

# Geographical Landuse Pattern in Jhunjhunu Region, Rajasthan

**Dr. Manoj Kumar**

Head, P.G. Department of Geography  
Shri Radheshyam R. Morarka Govt. PG College, Jhunjhunu

**Abstract:** *The district is irregular hexagon in shape in the northeastern part of the State lies between 2702" east longitudes. It is surrounded by Churu district on the northwestern side Hissar and Mahendragarh district of Haryana State in the northeastern part and by Sikar district in the west, south and south eastern part-2. For the propose of administration the district is divided into five administrative subdivision viz, Chirawa, Udaipurwati, Jhunjhunu, Khetri and Nawalgarh Six Tehsil viz Jhunjhunu, Chirawa, Khetri, Nawalgarh, Buhana, Udaipurwati and eight Panchyat Samities viz Jhunjhunu, Chirawa, Khetri, Nawalgarh, Buhana, Udaipurwati, Alsisar and Surajgarh.*

## 1.1. STUDY AREA :

The total geographical area of the district is 2928 square Kms. This stands at 1.73 percent of the total area of the state from the points of area, Jhunjhunu district stand at 22nd place among the existing 33 districts of the state most of the part of the district is coerce by blow sand and dunes which for part of the great that desert sand shifting and active dunes are main hazards to cultivation. Soil erosion is the Result of constant deforestation and mining activity which have resulted in baring the slopes.

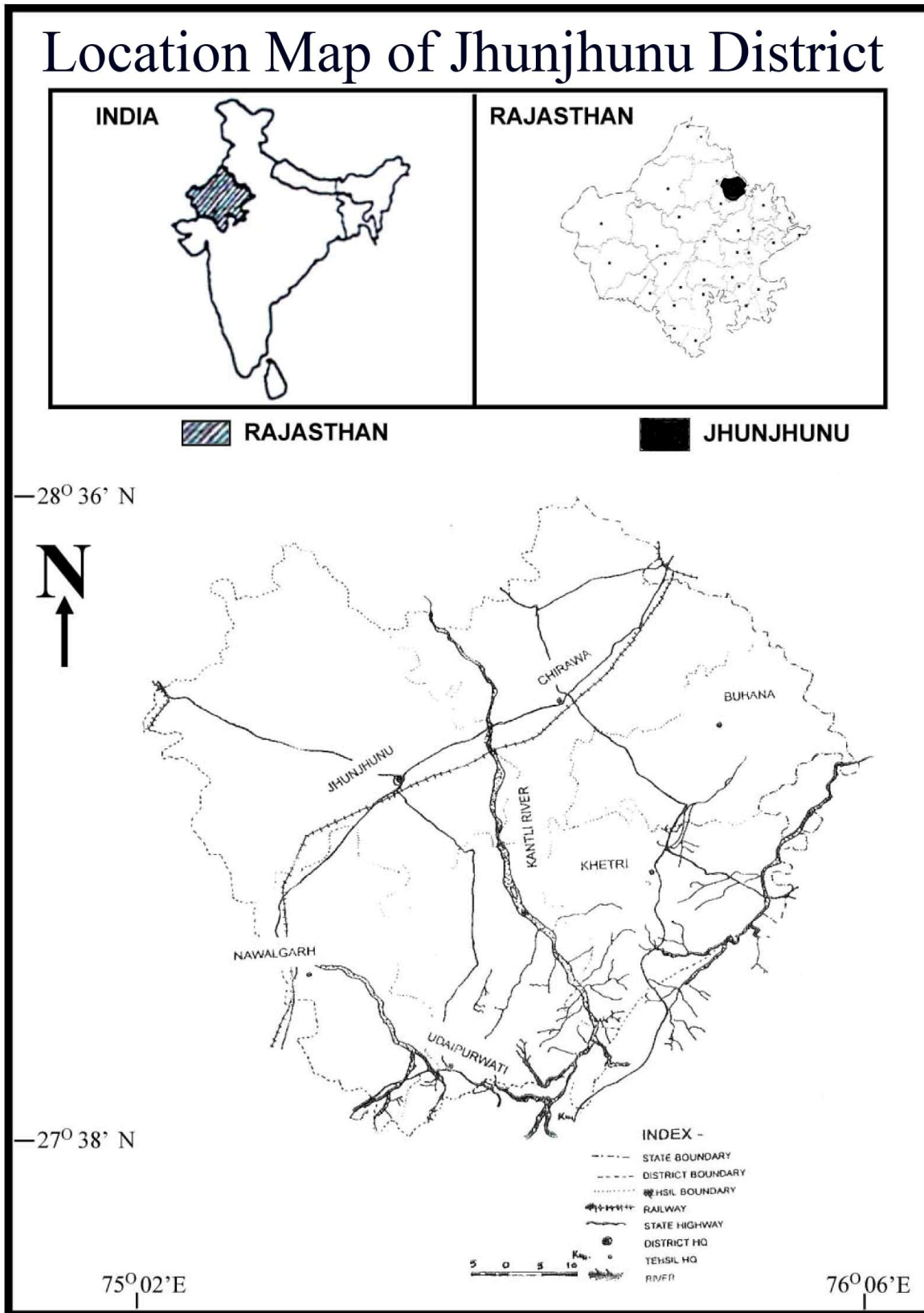
The hilly area in south eastern part of district is characterized by hills of Aravalli range, running in north easterly direction. The highest peak, 1051 m high is in the south of Lohagarh village bordering Sikar district. Hills are almost barren of vegetation except a few bushes of acacia and cactus.

The undulating area with small isolated hills having steep slope lies in the south western part of district. The major portion of hills is found in Khetri and Udaipurwati tehsils. The general elevation above mean sea level rests between 300 and

450m Quaternary level forms are represented by sand and colluvial deposits of talus and scree at piedment slopes.

The desertic plain generally lying at an altitude of about 300m amsl occupies the northern part of the district and is covered with sand dunes. The general slope of the area is from south to north. Sand dunes are drifting in nature.

District Jhunjhunu is situated in Arid Rajasthan plain known as Rajasthan. It comprises of Rolling hills, some of the arrival ranges in the southeastern side running in the south eastern Direction and range of the Aravali Hills in extreme southeastern of Udaipurwati existing towards Singhana and Khetri in the east, viz Nawalgarh-Khetri upland its general elevation above means sea level is between 300 to 450 meters. The highest peek is in the south of Lohagarh village and its height is 1051 meters, this is no perennial river in the district katti and Dohan are only seasonal rivers. River katti originated from Khadela hill sides of Shrimadhapur Tehsil. Sikar and enters near south west of Udaipurwati tehsil running towards north –west direction and ultimately disappears in the sandy tracks of the Churu District.



The district of Jhunjhunu is poor in forest resources as the total area under forest including hills is reported to be 39613 hectares which is 6.65 % of total geographical area of the

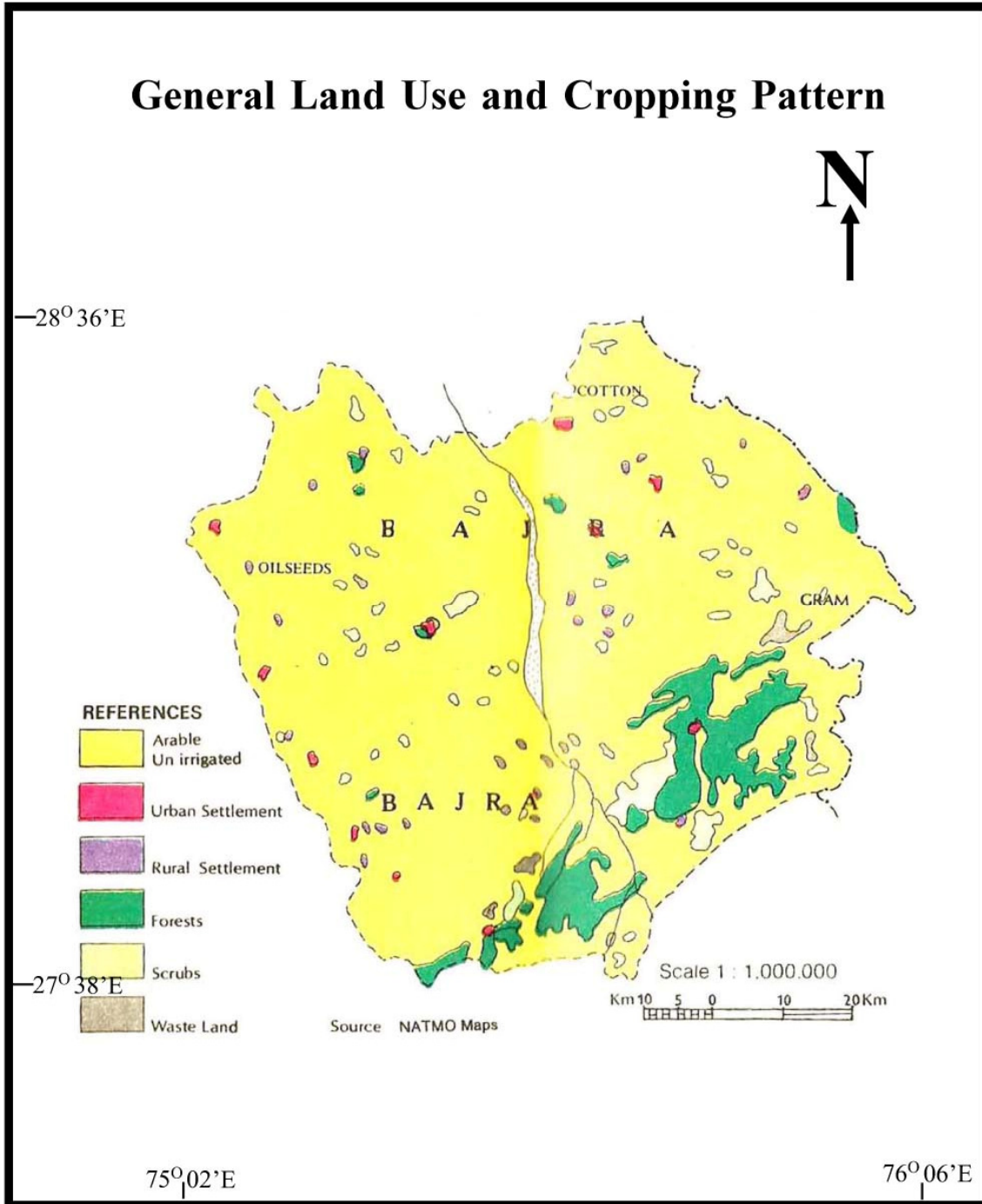
districts. The forest coverage is below the state average of about 9 % under forest. If compared to the 13 % of forest area at national average. The district comes out to be roughly half of

the matomn average. The major species available in forest is 'Jant' tree or Khetri (prosaic specigera) it is found in abundance and is utilized for various purpose as providing folder to the animals supplying fuel for domestic purpose and checking sole erosion. Other species found are Babul, Shisham, Neem, Pepal, Hingotia, Karli, Akara, Mango trees, Ber tree etc. Among the wild animals, Baghera, soor, Languor, Lakkar Bhaga, Bhedia, Lomari, Gidar, etc. are generally found snakes other poisonous and non-poisonous are also found in the district.

**1.2 INTRODUCTION :**

The impact on agro-ecological environment are discussed. Sloping towards north the region is characterized by sandy undulating plan with occasional hummocks and sand dunes of 15 to 30 meters height. South eastern part is dominated by off-shoots of Aravali range of hills running in the SW-NE

direction. The drainage is internal and related the ephemeral Kantli river system which flows from south to north and thereby divides the Region in two parts. The climate of the region is hot arid. The mean maximum and minimum temperatures are 45°C and 23°C respectively. During winter the minimum temperature reaches to 1°C. The mean annual rainfall is 444.5 mm with a decreasing trend of 484 mm to 331 mm from south-east to north-west. The numbers of rainy days are 27. The coefficient of variability of annual rainfall is 40 percent. The average annual relative humidity is 66 percent. It varies from 33 percent during April to 81 percent during August. Soils are coarse textured, light brown and sandy to sandy clay loam, very deep, non calcareous and well drained. The natural vegetation of this region is mixed xeromorphic thorn forest and woodland.



### 1.3 LAND-USE PATTERN :

As per village records 2011 the total geographical area of Jhunjhunu Region is 591536 hectares. The total area under forest is 39680 hectares which has registered an increase of about 3000 hectares over the past two years. The area under

fallow and uncultivable land is continuously decreasing. The classification of the land use in the year 2011 in the Region is given the table 1.1.

**TABLE 1.1 LAND UTILISATION PATTREN IN JHUNJHUNU REGION, 2011**

S.NO.	CLASSIFICATION	AREA IN HECTARES	LAND	
1.	Forest land hills	39680	Forest	39680
2.	Uncultivable land	39470	Hills	8577
	1. Non Agriculture land	37781	–	–
	2. Barren land	46578	–	–
3.	Other fallow land	37571	–	–
4.	Net cropped area	421299	–	–
5.	. Total Geographical	654989	–	–
6.	Double Cropped area	216085	–	–
7.	Total Cropped area	687600	–	–
8.	Total irrigated area	287692	–	–

#### 1.3.1 CULTIVATED LANDS :

Agriculture is the most dominant land use constituting 84.25 percent Region. The intensity of cultivation and cropping pattern are primarily governed by rainfall, irrigation resources, soils, landforms and socio-economic condition of the inhabitants. The intensity of cultivation increases from west to east with increasing rainfall. Cultivated lands are spread all over the Region excepting its south eastern part which dominated by Aravali range of hills and rocky/ gravelly pediments. The average size of land holdings comes ot 2.80 ha while per had land holding comes to 0.24 ha. Out of the total Region population the cultivators are 24.8 percent and agricultural labourers 2.9 percent Out of total area under different size of land holdings, 4.26 percent are marginal, 14.85 percent small, 31.15 percent semi-medium, 36.77 percent medium and 10.97 percent large size.

**1. Intensity of cultivation >100 percent :** Double croplands constitute 2,51,155 ha (42.66 percent) Region area and occur dominantly in older alluvial plains with sandy loam to silty clay loam and inter-dune plains with sandy to loamy sand soils. In Chirawa, eastern Jhunjhunu, northern Buhana, northern Uadipurwati, eastern Nawalgarh and western part of Khetri tehsils respectively. Double cropping is mainly practiced under irrigation conditions through well and tube wells through sprinkler system. Only vegetable and fodder crops are taken with flood irrigation. Presently the Region has about 44000 irrigation wells as per govt. statistics. Bajra, guar, cowpea and moong are important rainfed kharif crops while wheat, mustard and gram are principal irrigated rabi crops. Groundnut is specially produced in Udaipurwati and methi in Nawalgarh tehsil. Beside, barely, chilies and cotton are also grown. The cropping intensity vary from 145 percent in Khetri tehsil to 172 percent in Chirawa tehsil areas. Double cropping is also practiced on the conserved moisture just after harvesting the

kharif crpos. Gram is most important crop produced under conserved moisture.

As per land records statistics 2004-05, the Region has 2,23,593 ha net irrigated area which accounts 37.8 percent of the total geographical area and 47.8 percent of the total agricultural lands. Gross irrigated area is 2,50,560 ha. Of the total net irrigated area 39.8 percent is concentrated in Chirawa, 14.6 percent in Jhunjhunu, 13.9 percent in Udaipurwati, 12.7 percent in Buhana, 11.9 percent in Nawalgarh and 7.1 percent in Khetri tehsil respectively.

**2. Intensity of cultivation 80-100 percent :** Rainfed mono-crop lands with intensity of cultivation 80-100 percent constitute 32.54 percent of the Region area and 38.6 percent of the total agricultural lands. These lands occur throughout the Region but more dominantly in eastern part of Jhunjhunu, western Nawalgarh, eastern Khetri and southern parts of Udaipurwati and Buhana tehsils occupying 36.04, 51.88, 34.38, 31.00 and 31.21 percent of their total area respectively Chirawa tehsil has its 18.55 percent area under this category 'Bajra', 'guar'. 'Cowpea' and 'Mong' are important rainfed kharif crops prodiced over such lands. Bajra is produced throughout the Region, 'moth' and 'moong' dominantly in Jhunjhunu, moong in Jhunjhunu, Chirawa and Nawalgarh and cowepa in Jhunjhunu, Nawalgarh, Chirawa and Uadipurwati tehsil respectively. These lands potentials for expansion of irrigated framing.

**3. Intensity of cultivation 60-80 percent :** Such cultivated lands constitute 49.258 ha or 8.33 percent of the Region area and 9.88 percent of the total agricultural lands and occur dominantly in western part of Jhunjhunu tehsil between Mandawa. Bissau, Dhilsar, Badel and Bishangarh villages. The region get comparatively lesser rainfall (330 mm) Other small areas are along the Kantli river between Ismailpur, Bharnoda Khurd and Keharpura and between Bharnoda Kalan, Hansalsar,

Baragoan, Gowala and Syonathpura villages; and along western foot hill zone of Aravali, Bajra, guat and moth are important crops taken on such lands.

**4. Intensity of cultivation 30-60 percent :** Such lands with poor intensity of cultivation constitute 5471 ha or 0.92 percent of the total Region area and 1.10 percent of the total cultivated lands. About 95 percent lands under this category are mapped in western part Jhunjhunu tehsil bordering Sikar Region between Mandawa, Tetra Jatas and Lumas and around Kaliyasar, Jetau, Naradhana, Gangiyasar, Kodesar and Toderwas villages, Another small area under this category has been identified in western Khetri tehsil along western foot hill zone of Aravallis around Tatija villages, These lands are associated with A2 category of lands characterized with continuous chain of sand dunes raging up to 30 meters height.

### **1.3.2 WASTELANDS :**

An area of 11.665 ha (1.97 percent) of Region area has been mapped under different wasteland categories. Most of the wastelands are concentrated in south eastern part of the Region in Khetri (59.6 percent) and Udaipurwati tehsil (25.8 percent)

**1. SANDY WASTE :** An area of 986 ha 0.23 percent has been mapped under this category. The sand dunes of this region are semi-stabilized with active upper crest and height up to 35 meter. These dunes are mainly government holdings and concentrated in NW part of Region. Active barchan dunes in various pockets in the Region exist before 1980 and now been converted in to agriculture. Such sites are identified near Manderals, Malsisar and Bissau in Jhunjhunu tehsil; Parasrampura, south of Surajgarh in Nawalgarh; Dipura, Panadilon Ki dhani and north of Jamar in Udaipurwati tehsil; Gowala and south west of Chirawa and Muradpur and north east of Singhana in Buhana tehsil.

**2. SANDY WASTE SCRUB :** An area of 399 ha towards east of Nimbwas in Buhana tehsil has been mapped as sandy waste with scrub. These are obstacle sand dunes located towards windward side of hill bordering Haryana. Such wasteland can be developed in a good forest.

**3. ROCKY AND STONY WASTE :** An area of 1990 ha (0.32 percent) has been mapped as rocky and stony waste. These are in highly degraded condition and have negligible vegetative cover. Mining of bulding stone is a common activity on such wasteland. These are mainly occurring in Khetri and Buhana tehsils.

**4. GRAVELLY WASTE :** Stony and gravelly waste constitute 3284 ha (0.56 percent) of Region area and 28 percent of the total wastelands in the Region. The lands are manily concentrated in Khetri (69.6 percent) and Udaipurwati (24.3 percent) tehsils. Such lands are in highly degraded condition due to unproductive rocky and gravelly surface and high biotic pressure. Therefore protection and development of these lands is very much essential.

**5. GULLIED LANDS :** Gullied lands are occurring in 5095 ha ( 0.86 percent) of the Region area. About 72 percent of gullied lands are found in Khetri tehsil and 28 percent in Udaipurwati tehsil. Gullied are mainly developed mainly over the obstacle dunes towards windward side of the Aravalli hills. The height of such dunes goes up to 60 meters near Tetiwal. The depth of gullies goes up to nine meters. These lands are mainly served as grazing ground. Important plant species are Saccharum munja (munj), Laptadenia pyrotechnica (khimp) and Tephrosia purpurea (Biyani). At several places plain lands along the streams have been brought under agriculture. Such lands

should therefore be developed into silvipastures with suitable blend of fodder value trees, shrubs and grasses.

### **1.3.3 MISCELLANEOUS LAND USES :**

**1. NOTIFIED FOREST :** Notified forests constitute 37,600 ha (6.36 percent) Region area. These forests are mainly concentrated over Aravalli range of hills in Khetri and Udaipurwati tehsils which accounts 55 percent,40 percent of the total forest area of the Region, respectively. Anogeissis pendula, Euphorbia coducifolia, Capprais decidua and Maytenus emarginata are main plant species. Other areas of forest occurrence are southern part of Buhana (near Dumoli kalan, Iskpura, Devipura and Makio villages) and Nawalgarh tehsils contributing 2.5 percent and 1.9 percent of the total forest cover. In alluvial plain forest area has been identified near Narhar village of Chirawa tehsil. These forests are in highly degraded condition due to illegal mining and cutting of tree on one hand improper management and lack of development on the other. The income from forest produce is very low. Thus there is great need to develop the forest which can improve the environment, increase biodiversity and sustained forest produce.

**2. PASTURE LAND :** Permanent pasture and other grazing land is an important land use system of arid zone. Every village has such category of land locally termed as Gochar, oran, agor, bir and jod etc. An area of 26,243 hectares (4.44 percent) area as grassland and grazing land. These lands are fairly distributed throughout the Region. Oran of Rani Sati temple near Jhunjhunu town and that of Buhana are very large and have thick cover of *Salvadora oleoides* and *Capparis decidua*. *P. cineraria* and *Maytenus emarginata* are also found. Jhunjhunu and Chirawa tehsil have 36.6 percent and 29.4 percent pasture area of the Region. The percentage of the Nawalgarh is 7.7, Udaipurwati 5.3, Buhana 17.1 and Khetri 4.0 respectively. These common lands require protection from encroachment and conversion to other uses and development by plantations of leguminous MPT, introduction of top feed species, reseeding with presses of high folder value and adoption of rotational grazing system.

**3. SETTLEMENT LAND :** An area of 14,577 ha (2.46 percent) has been mapped under settlement land. The Region has 827 villages and 11 towns. Khetri tehsil is dominantly occupied by Aravali hills and therefore, number and size of village settlements are comparatively less. A considerable expansion in built up area has taken place in Jhunjhunu, Nawalgarh, Buhana, Singhana, Bagar, Chirawa, Pilani, Bissau, Guda Gorji and Mukandgarh town.

### **REFERENCES**

- [1] Addison, H. (1955) Land, Water and Food, Chapman and Hall Ltd. London
- [2] Agricultural Statistics of Rajasthan – 2010, published b Directorate of Economics & Statistics, Rajasthan, Jaipur.
- [3] All India Soil and land Use Surevey (1990) Watershed Atlas of India, Department of Agriculture and Cooperation IARI Campus, New Delhi.
- [4] Anonymous (1998), Proceedings of national Seminar on Management of Natural Resources in Rajasthan, published by Department of Agricultural Economics, Rajasthan Agricultural University, Bikaner.
- [5] Bhalla, A.R., (1978), “ Rajasthan Ka Bhugol”, Kuldeep Publishers, Ajmer.

- [6] Dhir R.P. 1989. Wind erosion in relation to land use and management in Indian arid zone. International Symposium on Managing Sandy Soils. Abstracts Pt. II: 572-575.
- [7] District Census Handbook, Jhunjhunu, 2001, Directorate of Census Operations, Rajasthan, Jaipur.
- [8] District Census Handbook, Jhunjhunu, 2011, Directorate of Census Operations, Rajasthan, Jaipur.
- [9] District Statistical Abstract – 2010, published by Directorate of Economics & Statistics, Rajasthan, Jaipur.
- [10] Doi R.D. (1991), Semi Arid Land Systems use and capability.
- [11] Economic Review-2011, Government of Rajasthan, Jaipur.
- [12] Government of India (2011), Census of India 2011, Provisional Population Totals, Series, Director of Census Operation, Rajasthan
- [13] ICAR (1977) Desertification and control, Indian Council of Agricultural Research, New Delhi
- [14] ICSSAR (1984) A Survey of Research in Geography, 1972-75. Concept Publishing Company, New Delhi
- [15] Sekar, S.A.G.2001. Forestry and Rural Development. Kanishka Publishers, New Delhi.
- [16] Shah, S.A. 1996. Forestry for People. I.C.A.R., New Delhi.
- [17] Shankarnarayan K.A. 1977. Impacts of overgrazing on grasslands. *Annals of Arid Zone* 16: 349-359.
- [18] Shoshal Choudhary S Pramanik Sc and Dinesh R (2003) Effects of Land use on tropical moist evergreen forest soils of Little Andaman, *Indian Journal of Soil conservation*. Vol. 31(1) p 92-94
- [19] World Resources (2005), World Resource Institute, Washington, DC.