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## “Land Use Change Analysis in Rajasthan Sub-Region of NCR: Alwar”

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### ABSTRACT:

*Land use change can reflect the pattern of human land use in a region and play an important role in soil and water conservation. It is one of the most sensitive factors which shows the interaction between human activities and the ecological environment. In the present study, analysis of land use is based on secondary data mainly from Rajasthan sub-regional plane of NCR region and remote sensing-GIS based map. The satellite images are showing the decrease in forest area and increase in agriculture and built-up area from last three decades. Industrial landscape is also increasing very fast after inclusion of district in the NCR region.*

**Key Words:** Land use, conservation, Remote Sensing, Agriculture, Industrial, Landscape.

## INTRODUCTION

The term ‘pattern of land use’ means an arrangement or layout of the various uses of land, such as, its use for agriculture, pasture, forest etc. The major factors of determining land use include climate, soil, relief features, socio-economic features and demographic features.

‘India is one of the largest countries occupying 3,287,263 sq. km, area which is 3,214 km from its northern boundary to the southern boundary, and 2,933 km from the eastern boundary to the western boundary. The land frontier of India occupies 15,200 km and its coastline occupies 7,516.6 km.’<sup>1</sup>

### *Status Of The Pattern Of Land Use In Alwar*

The Alwar district land use pattern which falls under NCR is significant for several reasons. In respect of forests, pasture, current fallow land, net area sown and net area sown once, the entire Alwar district including all its tehsils enjoys an envied status in Rajasthan. The agro-climatic and ecological zone of Alwar district is tremendous with unlimited possibilities of development.

The flood prone eastern plain zone (RJ-6), Latitude 27° 40’ & 28° 34’’ N, Longitude 76° 07’ & 77° 13’ E, Altitude 250 msl reveal this richness.

**Table: Alwar Land Use Pattern**

Geographical Area	782.984
Cultivable area	812.873
Forest area	79.590
Land under non- agricultural use	48.088
Permanent Pastures	24.221
Cultivable wasteland	7.802

Land under Misc. tree crops and groves	0.188
Barren and uncultivable land	80.486
Current fallows	19.051
Other fallows	22.277

The above given details of the land use pattern of Alwar district are applicable more or less to the study area that includes 5 major satellite towns of the district, namely, Tijara, Thanagazi, Behror, Ramgarh and Kishangarh Bas. It reveals a moderate picture of land use pattern in Alwar district of Rajasthan.

#### ***Agriculture Scenario in The Study Area***

With the total geographical area 7,82,897 hectare 509107 hectare cultivable area, Alwar has emerged a leading Rajasthan district. Of the net cultivated sphere, about 83% is irrigated, while remaining 17% is unirrigated waiting for its irrigation under governmental policies and plans. In the agricultural context, Alwar is noted for all the three major seasons, namely, Kharif, Rabi and Jayad. The Rabi and the Kharif seasons are deciding factors in deciding how the district is going to meet its objectives. Wheat, Barley, Gram, Mustard, Taramira, pulses characterized by the Rabi season etc. are the main crops of the Rabi season which are sown in around 4,52,527 hectares (5

**Table : Proposed Land Use for Alwar**

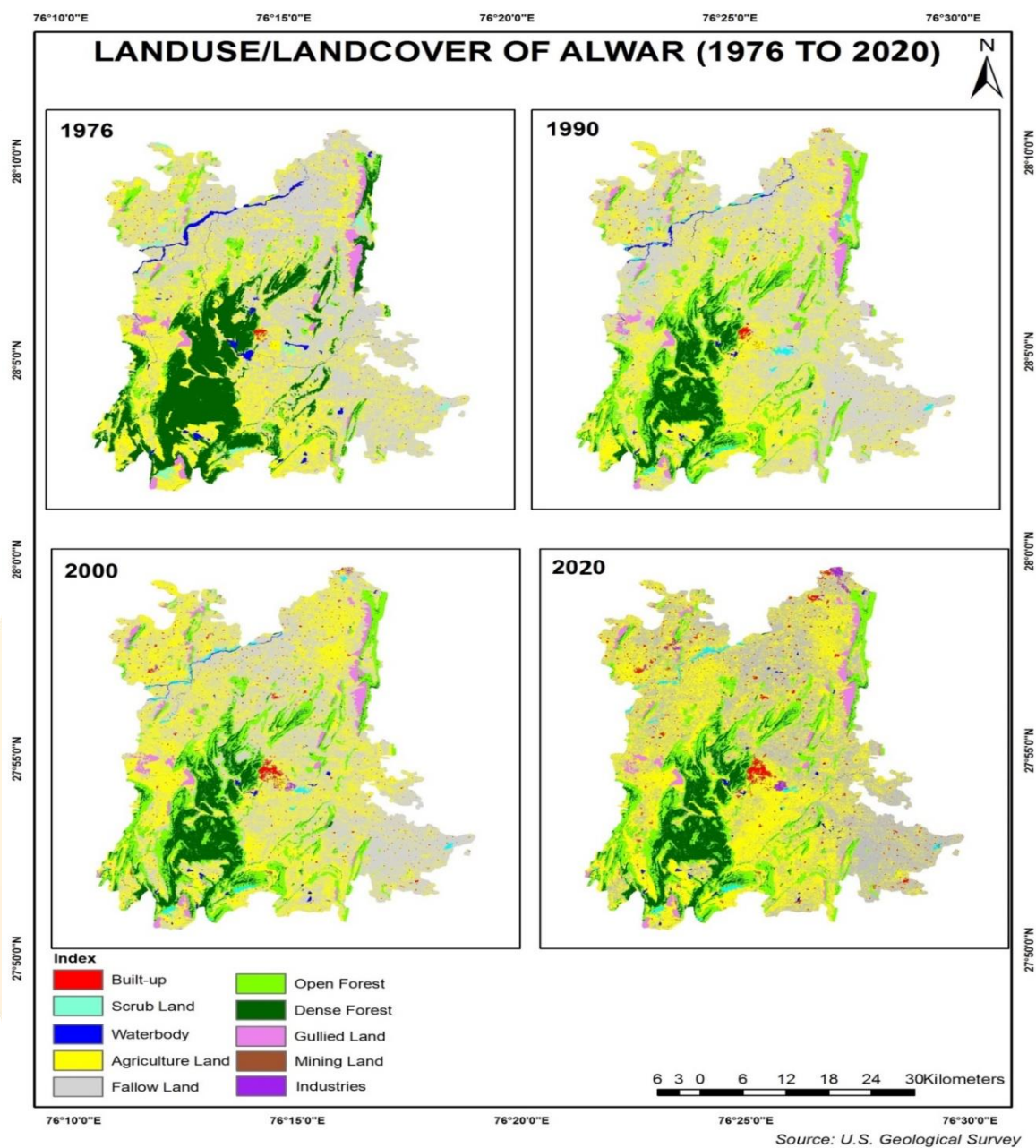
Sr No.	Level I Classification	Level II Classification	Area Sq M	Percentage of Level I Area (%)
1	Controlled/	Urban Area	745	50.96
		Existing Built-Up	255	17.44
		Proposed Urban Area	396	27.09
		Existing Transportation	47	3.21

	Development/ Regulated Zone	Proposed Transportation	47	3.21
		Agricultural (Rural) Zone within Controlled/ Development Area	509	34.82
		Green Buffers	208	14.23
		Total	1462	100.00
2	Highway Corridor Zone	Highway Corridor Zone	142	100.00
3	Natural Conversa tion Zone	Hills	142	100.00
		Forest	203	9.07
		Afforestation of Open Scrub	1303	58.25
		Water bodies	484	21.64
		Rivers/ Streams	55	2.46
		Wasteland	15	0.67
		Total	177	7.91
4	Agriculture (Rural) Zone	Agriculture	2237	100.00
		Quarry	4531	99.82
		Total	8	0.18
			8380	

Source: CTP (NCR), Rajasthan

All the main crops of the Kharif season are sown in around 3,29,088 hectares (42%). Wells, Tube Wells, canals, tanks, electric motors, diesel pump sets form the major source of irrigation. The contribution to the irrigation by tube wells, wells and canals etc. is respectively 192861 hectares, 265169 hectares and 404 hectares area. As in the other parts of the country and the state of Rajasthan, agriculture largely depends on the distribution of rainfall in the district. It is notable about the rainfall in the Alwar district that it is uneven as a result of which the district faces flood or drought problems that ultimately have adverse effects on agriculture production and cropping pattern in the Rabi and Kharif seasons.





**Map: Alwar District: Changing Land Use**

Normally, the district meets is 657.3 mm rain. The average rainfall during the last decade, it is 724 mm. The most shocking thing is that each year, water table is on a regular fall because of unadoption of the conservation technologies.

In Alwar district, undoubtedly, agriculture and animal husbandry prove main

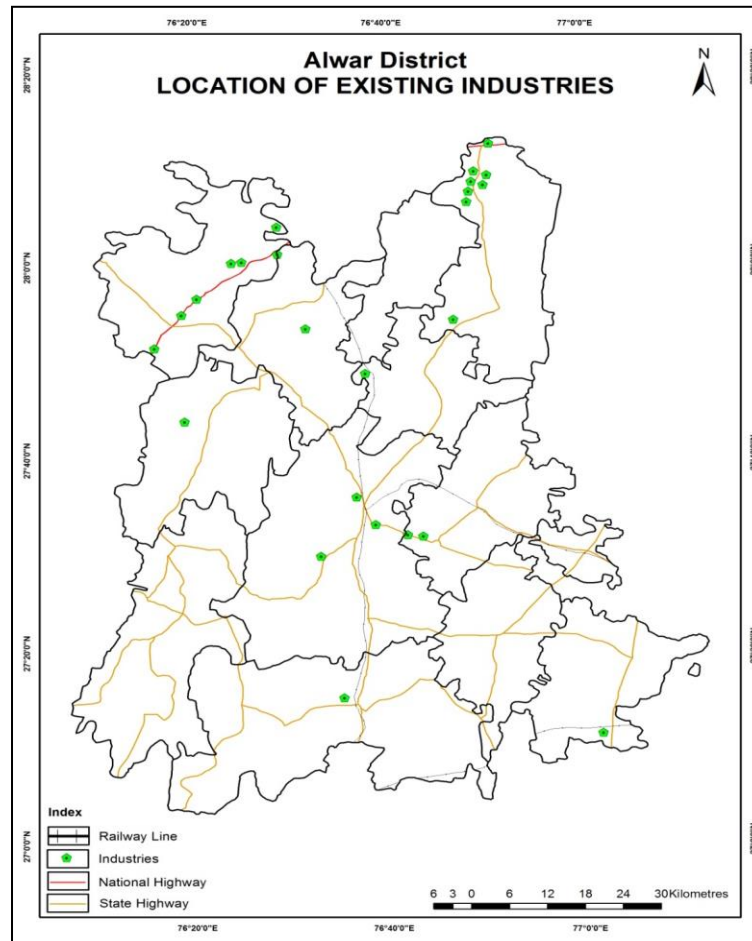
occupational source. The lack of technological knowledge and familiarity, however, keeps the district as a whole detached from advanced agriculture. It results into the low actual productivity.

In Alwar district, there is a vast scope of vegetable-production and orchards of plums, guavas, pomegranates, papayas, aonla etc. Under a protection umbrella several vegetables and fruits can be produced here. Under various governmental and non-governmental schemes, the production of aonla and other fruits and vegetables like onion is being encouraged which reveals a tremendous agricultural growth and development in the district.

### ***Industrial Scenario in Alwar District***

In Alwar there are 25 industrial areas that have been developed by RIICO. In the district there are 94 medium and large scale industries in addition to the several small scale industries that are running successfully in the various parts of the district touching higher and higher horizons of industrial growth and development. Now Alwar district is known for the industrial growth in addition to the other features. Alwar has several industrial units wherein the workers, labourers and other staff belonging to the other districts and even states working together are noticeable. Several industrial units are working successfully in Alwar.

- Resource Based Industries
- Demand Based Industries
- Ancillary Industries



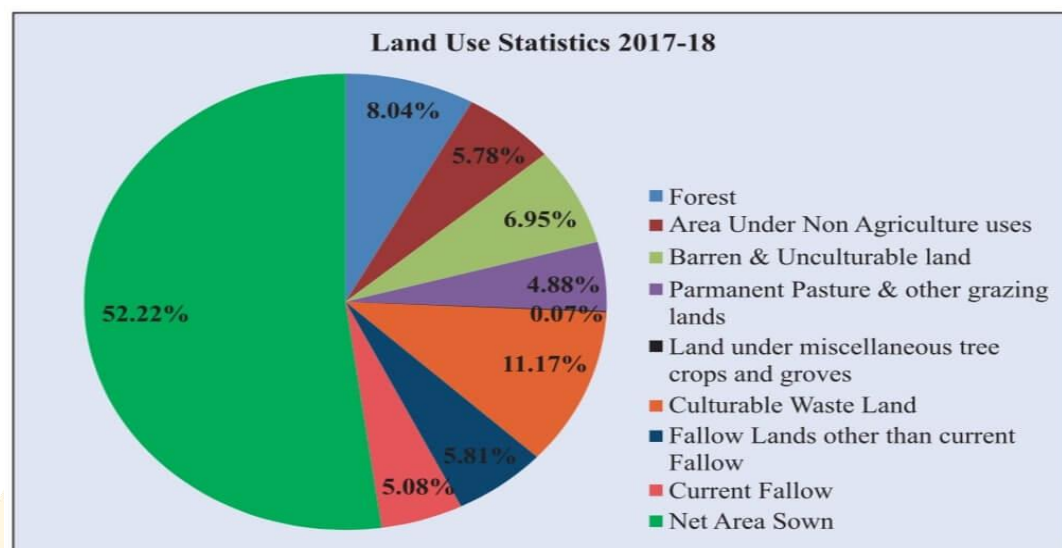
**Map: Alwar District: Location of Existing Industries**

### ***Residential Area Scenario***

In Tijara, Thanagazi, Behror, Ramgarh and Kishangarh Bas, the land use pattern is transformed. The urbanization-effect, population-mobility from the mega city, modernity etc. can be apparently seen.

For joining the urban culture which includes individualism, education, job-opportunities, better earnings through the various sources available in the towns, the nearby village-dwellers who had long succumbed to their village culture, are settling down in these towns. The result is that in each of the five satellite towns, namely, Tijara,

Thanagazi, Behror, Ramgarh and Kishangarh Bas, the density of population is increasing which has a direct impact on the long prevailing land use patterns.



**Fig. Land Use of Alwar District**

Source: Official Site of Alwar

For development, colonies are created; land is being plotted; roads, bridges, underpasses, rail lines are being built; schools, colleges and professional institutes are being opened; industrial area is being extended with the installation of new industries in these towns.

Indeed, the specified satellite towns have lost their original form, that is, their rural shape, and are now ready to assume the features of the developed cities and towns. Day-by-day, the graph of the new arrivals in these towns is increasing.

The current scenario of residential area is attracting the town planners and the policy makers to plan and replan the things in a way that the hiking human beings may be easily accommodated and facilities may be ensured and guaranteed to the people.

No doubt, the land in each of the satellite towns in Alwar has a heavy pressure of population and infrastructure, and needs to be relieved. The land transformation, land cover transformation are noticed apparently through the scenario of the emergence of new colonies that include both the approved and unapproved ones in towns where man



folks live under poor conditions of living, and are forced to live in small-sized rooms with inappropriate ventilation facilities.

Under the impact of the circumstances and the demand of times, the residential area is increasing day-by-day in all the five satellite towns of Alwar setting aside all the previous records and making new records. Of the towns in the study area, Tijara and Behror are preferred for living and residence even by those who stream from neighbouring states like Haryana and Delhi.

In the context of Alwar, it should be borne in mind that for the decade 2011-2021, the total urban housing is 2.76 lakh, while for the year 2021, the land needed for urban housing is estimated to be 8972 ha. Census 2011 reports the following types of the towns of Alwar -

- Class I towns-2
- Class III towns-4
- Class IV towns-5
- Class V towns-5
- Municipal towns-8
- Census Towns-8.

### ***Pastoral Land in The Study Area***

The term 'pastoral land' means the land which is used for grazing livestock by the shepherds. It concerns the use of resources which allow animal husbandry. It is the responsibility and moral duty of the pastoralists to take care of such a land. The criteria that determines the pastoral land in Alwar district is the permanent pasture and grazing land available there. The livestock economy in the region is also determined by the availability of permanent pasture and grazing land.

Though exact account of the pastoral land in Alwar district is not available, it is

supposed that it must be around 5% of the total land. Day-by-day, the availability of the pastoral land in the prevailing land use pattern is transforming and the graph of the construction work being made for the several purposes is increasing. The sheep, goats, cow-families, camels etc. are the animals that are grazed there. Blind in personal interests, the modern man has no serious concern about pastures and the hungry animals that need permanent pastures. In a word, there is a horrible decrease and deterioration in the pastoral and grazing land in the satellite towns because of purposes other than grazing, and especially for building of roads, bridges, over-bridges, underpasses, government buildings etc.

### ***Barren Land In Rajasthan & Study Area***

In the context of Rajasthan including the study area, namely, Tijara, Thanagazi, Behror, Ramgarh and Kishangarh Bas, the term 'barren land' encompasses the whole land where no crop can be grown. Rajasthan has two Zones - the arid zone consisting of 8 districts, namely, Barmer, Bikaner, Churu, Jaisalmer, Jalore, Jodhpur, Nagaur and Pali, and non-arid zone which includes the remaining districts.

Here about 6.95% of the total land is barren and uncultivable. It is the land where cultivation is too difficult and, which is of no use. A medium-size city located in the northern part of Rajasthan, Alwar nestles in the foothills of the Aravali ranges. From the climate point of view, Alwar has semi-arid micro climate. Here the summer is hot, while winter is cold. Between summer and winter there is reported a short monsoon break. It is rich in agriculture and fertility, and the reason is that here about 72 per cent of the total area is covered under cultivation.

As in the other parts of the state of Rajasthan, in the Alwar district too, there existed barren land for a long time making no cultivation possible. However, it is amazing to note that with the passage of time, the situation in the district changed giving room to commercialization, modernization, urbanization and industrialization. From the point of view of the use of the barren land in Alwar district, the contemporary scenario is quite

enthusiastic. With the development of the industrial areas in Alwar and all its neighbouring towns like Bhiwadi, Neemrana, Tijara, Thanagazi, Behror etc. where a large production is made everyday, the barren land has almost disappeared. It has disappeared and vanished because of the fast urban sprawl in the entire district and over-pressure of human beings in Alwar.

### **Conclusion**

With the notification of Alwar's being in NCR area, new vistas of development are open now, and it can be predicted that in the next few years, passing through the several phases of dawns, the district will be free from its uncultivable and barren land whatever there still remains. There is a heavy demand of land in the region. Land is too expensive and every one cannot afford the high prices of land in the city. Since it is the dream of every one to have a roof over his head, people are looking for the cheap land in terms of money where they can have houses for themselves. It is this reason why the density of population in Tijara, Thanagazi, Behror, Ramgarh and Kishangarh towns is increasing. With it, the barren and uncultivable land is vanishing. This trend reveals that soon the barren land of the district including the specified satellite towns is going to be utilized for commercial, industrial and residential purposes.

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