CHAPTER 2
RAJASTHAN: LAND, PEOPLE AND ECONOMY

Rajasthan, a kaleidoscopic State, is the State where tradition and modernity blends together to form a rich amalgamation of colors, culture and tradition. Diversity cuts across the realms of physiographic, culture, customs, tradition and language. (State Environmental Atlas, Rajasthan, 2009:12). The State of Rajasthan, as an adobe of Rajput rulers, the princes and the heroic warriors is located in the North-Western corner of India. It is known as India’s desert State since 61 per cent of its area, covering 11 districts inhabit anted by 40 per cent if the population is either desert or semi-desert. Geographically, Rajasthan is located 23° 3’ to 30° 12’ North latitude and 69° 30’ to 78° 17’ East longitude, with the tropic of cancer passing through the southernmost tip of the State. The State is situated in land-locked north-western part of the Indian union covering arid Great Indian Desert and parts of semi-arid climate zone. The State has an area of 132,140 square miles (342,239 square kilometers) which is around 10.45 per cent of India. The State has 33 administrative unites divided into 241 tehsils and 237 development blocks as of 2001 census of India. It is surrounded by Punjab in north, Gujarat in south, Pakistan in west and Uttar Pradesh in east. It has also borders with Haryana and Delhi in north-east and Madhya Pradesh in south east.

As the present study is about food and population relationship that is highly dependent on physical and human aspects of the study area, this chapter deals about those characteristics of Rajasthan which have a direct or indirect bearing on delegate food-population relationships. This chapter is divided into three sections looking at total physical, economic, cultural and economic makeup of the State.

2.1. Brief History

Historically, Rajasthan’s has remained focal point of regular changes, upheavals and changes in social and political spheres due to its peculiar location. Since from drawn of civilization up to present day the political system of the area has witnessed the democratic rituals, kingship and kinship as well as socialistic pattern of government administration. Starting from Indus valley civilization Rajasthan has always remained civilizes but not always with same name (Todd, 1929). The present name of the arid and semi-arid territory came up in 1829 from the famous book of Col. Todd ‘Annals and Antiquities of
Rajasthan. Apart from Rajasthan this territory is also known as ‘Rajaputana’ (Land of the Kings). This symbolizes rich cultural and political history of Rajput Dynasties. The period between 7th century and 11th century is known as Rajput period in Indian history, which has played crucial role in the formation of Rajasthan a political and cultural identify. Around 12th century a part of Rajasthan came under Muslim rulers and the principal centers of their powers were Nagaur and Ajmer. At the beginning of the 13th century AD, the most prominent and powerful State of Rajasthan was Mewar. During medieval and modern times, Rajasthan had never been united politically until its domination by Mughal Emperor - Akbar. Akbar created a unified province of Rajasthan. Mughal power started to decline after 1707. The political disintegration of Rajasthan was caused by the dismemberment of the Mughal Empire. After the fall of Rajput and Mughal dynasties, Britisher’s made attempt to bring various principally States under their rule. Although British rule gave much needed political unity to the States at macro level but at the principally States levels Rajasthan was constantly ruled by smaller and weak Rajput rulers up to independence. The task of building present day Rajasthan commenced in the year, 1948 which after having passed through various stages was completed in the year, 1956. Presently, Rajasthan has been divided into 7 divisions and 33 districts from administrative point of view (Table 2.1)

### Table 2.1

**Rajasthan: Administrative Division, 2011**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the Division</th>
<th>Districts covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jaipur Division</td>
<td>Alwar, Dausa, Jaipur, Jhunjhunu, Sikar</td>
</tr>
<tr>
<td>2</td>
<td>Kota Division</td>
<td>Baran, Bundi, Jhalawar, Kota</td>
</tr>
<tr>
<td>3</td>
<td>Jodhpur Division</td>
<td>Barmer, Jaisalmer, Jalore, Jodhpur, Pali, Sirohi</td>
</tr>
<tr>
<td>4</td>
<td>Ajmer Division</td>
<td>Ajmer, Bhilwara, Nagaur, Tonk</td>
</tr>
<tr>
<td>5</td>
<td>Udaipur Division</td>
<td>Banswara, Chittorgarh, Dungarpur, Pratapgarh, Rajsamand, Udaipur</td>
</tr>
<tr>
<td>6</td>
<td>Bikaner Division</td>
<td>Bikaner, Churu, Hanumangarh, Sri Ganganagar</td>
</tr>
<tr>
<td>7</td>
<td>Bharatpur Division</td>
<td>Bharatpur, Dholpur, Karauli, Sawai Madhopur</td>
</tr>
<tr>
<td>Total</td>
<td>7 Divisions</td>
<td>33</td>
</tr>
</tbody>
</table>

Source: [http://www.rajasthan.gov.in/](http://www.rajasthan.gov.in/)
2.2. Physiographic of Rajasthan

Rajasthan, the largest state of India, has an area of 3,42,239 Sq kilometers but from population point of view, it occupies 8\textsuperscript{th} place according to census 2011. Rajasthan covers the territory which has a very mature topography, developed during the thousands of year’s denudation and erosion process. The present relief is ultimately the product of the past fluvial cycle of erosion and recent desert cycle of erosion (Bhalla, 2011:102). Physiographically, it is difficult to find a region more varied and diverse than Rajasthan. It is a land of lofty hills and shifting sand dunes, rugged riverine and dense forests. However, desert remains its dominant peculiarity, besides the mountainous Aravalli range that divides the land into two major natural regions. Aravalli is one of the oldest mountain ranges in the world. These Aravalli intersect Rajasthan from end to end in a line running from Delhi to the plains of Gujarat, a distance of about 690 km. Aravalli, divide Rajasthan into two natural regions (divisions), viz. the northwest, which comprises about three-fifths of the State and the south-east, which covers about two-fifths area of Rajasthan. Structurally, south-east part of the State is covered by northwestern extension of the peninsular block, whereas, northwest is vastly stretched ‘Thar desert’. The area to the west of Aravalli ranges, comprising nearly two-third of the total area of the state is very dry and has low levels of land fertility, while the eastern part is relatively fertile. Some eastern districts (i.e. Bundi, Kota, Sawai Madhopur and Dholpur) are facing intensive soil erosion and environmental degradation.

On the basic of present day landforms, Rajasthan can be broadly divided into four major physiographic divisions, including many micro-physiographic divisions, and these are physiographic divisions of Rajasthan are as follows:

(A) Western Sandy Plain

This plain spreads from 24° 30’ N to 30° 12’N latitudes and 69°15’ E to 76° 45’E longitudes, including vast Thar Desert and the adjoining Bangar (Steppe land) to the west of the Aravalli. The Western Sandy plain is a wide expanse of windblown sand plain, with qualities like poorly watered and saline in nature. The extreme western portion of this region is globally known as ‘Thar Desert’; which is perfectly dry and desolate with thin patches of prickly grass and other xerophytes. This region companies Bikaner, Barmer, Churu, Jodhpur, Jaisalmer, Nagaur, Hanumangarh, Sriganganagar, Pali, Sirohi, Sikar and Jhunjhunu districts and contains about 58% of the areas and 30% of the population of entire State.
### Table: 2.2
Rajasthan: Physiographic Divisions, 2011

<table>
<thead>
<tr>
<th>Macro Divisions</th>
<th>Area</th>
<th>Population</th>
<th>Meson Divisions</th>
<th>Micro Division</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Western Sandy Plain</td>
<td>57.8</td>
<td>32.38</td>
<td>a. Sandy Arid Plain</td>
<td>Marusthali</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dune Free Tract</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. Semi-Arid Plain</td>
<td>Luni Basin</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Shekhawati Region</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Nagauri Upland</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ghaggar Plain</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. The Central Aravalli Range.</td>
<td>Sambhar Basin</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Marwar Hills</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. The Mewar Rocky Range.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>d. Abu Block Region</td>
<td></td>
</tr>
<tr>
<td>C. Eastern Plain</td>
<td>23.3</td>
<td>37.48</td>
<td>a. Chambal Basin</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. Banas Basin</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. Mahi Plain or Chappan Basin</td>
<td></td>
</tr>
<tr>
<td>D. Hadoti Plateau</td>
<td>9.6</td>
<td>9.98</td>
<td>a. Vindhyan Scrap land</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. Deccan Lava Plateau</td>
<td></td>
</tr>
</tbody>
</table>

Source: Census of India: Administrative Atlas, 2001; Bhalla (2011; 12)

Generally, the structural geology of western Rajasthan has little effect on surface topography, as a large part of the surface is covered with vast stretches of sand interrupted occasionally by rocky surfaces right up to the border of Pakistan. This region is mostly a sand covered peneplain in which rocky outcrops appear through sand. The most sticking feature is the Aravalli range which boldly defines the eastern limit of this region. Probably the range has acted as a great check to the advancement of the land into the central India and Ganga valley. This region holds almost all the sand dunes found in Rajasthan. Sand dunes of varying extents are chief physiographic characteristics of the region (Table 2.3). There dunes not only affect the agriculture but whole of economic may of life.

The region slopes, generally, from east to west and north to south. The North-eastern part of the region has a general elevation of about 300 meter, but towards the south the elevation is about 150 meter, expecting the Jalore-Siwana upland which lies above 300 meter. The most important river flowing in the region is the Luni which rises in the Aravalli South-west of Ajmer and flows towards the South-west.
Table 2.3
The Extent and Amount of Sand Dunes in Western-Rajasthan

<table>
<thead>
<tr>
<th>Extent of the dunes</th>
<th>Area (Sq. km)</th>
<th>% Total Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Dunes</td>
<td>85,660</td>
<td>41.50</td>
</tr>
<tr>
<td>0 to 20% area affected</td>
<td>24,856</td>
<td>11.50</td>
</tr>
<tr>
<td>20 to 40% area affected</td>
<td>10,165</td>
<td>4.80</td>
</tr>
<tr>
<td>40 to 60% area affected</td>
<td>34,322</td>
<td>14.70</td>
</tr>
<tr>
<td>60 to 80% area affected</td>
<td>39,782</td>
<td>18.60</td>
</tr>
<tr>
<td>80 to 100% area affected</td>
<td>18,903</td>
<td>8.90</td>
</tr>
</tbody>
</table>

Source: Bhalla, L. R. (2011; 13)

Apart from Luni, there are many seasonal rivers but mostly are of inland drainage nature and are agriculturally less important due to high level of salinity contents. The macro-region of the western Sandy plain is sub-divided into two meso regions namely:

(a) Sandy Arid Plain  
(b) Semi Arid Plain

(a) Sandy Arid Plain

This meso region is further divided into two micro regions (i.e. Marusthali and Dune free tract). As name suggests this meso-region hold of the desert part of the State with harsh and xerophytes characteristics. The extreme western part which is known as Marusthali covers different types of sand dunes charging their position along the wind direction. The shifting dunes are locally known as ‘Dharians’ are common in west, with the normal extent of many kilometers. In the sandy arid plain, the next marked micro region is of comparatively dune free tract of Jaisalmer-Barmer-Bikaner covering 65 km. Deflation activities of strong desert winds have blown much of soil here leaving bed rocks exposed to surface.

(b) Semi Arid Plain

The western sandy desert in the eastern most part lies the semi arid plain drained by Luni river in its south eastern portion. In this region the older rocks protrude above the surrounding sandy surface. Gully erosion has given rise to conglomerate landscape and inland drainage and stream with salt takes such as Didwana, Kuchaman, Degana and Sambhar.

This semi arid plain region is further divided into four micro regions owning to the differential geological characteristics. There micro regions are:

(i) Luni Basin
(ii) Shekhawati region
(iii) Nagauri Upland
(iv) Ghaggar plain
(B) **Aravalli Range and Hilly Region**

The Aravalli range running across the Rajasthan like a curve from south-west to north-east is the principal and the dominant landform of the region. The Aravalli range to remarkable in being perhaps the oldest folded mountain ranges not only in India, but in the world. Structurally, it is composed of rocks which are originally related to the Delhi system, folded in a syncline occupying one site of a geosynclines, which have been deeply eroded, but still with several summits of over 1225 m in height, appear still as a range. On the basis of general characteristic and on the similarity of form elements such as dimension, relief, slope and drainage pattern one Aravalli range and hills one sub-divided into the following micro-regions.

(a) The North-eastern hill 
(b) The Central Aravalli Range 
(c) The Mewar Rocky Range 
(d) Abu Block region

The general trend shows that Aravalli is more prominent and of much height in southern region as compare to north region of Rajasthan.

(C) **Eastern Plain**

The region represents a queer and confused amalgam of lowland and upland topography which is the result of its geological history as well as the exogenesis forces that have gone into its making. The eastern plain is flown by Chambal, Banas and Mahi rivers and depositional of these three river systems have made eastern plain one of the most fertile plain of Rajasthan.

(D) **South-East Rajasthan Plateau or Hadoti Plateau**

This region locally called *Pathar* (stony) and *Uparmal* (high table land), comprises of the eastern and south-eastern part of the State and is known as Hadoti. In Rajasthan, this plateau lies in the eastern parts along with the Chambal River and cover greater part of Bhilwara, Bundi, Kota, Baran and Jhalawar districts. It consists of 9.6% of the area of whole of Rajasthan. The table-land has a very diverse topography consisting of more or less sandy uplands, broad depressions and level stretches of deep black soil. Fast of the plateau has a general slope towards Gwalior and the catchment of river Betwa; most of the parts of this region are drained by Chambal river and its tributaries like Kali, Sindh, Parwan and Parwati. This
The macro region of Hadoti plateau is further divided into micro regions (i.e. in Vindhyan Scrap land and Deccan Lava Plateau) on the regional variations of characteristics.

### 2.3. Climate and Climatic Regionalization of Rajasthan

The climate of Rajasthan plain is characterized by extremely high range of temperatures and aridity although sharing the monsoonal variations throughout year it is the hottest region of India (mean June temperature 34.5 °C at Jaisalmer and Bikaner) with annual range of temperature between 14° to 17 °C. The temperature sometimes falls below the freezing point and frosts commonly occur during winter while in summer the temperature rises above 40 °C. The diurnal range of temperature is almost as much as the annual range. The temperatures begins to rise sharply everywhere from March, reaches the maximum in may and June and remains quite high until Oct., falling rather sharply thereafter to 15.5 °C. One of the marked peculiar characteristics of Rajasthan’s climate is the acute difference between the climatic parameters of rainfall and temperature between parts west of Aravalli and parts east of Aravalli.

The climate of western part of the Aravalli is characterized by great extremes of temperature and long periods of severe droughts accompanied by high wind velocity and low relative humidity to semi arid conditions through year, whereas, eastern region of Rajasthan has much stable climate with lesser amount of variability. Owning to this division of Rajasthan on eastern and western part Aravalli termed as ‘Climatic divide’ of Rajasthan.

The rainfall is very low, highly erratic and variable seasonally. Average rainfall of Rajasthan is 52.26 cm with high degree of regional and temporal variability. General pattern of rainfall shows that rainfall in Rajasthan tends to decrease from east to west and from North to South. Rajasthan is blessed with two seasons of rainfall, one which holds 10% of Rajasthan rainfall occurs in the month of December to February. The other season of rainfall is the three monsoonal months i.e. July-Sept. which provides 75% to 90% of the annual rainfall [Appendix 7]. The variability of rainfall is high and as high as 50 to 70% variability in the annual rainfall is not an unusual feature in the Marusthali. In fact, there are years in the heart of Marusthali when no rainfall occurs, Jaisalmer for example, recorded no rainfall during last eight years prior to 1970 and year 1970 has recorded the highest rainfall of the century in the area.

In the arid and semi arid regions dust storms are common which suddenly bring down the temperature having occasional showers. These storms decrease in number and intensity east wards. Given the varied characteristics and its spatial distribution climate of Rajasthan can be divided into many climatic regions. Bhalla (2011) has attempted to regionalize Rajasthan on the
basis of Koppen climatic system using distribution of rainfall and the variations of temperature into five different regions.

(i) **Arid Region**

It includes Jaisalmer, Barmer western Jodhpur, western part of Bikaner and southern parts of Ganganagar district. Here, the arid hot desert climatic conditions are found. The average temperature of this region is 34 °C with very high diurnal range and records less than 10 cm of annual rainfall.

(ii) **Semi-Arid Region**

This region comprises the western part of the Ganganagar, Hanumangarh, Jodhpur and Bikaner districts. Rainfall ranges 20-40 cm and its nature is erratic and torrential. Thus, whenever rain occur it bring floods also. The average temperature during summer season ranges 32º-36 ºC whereas during winter season it ranges 10º C to 17 ºC.

(iii) **Sub-Humid Region**

It includes districts of Alwar, Jaipur, and Ajmer, eastern parts of Jhunjhunu, Sikar, Pali and Jalore districts. It is semi arid humid region where rainfall in meager. This amount of rainfall is also limited to few months of rainy season. It receives rainfall ranging 40 to 60 cm. The average temperature during summer season ranges 28º to 34 ºC. In other words, this region is characterized by steppe type of vegetation.

(iv) **Humid Region**

This region comprises the districts of Bharatpur, Swami Madhopur, Bundi, Kota and Rajsamand Rainfall varies from 60-80 cm with little winter rainfall.

(v) **Very Humid Region**

Under the influence of high mountains in south eastern corner of Rajasthan. Very humid type climatic region is found. Kota, Baran, Jhalawar, Banswara and areas adjacent to Mt. Abu receives rainfall 80 to 150 cm. Summers are very hot where as winters are cold and dry most of the rainfall occurs during rainy season of July-Sept. one other peculiar characteristics of climate in Rajasthan is frequent droughts. Drought occurs almost once every three year (Bansil, 2007) and sometimes frequency is even more (Table 2.4).
Figure 2.1

Rajasthan: Rainfall Deviation from Normal
1960-2010

% Deviation from annual normal rainfall
Scanty, low and irregular rainfall is highly susceptible to cause drought. The spectra of famine due to failure of monsoon constantly loom large over the state. Human and cattle population have to undergo severe hardship due to water stress. The recent drought of 2002, is one of the fine example to so that how Rajasthan has suffered from drought in terms of losses to life and economy.

**Table 2.4**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Recurrence Period (Year)</th>
<th>Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Once in 3 years</td>
<td>Barmer, Jaisalmer, Jalore, Jodhpur and Sirohi</td>
</tr>
<tr>
<td>2</td>
<td>Once in 4 years</td>
<td>Ajmer, Bikaner, Bundi, Dungarpur, Sriganganagar, Nagaur, Hanumangarh and Churu</td>
</tr>
<tr>
<td>3</td>
<td>Once in 5 years</td>
<td>Alwar, Banswara, Bhilwara, Jaipur Jhunjhunu, Pali, Sawai Madhopur, Sikar, Dausa and Karauli</td>
</tr>
<tr>
<td>4</td>
<td>Once in 6 years</td>
<td>Chittorgarh, Jhalawar, Kota, Udaipur, Tonk, Rajsamand and Baran</td>
</tr>
<tr>
<td>5</td>
<td>Once in 8 years</td>
<td>Bharatpur and Dholpur</td>
</tr>
</tbody>
</table>

Source: [http://www.rajrelief.nic.in/freqDrought.htm](http://www.rajrelief.nic.in/freqDrought.htm)

**2.4. Soil Types**

Soil is one of the most important natural resources because the mankind has depended on soil for food. Soil formation is interplay between the climatic forces and geomorphic agent. Soil forming processes determine the nature of available soil and regulate it. The Rajasthan soils have developed under the arid and humid climate over the bed rocks of complex nature, predominantly under the process of laterisation. The tints of soil, chemical composition, texture, structure, bear, large scale variations under different environmental conditions. Under the harsh desert like conditions the soils of Rajasthan plain are generally characterized as sandy, containing 90 to 95 per cent old classification of soils, soils of Rajasthan can be classified into eight groups namely:

(i) Desert Soils

The soils are chief characteristic of any desert climate, were arid conditions prevails almost year round. Lack of water for binding and huge diurnal range of temperature assisted exfoliation has contributed richly in this type of soil. These soils cover considerably large area in the districts of Nagaur, Jodhpur, Jalore Barmer, Churu, Jhunjhunu and Sikar, where the rainfall is less than 400 mm. These soils contains a high percentage of soluble salt and has
high pH value it has varying percentage of calcium carbonate and generally is poor in organic matter.

(ii) Dunes and Associated Soils

These soils have been grouped separately from desert soils as they are only deposited sand and little profile development has taken place. These soils are of frequent occurrence with sand dune in western Rajasthan. The texture of these kinds of soil varies from loamy fine sand of coarse sand.

(iii) Brown Soils

These soils are spread over the parts of Tank, Bundi, Sawai, Madhopur, Bhilwara and Chittorgarh districts. Major part of these soils varies from sandy loam to clay loam. They are rich in calcium salts but have poor organic matter.

(iv) Sierozems

These soils are found in Pali, Nagaur, Ajmer, Jaipur and Dausa districts on the both sides of Aravalli. They are mostly yellowish brown, sandy loam to sandy clam loam in texture and mostly are permeable in nature.

(v) Red Soils

The parent material of these soils is the red sand stone and yellow sand stone which are found in Vindhyan rocks. These soils are characteristically reddish in color sandy loam to loam in texture with granular structure and are also well drained. They are shallow, gravelly or sandy on hill tops and deep reddish loam in the valleys.

(vi) Alluvial Soils

These soils cover a vast area in north western eastern and south eastern plains of the State. These sols have been brought down by different modern and ancient rivers, therefore, different areas have soils of different characteristics depending upon the source from which the alluvium has been brought and deposited. In Rajasthan alluvial soils are found basically in the valleys of Ghaggar River, Banas and Chambal river basins.
(vii) Hill Soils

These soils are found on and at the foot hills of the main hills and hill ranges of the Rajasthan. The colors of soils vary from reddish to yellowish red to yellow brown. Hill soils are mainly found in Sirohi, Pail, Nagaur, Udaipur, Rajsamand, Chittorgarh, Ajmer, etc.

(viii) Saline-Sodic Soils

These soils are found in the natural depressions like Panchpadra, Didwana, Sambhar, Ranns of Jalore and Barmer districts. Besides these, saline Sodic soils are seen in the far flood plain of Ghaggar and in parts of Luni Basin.

Rajasthan soils are low in fertility levels as compare to the soils of other parts of India. The most of the soils are completely dry in nature and highly mean in Nitrogen, and phosphorus. But soils in north western and eastern Rajasthan are alluvial in nature and are highly fertile. Soil salinity, wind erosion and water (gully erosion) are very common features everywhere in Rajasthan but wind erosion in specifically bigger problem in western Rajasthan and water erosions in more in eastern Rajasthan.

2.5. Vegetation and its Regionalization

Rajasthan has a great variety of natural vegetation ranging from scanty vegetation in the western range to mixed deciduous and sub-tropical ever green forests in the east and south east of the Aravalli range. In the distribution of vegetation in Rajasthan Aravalli range plays dominant role. As Aravalli range acts as climatic divide it also creates difference in vegetative type. Various types of forests cover about 32619.84 sq. km. of area which constitute about 9.53 per cent of the total area of the State. The whole of the Rajasthan is largely sandy and at places bore rocks are exposed. Vegetal cover is very thin and only a few small trees can be seen here and there on the western side of Aravalli. This region is largely covered with scrubs with thrown and have a stunted growth. In the arid region Babul, *ProsopisSpicigera* and *ProsopisJuliflora thrive*. But on the eastern side of Aravalli, different wetter climate has lead to the development of totally different type of vegetation. Here *BoswelliaSerrata forest* (Salar) and *ButeaMonosperma* (Dhak forests) are very common. In terms of vegetative regionalization Rajasthan can be divided into following vegetative regions:

(i) Dry teak forest (in south Rajasthan)

(ii) Mixed deciduous forest (in whole of Rajasthan) including trees of shal,

(iii) Dry forests (in western dry region)
2.6. People

Demographic behavior of Rajasthan has changed on the lines of demographic behavior of India. Prior to 1921, which was also a demographic divide for Rajasthan, similar to India, population growth was very slow. Prevalence of high birth and death rate along with frequented droughts and hunger death acted as a check on population growth. Period after 1921 marks the starting of demographic transition in Rajasthan. Partial check on droughts and better availability of medical care lead to significant reduction in death rate but birth rate was still very high, leading to high population growth rate. Between 1901 and 1951, the population of State increased by only 5.6 million from 10.3 million 70 to 15.9 million. However, period after 1951 and up to 1981 marked the highest ever growth rate in population throughout demographic history, in Rajasthan. Rapidly falling death rate reached to the lowest during this period but birth rate was phenomenally very high due to low social development during this period. After 1981 Rajasthan has witnessed a great change demographic behavior. With improvement in literacy and social development Rajasthan witnessed fall in birth rate, casing slow growth in population. Even though population growth rate was reduced in Rajasthan as compared to past but it is still higher than that of national average. The low age of marriage, low couple protection rate, low female literacy rate are prime cause of high population growth in Rajasthan. The distribution of population in Rajasthan has always been quite even favoring suitability climate and physical features. Agriculture being the main economic activity, the important influences on population distribution was the physical configuration, fertility of soil, rainfall and irrigation facilities. Nearly half the population of State is found in the quarter of its area comprising eastern fertile plain of Rajasthan. That means population of Rajasthan is highly concentrated in fertile plains and places with suitable climate, the density of population shows a shape decrease westward and in desert plain population is highly scattered and clustered around water points. This pattern of population distribution rejects the habitability conditions closely related to be availability of water.

The demographic history of Rajasthan shows that urbanization in Rajasthan has always less than that of national average. The tendency of primary is one of the peculiar characteristics of urbanization in Rajasthan. Cities like Jaipur, Jodhpur and Udaipur are regional private cities of great economic important. But Rajasthan throughout have remained primary a rural society. According to census 2011, 76.62 per cent of State’s population resides in rural
areas. In terms, of other demographic characteristics literacy rate in Rajasthan has always remained low; with huge region variations between different regions of the State. In terms, literacy rate in census (2011). Rajasthan recorded impressive 12% growth. But on women literacy the performance of Rajasthan is very dismal. Rajasthan ranks among lowest in India in terms of female literacy. Sex-ratio in Rajasthan in the census 2011 was 926 females per thousand male which was lower than that of national average it ranked 17th at India level where as during 1981 it was at 16th place. The sex-ratio has shown regular ups and downs throughout demographic history primarily owning to poor status of women in the society (Bhalla, 2011; 54).

2.7. Social Make-up of Rajasthan

Rajasthan is a land of great cultural and social diversity. Various tribal groups along with other social group have made Rajasthan a different cultural mosaic. Different type of languages, social and religion beliefs have led to the formation a unique kind of social formation in India. Among major tribe inhabiting Meena, Bhils, Garsia, Saharia and Damore are very important. These tribal groups are found in following three geographical regions:-

(a) South Eastern Zone

This zone includes the districts of Alwar, Bharatpur, Dholpur, Kota, Baran, Bundi, Jhalawar and Chittorgarh. This region constitutes 46.06% of total tribal population of the State. Bhil, Meena, and Saharia are the chief tribes found in this region.

(b) Southern Zone

The southern zone includes the districts of Banswara, Dungarpur, Rajsamand, Sirohi and Udaipur in which 43.08% of the total tribal population is found. In this region Bhil, Meena, Garsia and Damore are Chief tribes that are found in this zone.

(c) Western Region

This region includes Jhunjhunu, Sikar, Churu, Ganganagar, Nagpur, Pali, Jodhpur and Jalore districts of Rajasthan. This region encompasses 7.14% of the total tribal population of the State. This tribal region is mostly comprised of the Bhil and the Meena tribes. Apart from there region there are few tribal groups in Rajasthan which are located in few tehsils or districts only. In these Saharia largely inhabited in Kota and Shahabad areas, Garsia dwell in Udaipur Pali and Sirohi districts and Dormers dwell in Dungarpur district only. About 96% of the total tribal population of Rajasthan belongs to rural areas while only 4% of them are living in urban centers.
2.8. Economy of Rajasthan

Economy of Rajasthan is pre-dominantly agricultural and rural in nature and there are wide fluctuations in the growth rate of the Net State Domestic Product (NSDP) due to uncertainties in agricultural production, which is almost entirely dependent on the mercy of rainfall.

As shows in table 2.5, there has been a drastic decline in the share of the primary sector from 47.77% in 1980-81 to 29.97 per cent in 2000-01. The share of the secondary sector increased moderately from 19.49% to 26.34% during this period, while the share of the tertiary sector increased significantly from about 32.74% to 43.9%. The fastest growing segment of the tertiary sector has been trade, hostels and restaurants, which alone accounts for 15% of the NSDP (Planning Commission, 2006).

<table>
<thead>
<tr>
<th>Year</th>
<th>Primary Sector</th>
<th>Secondary Sector</th>
<th>Tertiary Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-81</td>
<td>47.77</td>
<td>19.49</td>
<td>32.74</td>
</tr>
<tr>
<td>1990-91</td>
<td>43.52</td>
<td>20.75</td>
<td>35.70</td>
</tr>
<tr>
<td>1993-94</td>
<td>37.12</td>
<td>23.35</td>
<td>39.53</td>
</tr>
<tr>
<td>1996-97</td>
<td>39.86</td>
<td>22.20</td>
<td>37.94</td>
</tr>
<tr>
<td>2000-01</td>
<td>32.33</td>
<td>25.70</td>
<td>42.07</td>
</tr>
<tr>
<td>2005-06</td>
<td>29.73</td>
<td>26.34</td>
<td>43.93</td>
</tr>
<tr>
<td>2010-11</td>
<td>28.73</td>
<td>26.01</td>
<td>45.26</td>
</tr>
</tbody>
</table>

Source: Planning Commission (2011; 56)

Economy of Rajasthan has always remained traditionally based on agriculture, but recently its economy has witnessed a shift towards service based economy on the lines of Indian economy. The trends in State GDP show that tertiary sector has grown rapidly after 1991 when State and central government initiated various programs globally to woo tourists. According to climates of planning commission, in the year 2000, total of 7997491 tourists visited Rajasthan, out of which 7.79% tourists were foreign tourists. Tourism plays crucial role in State economy by providing employment and investment to the fund deficient economy.

The share of the manufacturing sector in NSDP which is 26.34 per cent is projected to increase with rapid pace in the next few years through accelerated industrial growth for which there is ample scope in the State. Mineral industry and the discovery of natural gas in the State have pushed State at a greater advantage of having robust economic development.
2.8.1. Agriculture

In terms of the employment and contribution to the State income agriculture is the most important activity in Rajasthan as it is in other States of India. In 2000-01, about 61 per cent or the total working force in Rajasthan was engaged in agriculture and contributed about 29.73% of the State income. However, the net contribution per worker in this sector is quite low as compare to other States of India. Moreover, the performance of agriculture is heavily regulated by the behavior of monsoon. The coefficient of variation (C.V.) in rainfall is very high, from less than 100 mm in Jaisalmer to 1000 mm in some parts of Chittorgarh, Jhalawar and Baran district. State is blessed with the two cropping seasons namely, Rabi and Kharif. In which kharif constitute 70 percent of agricultural production of the state as Rabi is limited to irrigated regions only. Cereals, millets oilseeds pulses cotton, spices, soybean, and arid fruits are main crops grown in the State. In the State the productivity of most of the agricultural commodities are low as compare to national averages. The State, however, ranks number one in the production of Bajara, Moth, Rapeseeds, and Mustard. Rajasthan is spread over four of the 15 agro-climatic zones delineated by the planning commission and those are as follows:

(a) **Upper Gangetic plains**: Ganganagar and Hanumangarh district

(b) **Central Plateau and Hill Region**: Ajmer, Alwar, Baran, Jaipur, Kota, Pali, Rajsamand, Bharatpur, Tonk Sirohi and Udaipur.

(c) **Western plates and hill region**: Jhalawar.

(d) **Western dry region**: Barmer, Bikaner Churu, Jaisalmer, Jodhpur, Nagaur, and Sikar.

2.8.1.1. Agro-Climatic Zones

The climatic conditions of a region affect the agricultural cropping pattern and different areas, thus, produce different crops. Amongst a host of climatic factors, rainfall, temperature, humidity, wind velocity and duration of sunshine etc. affect the cropping pattern in a significant way. Annual rainfall and its distribution over the entire year, and the regimes of diurnal and annual temperatures are, by far, the prominent factors affecting agriculture and the life style of the people.

On the basis of climatic conditions and agricultural produce, Rajasthan is divided into 10 agro-climatic zones ranging from arid western to flood prone eastern, each one having special characteristics of its own.
Arid Western Plain

This region comprises of all tehsils of Bikaner, Jaisalmer and Barmer districts, and Jodhpur. This is the most arid part of the state where the annual rainfall varies from 10 to 40 cm, quite often erratic, so much so, that the entire rainfall of the year may fall on a single day and the rest of the year may be dry.

Summer temperatures are always high and the diurnal range exceeds even 20 °C. During the day, the summer temperatures may be as high as 49 °C but in the night, the temperatures may fall, to less than 20 °C. In winters, the day temperatures are higher but the night temperatures may be near freezing point. Winters are of short duration, not exceeding two months - December and January. This is an area of not-so-developed drainage system where there are no flowing streams. Owing to poor rainfall, surface water resources do not exist while ground water resources are often deep and brackish. Natural vegetation is therefore, only seasonal. With the, first showers in late July, a few grass species grow and shrubs and dwarf trees become green. But, soon after the retreat of the monsoon in mid September, the vegetation dries up, leaving only a few perennial shrubs and a thin pad of pale grass on the landscape. Mostly rain fed crops like Bajara, kharif pulses, guar etc. are own during the kharif season. Rabi crops like wheat, rape-seed and mustard are grown only in areas where irrigation water is available.

Irrigated North-Western Plains

The entire Ganganagar district, which is an alluvial and Aeolian plain, formed by the river Ghaggar (the ancient river saraswati) forms this agro-climatic zone. A part of this region, which is arid, is the northern extension of the Indian Thar Desert covered with wind-blown sand. Extreme aridity, marked with high summer and low winter temperatures, is its usual climatic characteristic. The average annual rainfall is about, 40 cm. High speed winds blow in summer. The area is rich in agricultural produce on account of a well-developed system of canal irrigation. Today, a large network of Gang Canal and Bhakhra Canal which along with the Indira Gandhi Canal has made the entire area green and more productive than past.

Due to abundance of canal water irrigation, this region has today become the greenery of Rajasthan. Amongst the kharif crops cotton, sugarcane and pulses are of importance. In the Rabi season, wheat, mustard, gram, vegetables and fruits are produced. The total Production as well as productivity levels of all crops is relatively much higher in this zone as compared to other parts of the state.
Transitional Plain of Inland Drainage

This zone comprises all tehsils of Nagaur, Sikar and Jhunjhunu districts, Churu district. The area is covered with sand dunes and inters-dunal sandy plains. Drainage is not well developed and streams, which flow in the rainy season, disappear in sandy fields after covering some distance. Climatically, this zone is slightly better as compared to the adjoining zone of the Arid Western Plain. Rainfall is slightly higher, temperatures in summer months do go very high but the winters are very cold. Irrigation is restricted to areas with good ground-water potential.

Bajara, sesameum and kharif pulses are the main crops of the rainy season. Wheat, barley, mustard and gram are grown as irrigated crops or on conserved soil moisture during Rabi.

Transitional Plain of Luni Basin

This area lies between the Aravalli ranges and western arid region. The region encompasses the entire districts of Jalore and Pali, Sirohi district, and Jodhpur district. The region has semi-arid climate with an annual rainfall of 30 to 50 cm. It is drained by the river Luni which is seasonal and flows only during rainy season. A number of paleo-channels also exist in this area. The western part of the region is dotted with sand dunes, interspersed in alluvial soil. Luni and its several tributaries, like Sucre, Mithras and Sawai have made this area productive. The climatic conditions are almost the same as in the western arid region except that the rainfall is slightly higher. The ground-water level is high in the river basins, and has been usefully tapped for irrigation. Vegetation is xerophytes and sparse in the western part but in the east and on the slopes of the Aravalli ranges, there is mesophytic vegetation in the form of woodlands, open forests and grasslands.

The area produces Bajara, maize, guar, sesameum and pulses in the kharif season. In the Rabi season, wheat, barley and mustard are the dominant crops, especially in irrigated areas.

Semi-Arid Eastern Plain

This region comprises four districts namely, Jaipur, Dausa, Tonk and Ajmer. Banas, with its several tributaries, forms a rich fertile plain. On the western side, the region is flanked by the low Aravalli hills which extend from the south-West to the north-east. The annual rainfall of the region varies from 50 to 60 cm with an increasing trend towards the
Summer and winter temperatures are not as extreme as in the arid west but the summer temperature may reach around 45º C and in the winter, minimum may be 8º C. The water table varies from 15 to 25 meter but the annual fluctuations are high, especially in the years when the south-west monsoon fails and the yearly replenishments are low. Surface water sources are scarce and so harnessing of ground water resources has been going on at an accelerated pace. Natural vegetation is of the mixed xerophytes and mesophytic type, but owing to heavy felling of trees, the surface mantle has been robbed of its natural wealth. In the total gross cultivated area of this zone, Bajara, sorghum and pulses are grown in the kharif season, and wheat, barley, gram, and mustard in the Rabi season. Productivity of all crops in this zone is better than that of the agro-climatic zones that are to the west of the Aravalli range.

**Flood Prone Eastern Plains**

This region comprises the districts of Alwar, Bharatpur and the northern part of Sawai Madhopur. Except for few low hills which exist in Alwar and Sawai Madhopur districts, the entire region is a flood plain of the Banganga and the river Ghambhiri. The region has rich alluvial soils the fertility of which is replenished every year by the flood water of the rivers. In periods of heavy rainfall, the rivers outflow their banks and inundate the surrounding villages.

Climatologically, the area is similar to the plains of Banas, but the rainfall is relatively higher in the east, the annual average being about 75 cm. Natural vegetation exists on mountain slopes, wetland areas, and protected zones but the excessive plundering of forest wealth has the natural cover. The region produces a variety of crops because both surface water and ground water irrigation sources exist. The region produces Bajara, sorghum, maize, sugarcane, sesame and a variety of pulses in the kharif season. Wheat, barley, gram and mustard are the dominant crops during Rabi season.

**Sub-Humid Southern Plains & the Aravalli Hills**

Bhilwara district, Udaipur district, Chittorgarh district, except Sirohi district form this agro-climatic zone. For the most part, this is a region of low Aravalli hills with the inter-mountain plateau, deeply dissected by streams and rivers. The region has a moderately warm climate in summers and with mild winters. The annual rainfall varies from 50 to 95 cm. The highest precipitation in the state is recorded in Abu hills (Sirohi district). There are number of surface water streams like Ghambiri, Sabarmati, Banas and its tributaries but they are all ephemeral.
The area is rich in natural vegetation, which grows on the slopes of the Aravalli, and in the wetland areas but excessive felling of trees has degraded these open forests. Tank water irrigation is most common. The area produces maize as the chief food crop of the Kharif season but in irrigated areas, paddy is also grown. In the Rabi season, wheat, gram and oil seeds are the main crops. In areas of black soil, cotton and opium are also cultivated.

**Humid Southern Plains**

The districts of Dungarpur and Banswara, parts of Udaipur and Chittorgarh are included in this region. The area comprises of low Aravalli hills with intrusions of black lava rocks. This is mostly a tribal area where Bhils, Garasiyas and Damors live amidst forests and hills. The area has humid climate with an average rainfall of more than 70 cm per year. The temperature regimes do not fluctuate much in summer and winter so the area has mild winters and mild summers. The humidity is always high and all these factors, combined together, promote a profuse growth of natural vegetation. The mountain slopes have an abundance of natural forests.

There are a number of surface water streams. Mahi and its tributaries like Anas, Arau and Jhakham have made this area very fertile. The commissioning of Mahi Bajaj Sagar multipurpose project has provided this area with canal water irrigation and electric resources. Cotton and sugarcane are the chief cash crops grown in the black soil region. Maize, sorghum and paddy are the chief food crops of the Kharif season. Groundnut, mustard, sesamum and rapeseed are also grown.

**Humid South-Eastern Plains**

Popularly known as the Hadoti plateau, this region includes the districts of Kota, Baran, Bundi and Jhalawar and two tehsils of Sawai Madhopur namely Khandar and Sawai Madhopur. The black soil region of this plateau is fertile and is used for cultivation of sugarcane, cotton and opium. The region has low hills of the Gwalior series, interspersed with broad plateaus of Vindhyan rocks. A large number of rivers drain this area. The Chambal is the main river along with its main tributaries like Parwati, Kali Sindh, Parwan and Banas. The development of canal irrigation system with a series of dams and barrages on the Chambal has made this area rich in agricultural production. Gandhi Sagar, Rana Pratap Sagar and Jawhar Sagar dams together with Kota Barrage have generated enough resources of electricity and canal water for irrigation.
The region has warm summers but mild winters. Summer temperatures sometimes touch 45 °C. The relative humidity is generally high in this zone. The annual rainfall varies from 60 to 85 cm. Natural vegetation exists in the form of woodlands, parklands and open forests, which have, however, now degraded. Paddy and sorghum are the chief food crops grown in the Kharif season. This area is suitable for soybean crop also. Wheat, barley, grain and mustard are grown in winter.

Irrigation is the most important input for sustainable agricultural development. Being an arid to semi-arid State, development of water resources for irrigation has the highest priority in Rajasthan. There are presently 100 major and medium irrigation projects and minor irrigation schemes in Rajasthan with a total command area of nearly 25 lakh ha (Planning Commission, 2006). In terms of irrigation projects in Rajasthan, irrigation project on Sutlej and Beas River, which is known as Indira Gandhi Canal (IGC) is most important. Indira Gandhi Canal is one of the biggest canal projects in India. It started in 1958, originating from the Harike Barrage at Sultanpur, a few kilometers away confluence of the Sutlej and Beas rivers in Punjab. Indira Gandhi Canal is divided into two phases. Phase I is of 393 km whereas Phase II covers 250 km.

Indira Gandhi Canal has played significant role in the transformation of agriculture of Rajasthan. After the successful initiation of canal green revolution expended in Rajasthan. The districts like Ganganagar, Hanumangarh, Jaisalmer, and Barmer which were dry initially became the power home for growth in Rajasthan agriculture and brought high level of stability into the food economy of State. On the front of ground water, Central Ground Water Department has reported that, in 86 of Rajasthan’s 236 blocks has been over-exploited, 21 are critical and 80 in the semi-critical category (Bansil, 2007). The decadal changes in the land utilization pattern, from 1960-61 to 2000-01. In 1960-61, 38.74% of the studies reporting area were utilized for crop production. This increased to 46.30 per cent in 2000-01. Thus, within four decades the net cropped area increased by 21% whereas the gross cropped area showed an increase of 37.3% largely due to increase in irrigated area. The cultivable waste land decreased from 20.21 per cent to 14.32 per cent in the same period. This change has been more pronounced after 1980-81 when govt. policies started showing results. The area under forest increased from 2.4% to 7.61 during the same period. One distributing feature in the land use pattern during this period is increase in the area under non agricultural usage. Therefore, appropriate policies are needed to prevent fertile agricultural land being put to non agricultural use. An effective balance
between agricultural development and urbanization needs to be maintained (Planning Commission, 2006).

In terms of animal husbandry States has performed better. Animal husbandry is not only a significant source of supplement income it is some cases main source of income. Low and erratic rainfall, highly erodible and infertile sandy soils, and a variety of hardy grasses and bushes make most of the region more suited to pasture-based livestock rising than to sustained arable farming. As livestock are mobile, they are less subject to the adverse impact of localized droughts than crops (Jodha, 1985: 248). Given this fact the total livestock in the State in 1997 has been estimated at apart from Agriculture and industry, handloom and handicrafts constitute a significant role in terms of employment and income in the State. These constitute important part of non formal sector of Rajasthan economy. Crafts products such as leather, pottery, and weaving, woolen, jeweler are known for its quality and variety throughout country therefore they also constitute a significant part (12 per cent) of exports originating from Rajasthan.

2.8.2. Industries and Industrial Regions in Rajasthan

Until 1960 Rajasthan virtually had no place on the industrial map of India. Some strategies were worked out to increases investment in public sector industries and to promote private sector investment in different districts, which gradually led to the development of industries in the State. However, Rajasthan still ranks quite low among Indian States in terms of Industrial development. The industrial backwardness is one of the factors responsible for the low level of general economic development of the State. Geographical location of State, shortage of power and water resources, lack of infrastructure, shortage of skilled labor are responsible factors for impending industrial growth. On the account of these reasons the resources of the States have largely remained unexploited or only inadequately utilized.

Due to constant efforts of policy makers and the work of Rajasthan Industrial Investment Cooperation, has started showing result items or industrial revival in Rajasthan. Many industrial hubs are now coming up in the regions vicinity to Delhi, Agara and Jaipur. The maximum industrial development took place in Jodhpur and Jaipur. But apart from these districts most of districts have low industrial base. Jodhpur and Jaipur constitutes 10% large and medium industrial units of Rajasthan. Apart from these two districts Kota, Ajmer, Pali, Udaipur districts are fairly industrial in terms of large and medium industries. Except these district rest of Rajasthan district have extremely low industrial base.
Rajasthan has well diversified industrial base ranging from Agro-based industries to industries based on minerals. Among large industries cotton textile, sugar industries, cement, salt, woolen and chemical industries are prominent in terms of employment generation and industrial production. Rajasthan also be towered with large base of small and household industries. According to Ministry of Small and Medium Enterprise, there are 2.21 lakh registered small scale industries in the State having capital investment of Rs 3116 Cr. Employing 8.57 lakh people. The State stands at 8th rank having 6 per cent of the country share. Vanaspati, Dal mills, small textile miles, leather industry, woolen and marble industry are chief small and household industries in Rajasthan.

2.8.3 Resources in Rajasthan:-

Rajasthan possesses a veritable range of minerals deposits and hence it is often said to be as a museum of minerals. Over fifty different minerals are found in the State, out of which thirty nine are being mined, (as rest are not economically as important as of now). Rajasthan constitutes around 90 per cent of the national output of rock phosphate, 100 per cent of natural gypsum output and 10 per cent lime stone, the other minerals found are feldspar, dolomite, china clay etc. moreover, recent discovery in Petroleum by Crain’s Energy shows that state has rich petroleum deposits also. The State is the sole producer of Garnet (Gem) Jasper, Setenite and Wollestonite, in India. Apart from these the State has a monopoly in production Zinc, lead, silver, Cadmium marble and precious stones. Other leading minerals are Tungsten, Gypsum, rock phosphate, copper, and rock-phosphate. But coal and Iron are virtually absent.

In term of distribution of mineral resource and industries based on not homogeneously districts across State. Bhilwara district has maximum concentration of minerals other important districts are Kota, Ajmer, Jodhpur, Udaipur, Jaipur, Sawaimadhopur, Tonk, Jhunjhunu district.

2.9. Transport Networks

The means and modes of transportation are the channels by which people and goods move between different places and regions. Our present society is fundamentally based on the means of transport which have played a significant role in annihilating distance and making world smatter man before. Therefore, the system of transport and means of communication serves as an index to the economic development and prosperity of any region. Rajasthan compared with some of the developed State, has poorly developed means of transport the development of transportation pattern in Rajasthan is a byproduct of geo-economic and
historical factors. Owning to harsh morphology and climate and shaped by demographic, economic and historical aspects, transport network is serving better; the more fertile, populous, economically more advanced region of eastern Rajasthan than that of western Rajasthan.

Rajasthan is well served by road network as well as by railways. The rail and road transport systems of Rajasthan have to bear most of burden while only a few towns have limited air connectivity. As of 2000-01, the total length of roads in Rajasthan is 151,865 Km, of which 87,462 Km is maintained by Public Works Department. Despite of the lengthy roads, Rajasthan’s road density compares poorly to the national average. Against the national average of 74.9 Km of roads for every 100 sq. of area, Rajasthan has only an average of 43.7 km of roads. The road length per lakh of population is 254.3 km, which is lesser than smaller States like Orissa, Punjab and Goa and puts it at the eighteenth rank. Fifty two per cent of the villages are still not linked by all-weather roads (Planning Commission, 2006).

The National Highway Network in Rajasthan covers practically every district, excepting Banswara, Hanumangarh, Jhunjhunu and Sawaimadhopur. For the better connectivity with the National Highway system in the State, the State government has proposed rapid expansion of road network. In this the National Highway from Delhi to Ahmadabad via Jaipur, Ajmer and Udaipur has highest traffic density and hence this section is being upgraded on priority basic. Apart from National Highways Rajasthan has well developed road network of State Highways and Rural roads. But these networks of roads are not evenly distributed across the State either in terms of location, density or per head of the population. Like other States in India, Rajasthan too is working for the improvement of road network under various controls concerned schemes such as Pardhan Mantri Gram Sadak Yojana and National Highways Development Project.

### Table 2.6

**Rajasthan: Major National Highways, 2011**

<table>
<thead>
<tr>
<th>National Highway No.</th>
<th>Between Cities</th>
<th>Distance (in Km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Delhi-Ahmadabad</td>
<td>678</td>
</tr>
<tr>
<td>3</td>
<td>Agra-Mumbai</td>
<td>30</td>
</tr>
<tr>
<td>11</td>
<td>Agra-Bikaner</td>
<td>521</td>
</tr>
<tr>
<td>15</td>
<td>Pathankot-Sanchore</td>
<td>874</td>
</tr>
<tr>
<td>65</td>
<td>Ambala-Pali</td>
<td>496</td>
</tr>
</tbody>
</table>

*Source: Planning Commission (2011; 16)*
On the front to rail networks, Rajasthan has the largest rail network after Uttar Pradesh, but the majority of the length of this railways system belongs of rules of the former States of Jaipur, Jodhpur, Bikaner and Mewar. The railways of the state are managed by three railway zones of the country viz., the Northern, Western and the Central railways. The total length of rail network in state is over 6227 km, extending in all the districts except few districts. Most of areas of present day Rajasthan remain without the facility of railways. The district headquarters of Jhalawar, Banswara, Karauli, Sirohi, Rajsamand and Tonk remained unconnected with any railways line even today. The eastern Rajasthan has well developed rail network as this region happens to be on the main lines of Delhi to Mumbai (Planning Commission, 2006). Main rail routes in Rajasthan are as follows:

(i) Delhi – Ahmadabad
(ii) Jodhpur – Howrah rail route
(iii) Jodhpur – Delhi
(iv) Delhi – Kota – Mumbai
(v) Ajmer – Sialdah
(vi) Jaipur – Jammu Tavi route

In terms of Air transport, Rajasthan has four airports in Jaipur, Jodhpur, Kota and Udaipur connected with regular air service from Delhi and Mumbai. The prime cause of air transport development is Rajasthan is that State has many world famous tourist destination and Air service act as connecting service for tourist both from abroad and home. Presently there are five airports working in Rajasthan and these are as follows:

Table: 2.7

Rajasthan: Major Airports, 2011

<table>
<thead>
<tr>
<th>Name of Airport</th>
<th>Place</th>
<th>Nature(National/ International)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanganer Airport</td>
<td>Jaipur</td>
<td>International</td>
</tr>
<tr>
<td>Dabok Airport</td>
<td>Udaipur</td>
<td>Domestic</td>
</tr>
<tr>
<td>Rajanada Airport</td>
<td>Jodhpur</td>
<td>Domestic</td>
</tr>
<tr>
<td>Kota Airport</td>
<td>Kota</td>
<td>Domestic</td>
</tr>
<tr>
<td>Jaisalmer Airport</td>
<td>Jaisalmer</td>
<td>Domestic</td>
</tr>
</tbody>
</table>

Source: Planning Commission (2011; 63)
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