International Journal of Geology, Agriculture and Environmental Sciences
Volume – 2 Issue – 3 June 2014
Website: www.woarjournals.org/IJGAES *ISSN: 2348-0254*

Geographical Factors and Cropping Pattern of Agriculture 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.***

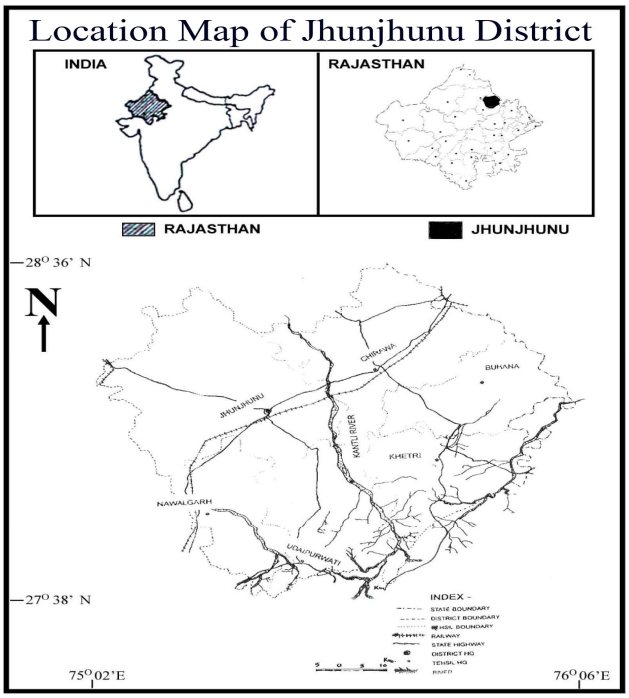
1.1. STUDY AREA :

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 Lohagar 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 Shrimadhopur 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. This river, however, divides the district almost into two parts. Similarly Dohan River also originates from Shrimadhopur hills and flows to north –eastern direction passing through some eastern part and ultimately disappears in sandy tracks of Mahendragarh district of Haryana Besides, there. Major streams of Udaipur Lohagarh ki nadi chandrawati and sukh nadi. There is no lake in the district however small tanks are in existence in some areas. There are only four tanks used for irrigation purposes. There is also a bound of "Ajit Sagar" about 11Km. from Khetri on Nizampur road.

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 :

Agriculture is the main occupation of the majority of population Region and provides the livelihood to maximum number of people in the Region. To assess the Industrial potential of this Region would be worth which explore the land use pattern, irrigation facilities crops, live hood, dairy, cattle development etc. this will provide a board spectrum of resources inventory and resources base on which the foundations the foundations of inhale growth ate generally laid down.

The major part of the cropped area in the Region is unirrigated. The total irrigated area in the Region 287692 hectors which is just 42.00 percent of the net cropped are. Wells are the Region. The two seasonal river basins of the Region viz, Kantli and Dohan which flow for some period during rainy seasons contribute towards irrigation potentional through sub-surface water to the wells situated near the banks. Wells irrigation prominent in all Tehsil except Alsisar Panchyat samiti, where the work is not possible. There is no lake in the Region. There are eighteen bandhs (Dams) used for irrigation purpose. The total capacity of all the bandhs is 11243 CCA acres. The important bands of the Region are Ajitsagar, Kot and Modi llakhar There are 40351 wells in Region out of which 37423 are electrified and the remaining 2928 are of diesel engine operated Efforts are being taken to increase the surface water utilization by way of water shed development and construction of anicuts in water potential catchments area. Some suitable sites have been identified for water shed development in the Region under integrated water shed development programme scheme and other water shed scheme of rural division department.

The ground water is of potable quality thought the Region except some part of Alsisar block. The range of water level of Alsisar block is 35.42 m, Buhana is 62.71 m, Chirawa is 51.79 m, Jhunjhunu is 49.50 m, Khetri is 30.70 m, Nawalgarh is 46.51 m, Surajgarh is 52.68 m, and Udaipurwati is 44.52 m, Water level fluctuation of premansoon 1984 & premansoon 2008 record negative trend in whole of Region. Depletion of water level during period ranges from 0.25 m (Bissau, block Alsisar to (-) 20.30 m (Ardawata, Block Chirawa). All the blocks except Alsisar block categories as "over exploited" for ground water development.

1.3. FACTORS AFFECTING AGRICULTURE :

1.3.1. PHYSICAL FACTORS :

Physical factors affecting agricultues are: (i) climate (ii) soil and (iii) topography.

1. CLIMATE : Climate plays a dominating role in agriculture. Plants require sufficient heat and moisture for their growth. Normally,regions having a maximum temperature of less then 10^0 C are suitable for plant growth. In the tropical regions, where temperature is high throughout the year, agriculture is successfully done. Plant life is not possible in dry areas except with the help of irrigation. The moisture requirements vart from plant to plant and region to region. In the lower latitudes, where temperature iis high, plants need more moisture for their growth (75cm to 100cm). In the higher latitudes, on the other hand, where summers are cool, winds are not dry, rainfall of 50-62 cms is sufficient for plant growth.

2. SOLIS : The richness of soil is an other important physical factor affecting agriculture. soils differ in respect of physical and chemical composition. soils may be fine or coarse, porous or non-porous. In general fine soils like loam or silt are very fertile. The chemical composition of the soil determines its productivity. Generally,the soils which are found at the place of their origin, known as residual soils, are poorer than thouse which have been transported from the place of their origin. The transported soils are rich and have a variety of minerals in them. The transported soils are : (a) loess, transported by wind (b) alluvial, transported by river water (c) glacial, transported by glaciers. The fertility of soil decreases with constant cultivation. soils become infertile of the fertility is not renewed. This can be achieved by leaving the land fallow, by rotation of crop and by use of manures and fertilozers. soil erosion and water logging have become major problems with soils as such these should be checked by adopting, terrace farming and by constructing dams, dykes etc.

3. TOPOGRAPHY : The nature of topography plays a significant role in the development of agriculture. It determines extent of soil erosion, methods of cultivation and transportation. In the mountanous and hilly regions, soil erosion is common, terrain restricts use of machinery and development of mens of transportation. however in the flat regions, there us no such problem. plain regions have fertile soils. The flat topography facilitate3s use of macgines. means of transportation can be easily developed. moreover, dense population in the plain regions provides cheap agricultural laboue and a huge market for the products. The alluvial plains, the river valleys and the deltas very suitable for agriculture.

1.3.2. ECONOMIC FACTORS :

The most important economic factors affecting agriculture are: (a) Market (b) transport facilities (c) labour (d) capital (e) Government Polices.

1. MARKET : Market is an important economic factor in agriculture. The distance from the market determines the cost of transportation. Agricultural crops like vegetables etc. are grown near the market. Sugarcane is grown close to the urban centres, where sugar mills have development. Similarly, dairy

farming is developed around the cities, which serve as markets to the products.

2. TRANSPORT FACILITIES : The development of efficient means of transportation widen he market for agricultural products. Commercial grain farming and commercial grazing have development on account of development of means of transportation. The importance of Prairies of North America in respect of wheat cultivation has come up entirely on account of development of efficient means of transportation through rail and road.

3. CAPITAL AGRICULTURE : in the modern times is becoming highly mechanized. This involves huge capital investments. Purchase of machinery, fertilizers, pesticides and high yielding variety seeds require heavy capital investment. It is seen that in those countries, where capital is shy, methods of cultivation are poor and primitive, agriculture is subsistence in nature. In countries like India. Pakistan and bangladesh the farmers are poor. They cannot afford use of modern farm technology which affects agricultural production. On the hand, in America and Europe where farmers are rich and are able to afford the purchase of modern farm technology, the yield is high. The farmers of Australia and Argentina have higher returns just because of availability of capital with them. Thus, the factor of availability of capital plays a significant role in the development of agriculture.

4. LABOUR : The supply of labour determines the character and type of agriculture. Intensive cultivation requires a large supply of cheap labour. Availability of cheap and efficient labour is essential for the cultivation of crops like rice, tea, cotton and rubber. Thus, the factor of availability of labour also plays a vital role in agriculture.

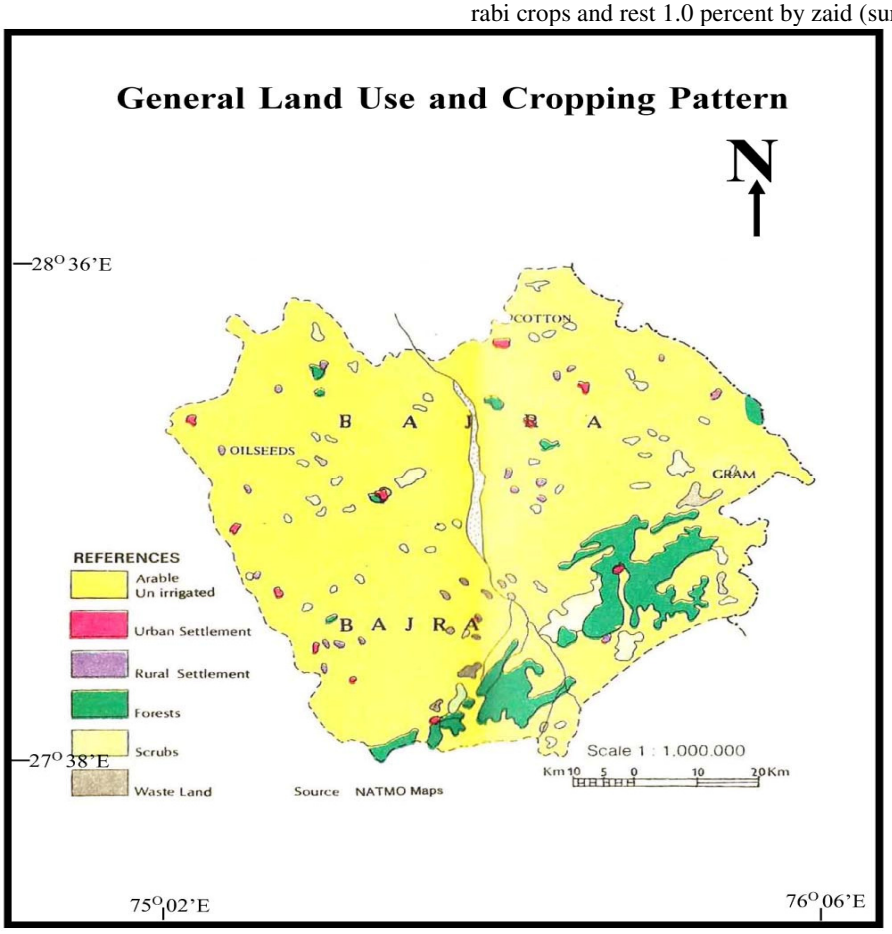
5. GOVERNMENT POLICY : The policies of the Government of a country also influence agricultural and use. The Government may restrict the cultivation of a crops or may force the farmers to grow a particular crop., e.g., area under sugarcane and oil seeds cultivation has increased in India on account of greater emphasis put by the Government on these crops, Government subsidy or liberal loan in respect of a particular crop helps in larger average under that crop. After 1947, the Government of India gave tax relied and concessions to the farmers for growing jute, with the result that in different parts of the country, area under jute cultivation has increased to a large extent.

1.3.3. OTHER FACTORS :

The level of scientific and technological development has a greet bearing on agriculture. Farmers, using primitive methods obtain poor yields. But on the other hand, where farmers are using modern farm technology in the shape of fertilizers, pesticides, machinery and high yielding variety seeds etc. the farm yields are high. An Indian farmer is poorer in comparison to an American farmer because the latter uses modern farm technology. The per hectare yield of rice in India is only 2000 kg as compared to about 5600 kg in Japan. This difference in yield is due to scientific and technological differences. This system of land tenure also plays a significant role in the patterns and productivity of agriculture crops.

1.4 CROPPING PATTERN :

Out of the total cropped area of the Region bajra constitute 39.8 percent, wheat 8.9 percent, barley 0.8 percent, gram 15.3 percent, kharif pulses (moong, cowpea and moth)17.2 percent, guar 8.1 percent methi 0.4 percent groundnut 0.2 percent and chilies 0.1 percent respectively. Out of the total cropped area 56.3 percent is contributed by kharif crops, 42.7 percent by rabi crops and rest 1.0 percent by zaid (summer) crops.



1. LAND USE AND CROPPING PATTERN :

Increased human population (166 percent during 1961 to 2001) and livestock population (42.2 percent during 1961-2003), societal needs and expansion of irrigated farming caused significant changes in land use and cropping pattern in the region. During the period from 1957-58 to 2004-05 the area under double cropping and built up area has increased by 6.3 and 4.1 times whereas the area under culturable wasteland, permanent pasture, forest and barren lands has declined by 47.8 percent, 11.7 percent, 10.2 percent and 9.2 percent respectively. In cropping pattern the acreage of wheat, mustard and gram has increased by 24.7 times, 16 times and 170.4 percent while the acreage of jowar, kharif pulses (particularly of moth) and barley has declined by 98 percent, 70 percent and 29 percent.

2. IRRIGATED AREAS :

During the period from 1957-58 to 2004-05 the net and gross irrigated areas have increased by 24.7 times and 25.4 times respectively. Similarly the numbers of wells are increased by 9.5 times. Maximum increase of 161 percent in number of irrigation wells has been observed in Chirawa tehsil. This is followed by Jhunjhunu 126.86 percent Udaipurwati and Nawalgarh 72.33 percent and Khetri and Buhana tehsils 57.88 percent respectively.

REFERENCES :

[1] Agricultural Statistics of Rajasthan – 2010, published b Directorate of Economics & Statistics, Rajasthan, Jaipur.
[2] Alagh Y. K. (2004), Globalisation and Agricultural Crisis in India, Deep & Deep Publications Pvt. Ltd. New Delhi.
[3] All India Soil and land Use Surevey (1990) Watershed Atlas of India, Department of Agriculture and Cooperation IARI Campus, New Delhi.
[4] Anonymous, 1984. Forestry in India. Ministry of Agriculture, Govt. of India, New Dehli.
[5] Bajpayi, D.N. and Shukla P.N. (1986) Irrigation and Agriculture in Auraiya Block of district Etawah, the Geographical Observer, 21
[6] Bhalla, A.R., (1978), " Rajasthan Ka Bhugol", Kuldeep Publishers, Ajmer.
[7] Bhalla, G.S. (1972), Changing structure of agriculture in Haryana (a study of the impact of green revolution) 1969-70.
[8] Bhattacharya, A.K., (1985), " Sprinkler Irrigation and its Uses and Limitations." Short-Item course on Sprinkler and Drip Irrigation. WAPCOS, New Delhi.
[9] Bhattacharya, A.P. (1968) Role of Water in Agriculture Development Science and Culture 35(5)
[10] Christiansen, J.E. (1941), " The Uniformity of Application of water by sprinkler System", Agri. Engg. Vol. 22, 89-82
[11] District Census Handbook, Jhunjhunu 2001, Directorate of Census Operations, Rajasthan, Jaipur.
[12] District Census Handbook, Jhunjhunu 2011, Directorate of Census Operations, Rajasthan, Jaipur.
[13] District Statistical Abstract – 2010, published b Directorate of Economics & Statistics, Rajasthan, Jaipur.
[14] Doi R.D. (1991), Semi Arid Land Systems use and capability.
[15] Economic Review-2011, Government of Rajasthan, Jaipur.
[16] Facon, T,.Thailand Irrigation modernization programme, presented at the Asian Development Bank Manila, April, 2000.
[17] Ghosh A and Sharma S.B. (1984) Surface water Resource Development and Dams of India. Arnold Heinman, New Delhi
[18] Gurjar, R.K., (1987), "Irrigation for Agriculture Moderniation Scientific Publishers, Jodhpur.
[19] Gurjar, R.K., (1992), "Irrigation Impact on Desert Ecology, Printwell, Jaipur.
[20] Hussain, Majid (1997), Systematic Agricultural Geography, Rawat Publications, Jaipur & New Delhi.
[21] ICAR (1977) Desertification and control, Indian Council of Agricultural Research, New Delhi
[22] ICSSAR (1984) A Survey of Reserch in Geography, 1972-75. Concept Publishing Company, New Delhi
[23] Indian Agriculture Research Institute (1971) Soil Survey Manual, 2 nd ed. IARI New Delhi
[24] Shenoi, P.V. (1975), Agricultural Development in India, Vikas Publishing House, Delhi.
[25] Sukhbir Singh. (1990),Impact of Green Revolution on the Socio-economic and Political Life of Haryana. Symposium Volume, New Delhi, pp. 1-19.
[26] Wegner, P.L. 1965. Vegetation and Soils. Mc Graw Hill, New York.
[27] World Resources (2005), World Resource Institute, Washington, DC.