater Rajasthan | 15-05-1949 |
| 06. | United Rajasthan | 18 States of United Rajasthan merged with Princely State Sirohi except Abu and Delwara. | 26-01-1950 |
| 07. | Re-organised Rajasthan | Under the State Re-organisation Act, 1956 the erstwhile part 'C' State of Ajmer, Abu Road Taluka, former part of princely State Sirohi which was merged in former Bombay, State and Sunel Tappa region of the former Madhya Bharat merged with Rajasthan and Sironj subdistrict of Jhalawar district was transferred to Madhya Pradesh. | 01-11-1956 |

divided into 7 divisions, 33 districts, 90 sub-divisions, 314 tehsils, 295 Panchayat Samities, 222 Municipalities and 9900 Gram Panchayats.

## Location and Extent

Rajasthan state lies in the north-western part of Bharat and extends between 23°3' to 30°12' north latitudes and 69°30' to 78°17' east longitudes. Rajasthan is the biggest state of Bharat in terms of area. Tropic of cancer passes through southern tip of the state near Banswara. It is bound by Punjab on the north and Haryana on the north-east, Uttar Pradesh on the north-east, Madhya Pradesh on the east and south-east and Gujarat on the south and south-west.

The international boundary lies between Rajasthan and Pakistan in a length of 1070 kilometres which is known as **Radcliffe.** Ganganagar, Bikaner, Jaisalmer and Barmer are the border districts. This kite-shaped state is 869 kilometres long from east to west and 826 kilometres broad from north to south (Fig. 12.1). The total area of the state is 3.4 lakh sq.Kilometres which is 10.43% of the total area of Bharat. The state is equal to Germany in area, slightly larger than Japan, one and a half times larger than Great Britain, five times larger than Sri-Lanka and more than seventeen times larger than Israel.

## Physical Features

Most of the western and north-western Rajasthan is the residue of Tethys sea which, in due

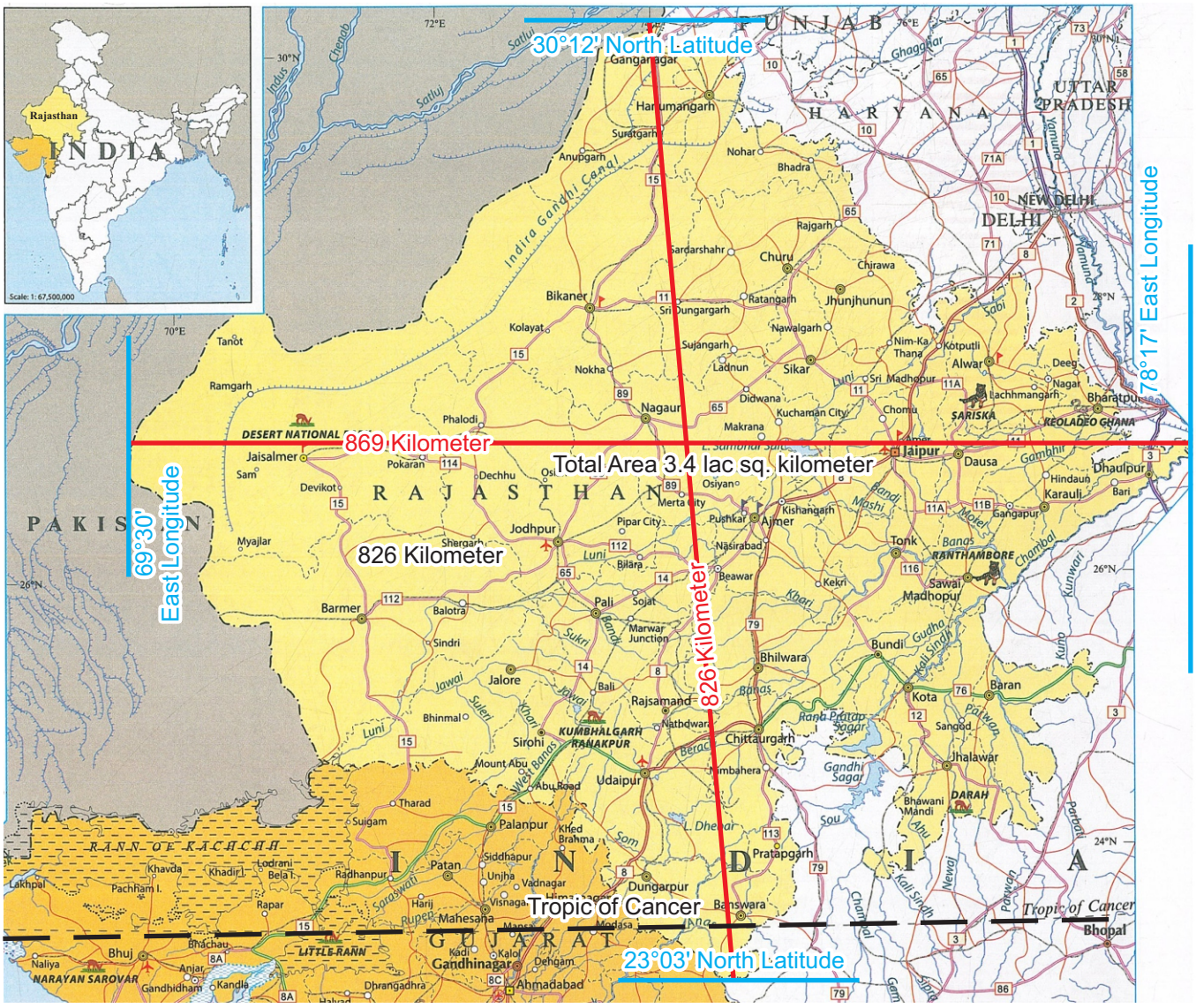


**Fig. 12.1 : Rajasthan : Location and Extension**

course of time, was filled with the alluvium deposited by the rivers descending from the Himalayas. Salt lakes of Rajasthan like Sambhar, Deedwana, Pachpadra, Lunkaransar etc. are the remains of Tethys Sea. Aravallis of Rajasthan and the Deccan plateau are part of Gondwanaland. Aravallis are one of the oldest mountains of the world. Aravallis act as the major water-divide, making two divisions of the state. The physical features of the state represent the cumulative effect of indogenetic movements, geological structure, denudation and drainage pattern. The relief of Rajasthan comprises of mountains, plateaus, plains and deserts in which the materials ranging from oldest rocks to newer alluvium are the constituents.(Fig. 12.2)

The state can be divided into 4 major and 11 sub-regions in terms of its relief (Fig. 12.3) –

(1) Western Desert Region
  (A) Sandy dry plain,
  (B) Luni Basin
  (C) Plain of inland drainage and
  (D) Ghaggar plain.

(2) Aravalli Region

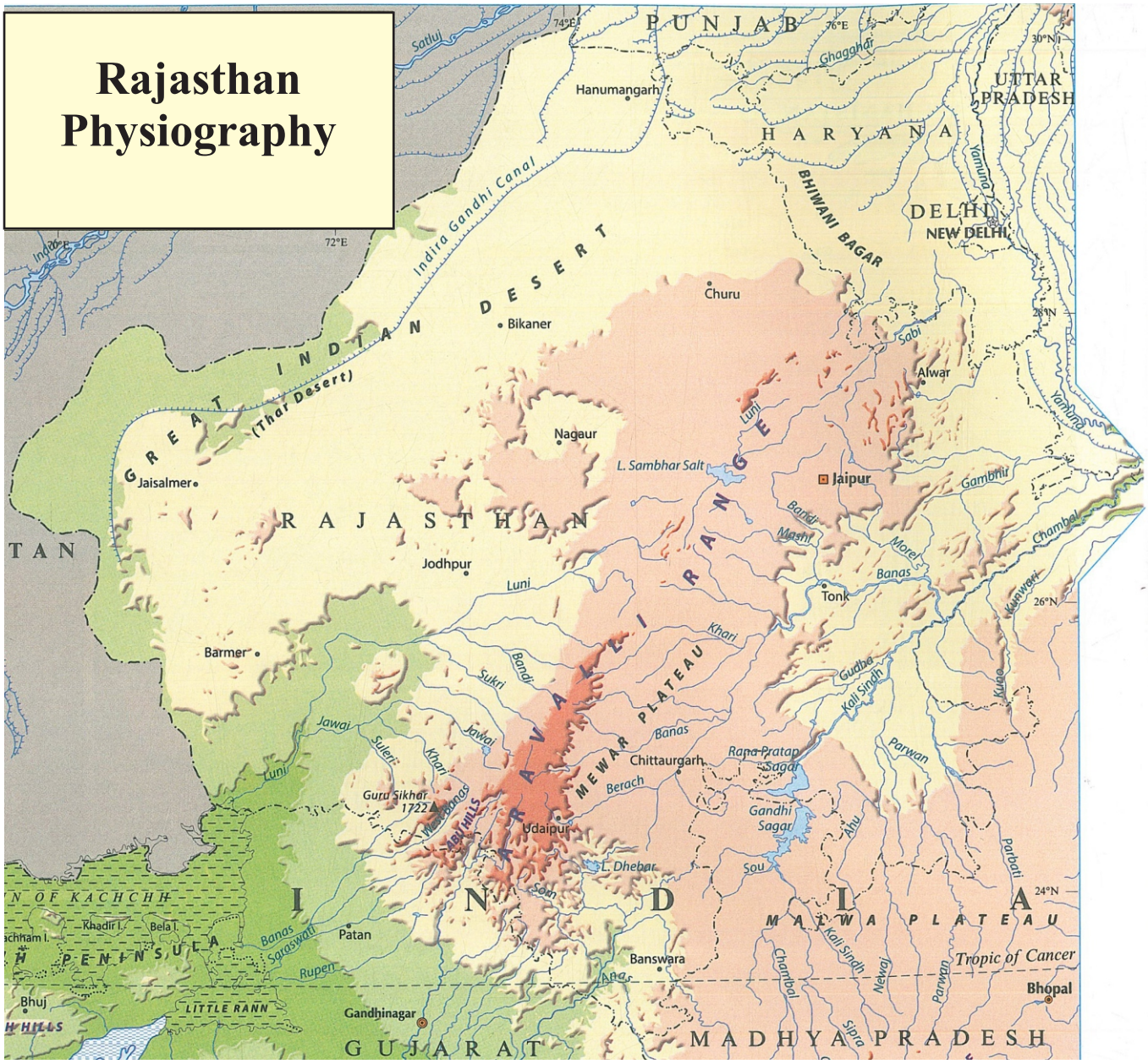


**Fig. 12.2 : Rajasthan : Physiography**

(A) Southern Aravalli area,
(B) Central Aravalli area, and
(C) Northern Aravalli area.

(3) Eastern Plain Region
(A) Banas-Banganga Basin, and
(B) Middle Mahi and Chhappan basin.

(4) South-eastern Plateau
(A) Vindhyan Scarp, and
(B) Deccan Lava Plateau.

**(1) Western Desert Region**

Western desert region extends towards north-west and west of Aravallis. Its average elevation ranges from 60 to 360 metres above sea level. It extends over the districts of Ganganagar,

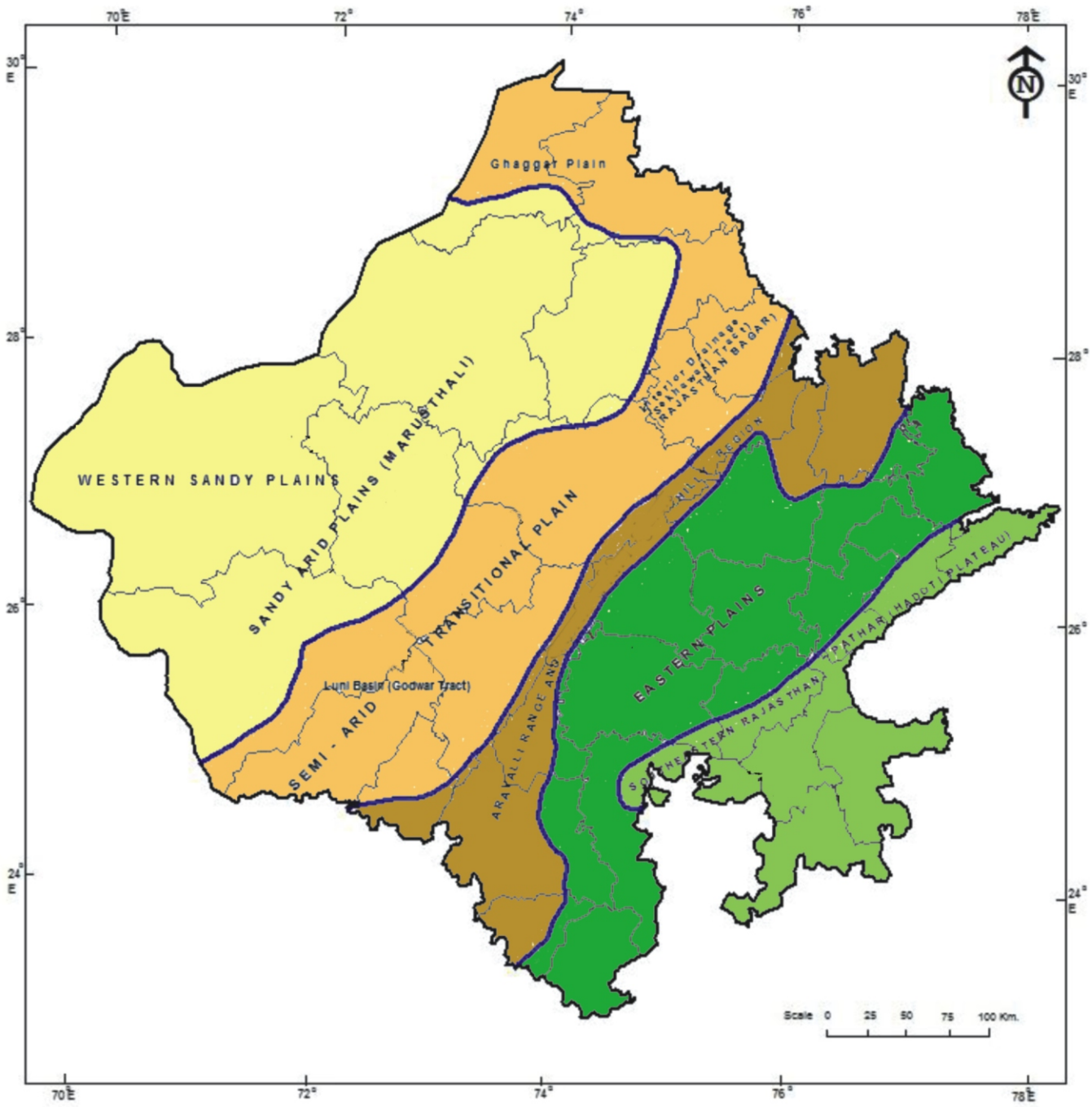


**Fig. 12.3 : Rajasthan : Physical Features**

Hanumangarh, Jhunjhunu, Sikar, Churu, Bikaner, Nagaur, Jodhpur, Jaisalmer, Barmer, Jalore and Sirohi. This area is covered with sand.

The desert milieu is undergoing the process of transformation due to human influence and extension of irrigation in some areas (Ganganagar, Hanumangarh and Bikaner). There are three types of sand dunes found in the area –

**(i) Longitudinal –** These sand dunes are formed, parallel to the prevailing winds.

**(ii) Transverse –** These sand dunes are formed at rightangle to the prevailing winds.

**(iii) Barkhan –** These are the crescent shaped sand dunes.

On the basis of surface features, western desert region is subdivided into four parts –

**(A) Sandy Dry Plain –** Situated to the west of 25 cm isohyet line, it is a dry desert plain. It encompasses the districts of Jaisalmer, Barmer, Bikaner and Jodhpur, and the western parts of Nagaur and Churu. Rock projection intercept with the sand dunes in some parts of Jaisalmer, Barmer and Bikaner. These projections consist of granite, limestone and sand stone. All the three types of sand-dunes are found here. There are shallow depressions of brackish water known as **Rann**.

**(B) Luni Basin –** The basin lies to the south-west of Aravallis between 25 to 50 centimetres isohyet lines. Luni basin encompasses southern Jodhpur, Pali, Jalore and western Sirohi districts. There are alluvial plains in the drainage areas of Luni and its tributaries like Lilri, Sukari, Jawai, Jojari and Bandi. These are all seasonal rivers. Pachpadra is the major brackish water area in the region where salt is made.

**(C) Plain of Inland Drainage –** It is also known as Shekhawati region. The semi-arid plain extends in the districts of Jhunjhunu, Sikar, Churu and northern nagaur. It is a sandy plain covered with sand-dunes of medium and low height. Barkhans are dominant in the region. It is an area of inland drainage. There are rivers and nallas which disappear after flowing in a short distance in the region. Mendha and Kantli are the major rivers of this area. There are a number of salt water lakes and Ranns in this area. Sambhar, Deedwana, Kuchaman, Sujangarh, Tal-Chhapar and Parihara (Churu) are the main salt water lakes.

**(D) Ghaggar Plain –** It is the northern part of the desert which extends in districts of Ganganagar and Hanumangarh. Barkhans are dominant in the region. Ghaggar river is the part of inland drainage system of this area. The dry bed of the streams of Ghaggar are considered to be the part of Saraswati river originating from Himalayas as described in the Puranas. Intensive agriculture is practiced in this area due to availability of irrigation facility through Indira Gandhi Canal and Gang Canal. Consequently, the problems of water logging and alkalinity have increased in the area.

**(2) Aravalli Region**

Aravalli range is the main and the oldest mountain in Rajasthan. About 9.3 percent area of the state is covered by this range. The range extends in a length of 692 kilometres from south-west to north-east direction. The range extends in a length of 550 kilometres from Khed Brahma (Gujarat border) to Khetri in Rajasthan. It extends in a continuous chain from Sirohi to Khetri but it extends in the form small hills onwards upto Delhi. It mainly extends in nine districts of Sirohi, Udaipur, Rajsamand, Ajmer, Jaipur, Dausa, Alwar, Sikar and Jhunjhunu in the state. The average height of this hilly region is 930 metres. Aravalli hills are divided into three sub-regions –

(A) Southern Aravalli area (from Abu to Ajmer),
(B) Central Aravalli area (from Ajmer to Jaipur), and

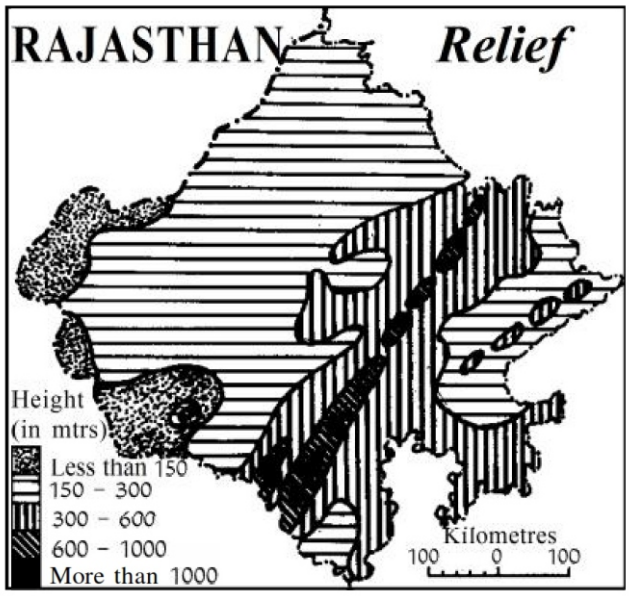


**Fig. 12.4 : Rajasthan : Relief**

(C) Northern Aravalli area (from Jaipur to Khetri).

**(A) Southern Aravalli Area –** It includes the districts of Sirohi, Udaipur and Rajsamand. Here the Aravallis are very complex and high. There are a number of ranges and peaks in Abu-Sirohi section of Sirohi district. Gurushikhar, located in this section, is the highest peak (1727 m) of Rajasthan. Achalgarh (1380 m), Dilwara (1442 m), Kumbhalgarh (1224 m) are other major peaks. Jarga (1431 m) is the highest peak of Udaipur-Rajsamand area. Bhorat plateau is situated between Kumbhalgarh and Gogunda to the north of Udaipur. East-flowing rivers originate from the plateau.

**(B) Central Aravallis –** It extends between Ajmer and Jaipur. There is an alternate arrangement of ranges, narrow valleys and plains in this section. Taragarh (885 m) is the main peak of this area. Luni, the main river of western Rajasthan, originates from Nag Pahar lying in this section.

**(C) Northern Aravallis –** Northern Aravallis extends in the districts of Jaipur, Dausa, Alwar, Sikar and Jhunjhunu. Aravallis are spread in the form of scattered and isolated hills, instead of a continuous chain in the area. It includes the hills of Shekhawati, Torawati, Jaipur and Alwar. These hills have an elevation ranging between 450 to 700 metres. Raghunathgarh (1055 m) in Sikar district and Kho (920 m) in Jaipur district are the main peaks of the area.

**(3) Eastern Plain Region**

The region covers 23.9 percent area of Rajasthan. It includes Banas basin and middle Mahi basin (Chhappan plain). As a matter of fact, it is a river basin area. It extends over the plains of Bharatpur, Alwar, Sawai Madhopur, Karauli, Jaipur, Tonk and Bhilwara in its northern section and over the plains of fifty six villages of Dungarpur, Banswara and Chittorgarh districts in its southern section. The plain is made up of fertile alluvial soil and is irrigated by a number of rivers. Situated between Aravallis and Hadauti plateau, it can be divided into two geomorphological sections –

**(A) Banas-Banganga Basin –** The plain of Banas and its tributaries is known as the **plain of Mewar** in the south and the **plain of Malpura-Karauli** in the north. Berach, Khasi, Mansi, Morel and Banganga etc. are the main tributaries of Banas river. The plain slopes east and north-eastwards. There are flat-topped isolated hills in the region. The plain averages in height between 280 to 500 metres.

**(B) Middle Mahi-Chhappan Basin –** It covers an area of 7056 square kms. covering south-eastern part of Udaipur, Dungarpur, Banswara and southern part of Chittorgarh district. It averages in height from 200 to 400 metres. Salumbar-Sarada area is locally known as **Chhappan** and Dungarpur-Banswara area as **Vagad**. Banswara is also known as the **Area of Hundred Islands** due to the presence of several rivers. Main tributaries of Mahi river are Som, Jakham, Kagdar, Jhamri etc. Bhils and Garasiyas are the local tribes who practice shifting cultivation locally known as **Walra**.

**(4) South-Eastern Plateau**

The south-eastern plateau of Rajasthan is popularly known as **Hadauti**. It covers 9 percent area of Rajasthan. Here resides 13 percent of the population of the state. It spreads over the districts of Kota, Bundi, Baran, Jhalawar and eastern part of Chittorgarh. It is composed of lava mixed rocks and Vindhyan rocks. The average height of the plateau is 500 metres above mean sea level. Black and red soils are found in this area. Major rivers of this area are Chambal, Parvati and Kali Sindh. The plateau is divided into two sub-physiographic regions –

**(A) Vindhyayan Scarp –** The scarp mainly consists of sandstone and limestone. It rises to an elevation ranging between 350 to 550 metres above MSL. The scarp faces south-east and eastwards continuously between Banas and Chambal rivers. The scarp extends northwards in Sawai Madhopur, Karauli and Dholpur along the Chambal river.

**(B) Deccan Lava Plateau –** It is wider and raised rocky feature of south-eastern Rajasthan. It is composed of sandstone and limestone rocks. Its eastern and southern part is covered with lava. Fertile black soil is found here. Chambal and its tributaries Kali Sindh and Parvati rivers have formed a **triangular alluvial plain** in Kota.

## Drainage System

The drainage system of Rajasthan is determined by Aravalli ranges. The great water divide line of Bharat bifurcates the rivers of Rajasthan into two parts. The drainage system of Rajasthan is shown in Fig. 12.5 & 12.6.

This water divide line extends along

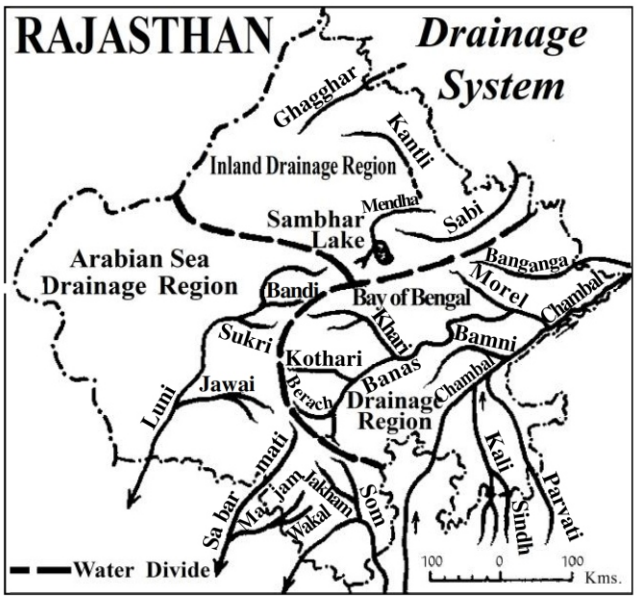


**Fig. 12.5 : Rajasthan : Drainage System**

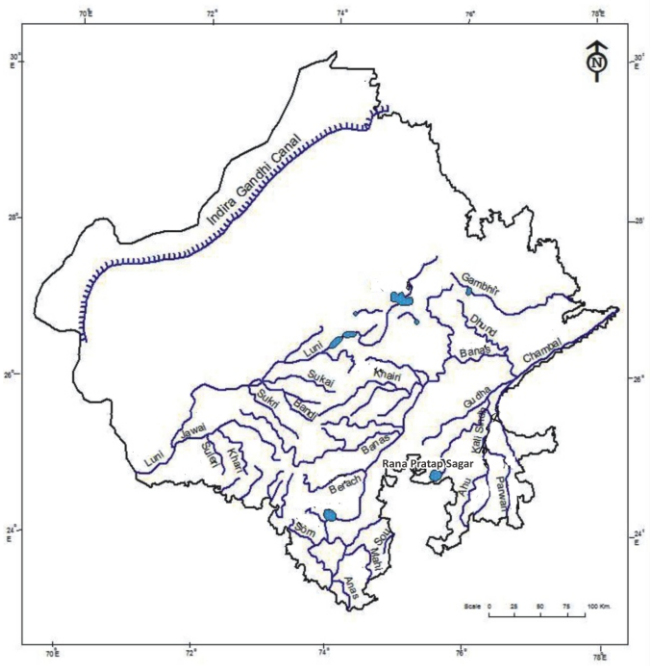


**Fig. 12.6 : Rajasthan : Major Rivers, Lakes and Indira Gandhi Canal**

Aravalli axis in the north upto the southern part of Sambhar lake. From here it goes towards south-west through a few kilometres east of Beawar, Deogarh, Kumbhalgarh, Haldighati in the south of Udaipur upto Udaisagar. Further to the south-east it passes through Bari Sadri, Chhoti Sadri and reaches upto Pratapgarh. The rivers to the west and the south of the water divide drain into Arabian sea. Amongst these, Luni, western Banas, Sabarmati and Mahi are the main rivers. To the east of water divide, Banas and its tributaries join Chambal which ultimately drains into Bay of Bengal through Yamuna and Ganga. About 50% area of Rajasthan does not have drainage into any open sea and is the part of inland drainage system . The drainage consists of separate river basins, the waters of which disappears in desert itself. Thus the drainage system of Rajasthan can be divided into three parts –

**(1) Rivers Draining into Bay of Bengal**

**(i) Chambal River –** This river originates from Janapao hill and joins Yamuna in Uttar Pradesh. It is the main river of this system. Banas, Parvati, Kali Sindh etc. are its main tributaries.

**(ii) Banas River –** This river originates from Khamnor hills of Bhorat plateau and joins Chambal at Rameshwar in Sawai Madhopur district. The main tributaries of this river are Berach, Kothari, Khari, Menal, Bandi, Mansi, Dhoondh and Morel.

**(iii) Banganga River –** It originates from Viratnagar of Jaipur district and joins Chambal river.

**(iv) Parvati River –** It originates from Vindhyan range in Madhya Pradesh and flowing through Baran district joins Chambal near a place Pali.

**(v) Kali Sindh River –** It also originates from Vindhyan range and flowing through Jhalawar, it joins Chambal. Parvan is its tributary river.

**(2) Rivers Draining into Arabian Sea**

**(i) Luni River –** It originates from Nag Pahar in Ajmer and flows into Rann of Kutch. Its water is sweet upto Balotra. Jojari, Lilari, Sukari, Jawai and Bandi are its main tributaries.

**(ii) Mahi River –** It originates from Amjhor in Madhya Pradesh. It flows in the districts of Dungarpur and Banswara of the state and finally flows into Gulf of Cambay in Gujarat. Mahi and its tributaries Som and Jakham rivers meet at Beneshwar Dham to form **Triveni confluence (Sangam)**. Tribal fair - **Beneshwar** is held every year at the confluence. The Dham is the main religious place of local tribes. Mahi-Bajaj Sagar dam has been constructed on Mahi river near Banswara.

**(iii) Sabarmati River –** It originates from the western hills of Udaipur and after flowing for 44 kilometres in Rajasthan joins Gulf of Cambay in Gujarat.

**(3) Rivers of Inland Drainage**

There are many such small streams in Rajasthan which disappear in the sand after a short surface flow. Kantli, Sabi, Kakni, Ghaggar etc. are such main rivers. Occasionally these rivers are flooded due to heavy rains.

## Lakes

The lakes of Rajasthan can be divided into two categories –

(A) Salt water lakes, and

(B) Sweet water lakes.

**(A) Salt Water Lakes –** These lakes are found in the western desert and inland drainage area of the state. These are natural and shallow lakes. Sambhar (Jaipur), Deedwana (Nagaur), Pachpadra (Barmer), Lunkaransar (Bikaner) and Kuchaman (Nagaur) are the main salt water lakes. Salt production from these lakes is done on commercial basis. Sambhar, covering an area of about 145 sq.kms. is the biggest salt water lake of Bharat. The lake is 32 kms. long and 12 kms. broad.

**(B) Sweet Water Lakes –** These lakes are very important as sources of drinking water and irrigation. Jaisamand (Udaipur), Rajsamand (Rajsamand), Pushkar (Ajmer), Silised (Alwar), Ramgarh (Jaipur), Kolayat (Bikaner), Nakki (Mt. Abu), Kaylana (Jodhpur) etc. are the main sweet water lakes. A number of dams have been constructed on some rivers. The lakes and dams attract tourists due to their scenic natural beauty. Jaisamand, also known as **Dhebar lake**, is the largest sweet water lake in Rajasthan.

## Important Points

1. Rajasthan had been the centre of old civilizations of the world; its remains are found at Tilwara, Ahar, Gilund etc.
2. The present Rajasthan was organized in seven phases.
3. Administratively, Rajasthan is divided into 7 divisions and 32 districts.
4. The international boundary between Rajasthan and Pakistan is known as Red Cliff
5. Rajasthan is the largest state of Bharat in terms of area.
6. Rajasthan is divided into four physiographic regions.
7. Thirty percent population of Rajasthan resides in the western desert region spread over 57.8% area of the state.
8. Aravallis extend in a length of 550 kilometres from south-west to north-east direction in Rajasthan.
9. Gurushikhar, the highest peak of Aravallis, is situated in Sirohi district.
10. Banas basin and Chhappan plain are included in the eastern plain of Rajasthan.
11. Banswara is known as the **Area of hundred islands** due to the flow of several rivers in the region.
12. The south-eastern plateau of Rajasthan is popularly known as Hadauti.
13. The drainage system of Rajasthan is determined by Aravallis.
14. Approximately half of the area of Rajasthan comes under inland drainage system. The western and southern part of Aravallis is part of the Arabian sea drainage system where as the part lying to the east of Aravallis comes under Bay of Bengal drainage system.
15. At the confluence of Mahi and its tributaries like Som and Jakham, local tribes hold **Beneshwar fair**.
16. Kantli, Sabi, Kakni and Ghaggar are the main rivers of inland drainage system.
17. Sambhar, Deedwana, Pachpadra, Lunkaransar and Kuchaman are the main salt water lakes of Rajasthan.

## Exercise

### Multiple Choice Questions

1. The district where Ahar is located, is –
   (A) Barmer (B) Udaipur
   (C) Bikaner (D) Sikar.

2. Swarngiri is the ancient name of –
   (A) Nagaur (B) Sambhar
   (C) Jalore (D) Ganganagar.

3. The river associated with Arabian sea drainage system, is –
   (A) Banas (B) Banganga
   (C) Parvati (D) Mahi.
4. The biggest sweet water lake of Rajasthan, is –
   (A) Kaylana (B) Nakki
   (C) Jaisamand (D) Pushkar.

**Very Short Answer Type**

5. When did the present Rajasthan form?
6. Which princely states were included in Matsya Sangh?
7. How much is the total area of Rajasthan?
8. Which range divides the drainage system of Rajasthan into two parts?
9. From where does the Sabarmati river originate?

**Short Answer Type**

10. Write about the location of Rajasthan.
11. Which are the major physical divisions of Rajasthan?
12. Describe the relief features of Southern Aravallis region.
13. Describe the extension of eastern plain.
14. Make clear the drainage system of Bay of Bengal of Rajasthan.
15. Name the salt water lakes of Rajasthan.

**Essay Type**

14. Enumerate the phases in which Rajputana became Rajasthan? Present the process in tabular form.
15. Divide Rajasthan into physical divisions and give a detailed discription of the western desert region.
16. Describe the drainage system of Rajasthan.

**Skill**

17. Show the following on an outline map of Rajasthan – (i) Tropic of Cancer, (ii) Aravallis (iii) Neighbouring states (iv) International boundary.
18. Show the physical divisions on an outline map of Rajasthan.
19. Show the major rivers along with the water divide on an outline map of Rajasthan.

**Answer Key**

1. (B), 2. (C), 3. (D), 4. (C).