

# Changing Pattern of Land Use in Damoh District: A Geographical Analysis

Dr. Vinay Kumar Verma

Assistant Professor  
Geography  
Govt. College Patharia  
Distt. Damoh (M.P.)

**Abstract-** Land use pattern is an important element in geographical study. The present study examines the various dynamics of present land use pattern and the transformation of land use pattern in Damoh District of Madhya Pradesh. With the increase in the population pressure and increasing demand for land for agricultural activities the pattern of land use has changed over the period of time. Demand of land for non-agricultural purpose also play a vital role, hence the dimensions of changes in a particular land use has been determined by various factors. The description of the present land use pattern is based on the tehsil and district level information for the year 2010-11 to 2019-20 in Damoh District.

Damoh district is located in the north east part of Madhya Pradesh and is a part of Bundelkhand high land. Total geographical area of the district is 7306 sq. km. out of which 616985-hectare land is available for cultivation with 276004 hectares of irrigated land. The present study indicates the changes in the various category of land use during 2010-11 to 2019-20 in the study area.

**Keywords:** Land use, Agriculture, Irrigation, Cropping pattern, Transformation

## INTRODUCTION:

Agricultural is a primary source of livelihood for the majority of Indian population specially people lived in rural areas and land is the basic resource for the agriculture. Rural land use thus can be seen to reflect a region's natural endowments such as soil quality, climate and also some of less tangible aspects such as economic structure culture and economic aspiration of people .

When man uses the land its called land use. Its type and distributed Panorama is called land use pattern. Among the land resources, agricultural land resources have always played a vital role since time immemorial engaging the largest percentage of the inhabitants of the world (Majeed, 1992).

In order to study the change in land use the classification of land area under various categories is very important. The ministry of Agriculture Govt. of India classifies land use under nine different categories and is adopted by almost all the states of the country (Vishwakarma, 2008). Change in land use pattern is a complex phenomenon which is affected by various factors. Land use pattern of any area is determined by number of factors such as location, relief feature soil, rainfall, hydrology and vegetation and the Damoh district is not exception of this. Apart from this government policies for rural development and increasing population pressure have also affect the current land use pattern. Technological changes have also extended the change in land use pattern. Human activities that make use of and hence change or maintain attribute of land cover are considered to be the proximate source of change. As the developmental activities implemented in the area land use pattern also changed as a result land is being to use in areas other than agricultural and the agricultural land is being used for non agricultural purpose and other commercial activities.

In the study region the percent of forest land and fallow land decreed by 0.82 and 39.18 percent respectively while the percent of land not available for cultivation, other uncultivated land, net sown area and double cropped area has increased by 0.55, 2.36, 1.45 and 109.0 percent respectively during 2010 to 2020.

## OBJECTIVES OF THE STUDY:

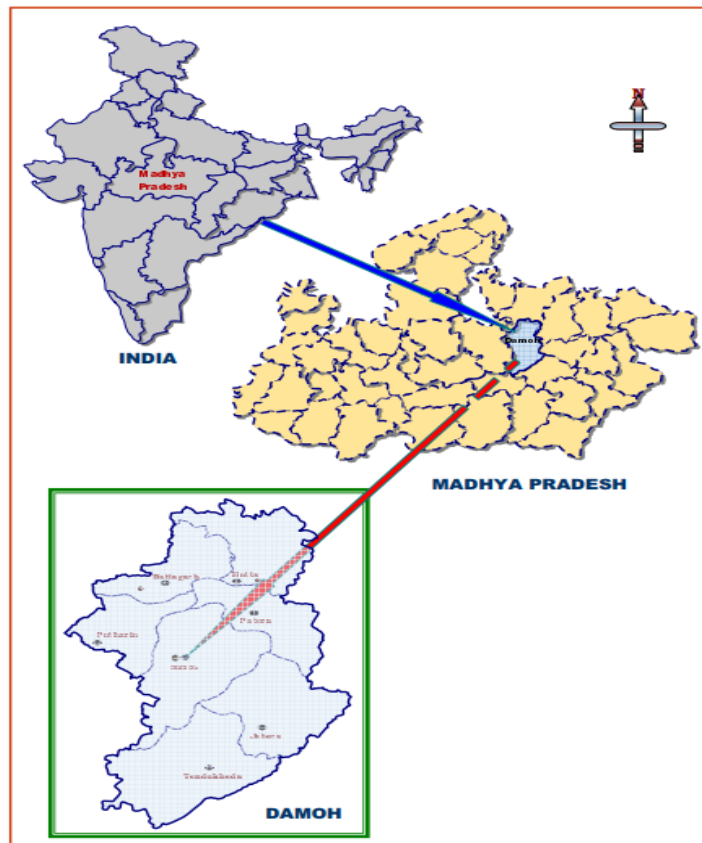
1. To study the current land use pattern in Damoh District.
2. To study the changes and transformation of the land use pattern.
3. To study the factors affecting the land use pattern.

## METHODOLOGY:

Present study is based on secondary data. The district and tehsil level data related to agriculture, land use and irrigation have been collected from various government department mainly include office of the superintendent land record and district economic and statistical office. Various statistical methods and techniques were applied to process the collected data. The collected data were processed by tables using percentage and average. There after the data were present by various diagrams.

## STUDY REGION:

Damoh District is located in the North East of the Madhya Pradesh. It is lies between 23°91' to 24°27' North latitude and 79°31' to 79°51' east longitude. Damoh District is a part of Sagar Division. The district is bounded by the District of Chhatarpur in the north and north west, Sagar in the West, Narsinghpur and Jabalpur in the South and Panna district in the east. The shape of district is irregular and elongated from north to south with projection in the east and west. The district is divided into 7 tehsil and seven development block with about 1229 village and 6 towns.



The district is can be divided into three physiographic divisions :

1. The Southern Plateau
2. The Sonar Valley
3. The North West hill Range

In the district the southern part of Vindhyan range up to Katangi are called the Bhandar range. The highest point in this range is that of the Kalumar hill (751 m) on the north west of Singrampur. Else where the hills range from 550 to 580 meter high. The southern plateau is drained by the Bearma and is transverse by number of spurns and ridges of Vindhyan range.

The Sonar valley in a belt across the north central part of the district. It is about 80 km, long, 32 to 43 km wide, the valley lies in the centre part of the district is composed of fertile soil. The north western hills rise about 120 m locally known as Barano Hill, the central ridge (460 to 520m) is marked by several flat top ped hills.

The climate of Damoh district is characterized by a hot summer and general dryness except monsoon. The year may be divided into three season. The summer season mid March to mid June. The rainy season mid July to mid September and the winter season mid November to mid February. The average annual rainfall of the district is 117cm and about 90.5% of the total rainfall received during monsoon season. May is the hottest month and the normal maximum temperature received during month is 42°C and minimum during December-January is 9.7°C.

The soil in the district are mainly there types-medium block soil. Shallow black soil and skeletal soil. The black soil is found mostly in the sonar valley and the bank of Bearma while other type of soil observe near the foot hills of sandstone in the southern part of the district. The forest of the district are tropical dry deciduous with dry deciduous shrub forest .The species of trees found in the region include teak, dhaora , salai, saj, mahua, semal, haldu, tendu and achar etc.

**CHANGING PATTERN OF LANDUSE IN DAMOH DISTRICT:**

In last twenty years the pattern of land use in the study region has witnessed a major change with the expansion of various activities along with the growth of population. The following tables present the different classes of land use in Damoh District.

**Table 1.1 Land use Pattern in Damoh District**

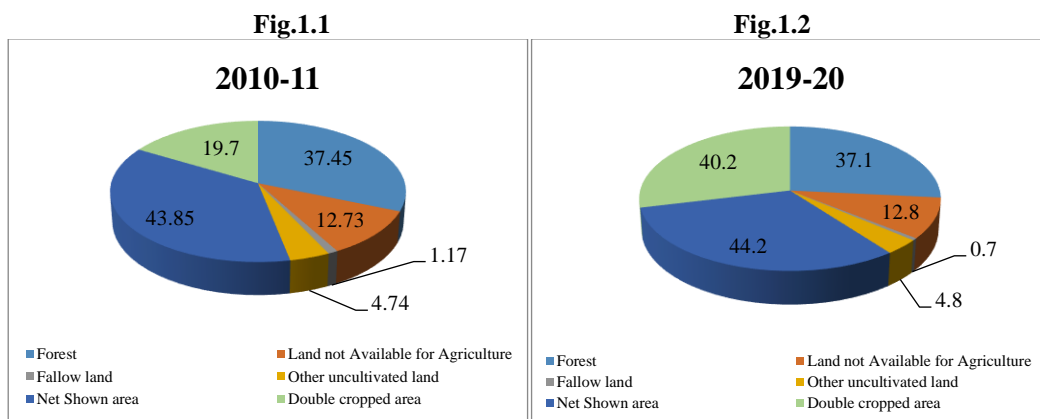
S. No.	Land use Type	2010-11	% of Total Area	2019-20	% of Total Area	Percent Change
1	Forest	269446	37.45	267218	37.1	-0.82
2	Land not available for agriculture	91614	12.73	92126	12.8	0.55
3	Fallow land	8396	1.17	5106	0.7	-39.18
4	Other uncultivated land	34117	4.74	34924	4.8	2.36
5	Net sown area	315487	43.85	320086	44.2	1.45
6	Double cropped area	140436	19.7	293599	40.2	109.0

Source : Suptd. Land Record Damoh.

Table 1.1 indicates the land use pattern and percent change during 2010-11 to 2019-20 in the study region. Total forest land in the district is 267218 hectares which is 37.1 percent of the total geographical area. During 2010-11 to 2019-20 forest land decrease by only 0.82 percent. Total of 92126 hectares of land comes under land not available for cultivation which is 12.8 percent of total area in 2019-20 while in 2010-11 it was 12.73 percent. Total area of land not available for cultivation during the mentioned year, recorded a changes with 0.55 percent. Fallow land is also an agriculture land which is left out from sowing for a year while some fields remain unsown for the year. Total fallow land in the district is 8396 [1.17 %] in 2010-11 and 5106 [0.7 5%] in 2019-20 it is decreased by 39.18 percent. Other uncultivated land in the district is 34924 hectare in 2019-20 which is 2.36 percent of the total area while in 2010-11 it was 34117 hectares [4.74%]. Other uncultivated land in the district has increased by 2.36 percent.

Net sown area is the most important aspect of the land use pattern which provides base for all agricultural activities. Total net sown area in the district is 320086 hectares which is 44.4 percent of the total area in 2019-20. During 2010-11 and 2019-20 net sown area is increased by 1.45 percent. Double cropped area is the land where crops are cultivated more than once during the year. It is also called as area sown more than once. The double cropped area is affected by expansion of irrigation facilities, productivity of soil, rainfall and moisture. Use of fertilizers and other infrastructural facilities also have affected the area sown more than once.

Total double cropped area in the region was 140436 hectares [19.27 %] in the 2010-11 which increased to 293599 hectares [40.2%] recording growth of 109.0 percent. Area sown more than once increased very rapidly. Rapid growth in the double cropped area in the district has been possible with the expansion of irrigated area during the period. Irrigated area in the region increased from 104203 hectares in 2010-11 to 276004 hectares in 2019-20.[fig 1.1 and fig 1.2]



**TEHSILWISE CHANGES IN LANDUSE PATTERN :**

Land use pattern in the region vary from one Tehsil to other. The study region has 7 tehsils. Table 1.2 A and 1.2 B shows the land use pattern in the different tehsils of the district.

**Table 1.2A Tehsilwise Land use Pattern in Damoh District**

Classification of Land	Damoh			Jabera			Tendukheda		
	2010-11	2019-20	% Change	2010-11	2019-20	% Change	2010-11	2019-20	% Change
Forest	42534	42638	0.2	59275	59269	-0.01	75392	75387	-0.006
Land not available for agriculture	18539	18368	-0.92	26098	26258	0.61	12371	12322	-0.39
Fallow land	881	800	-9.19	1234	694	-43.8	2455	1207	-50.83
Net sown area	59215	60304	1.83	35096	36183	3.09	30282	33085	9.25
Other uncultivated land	6017	50760	-15.6	7403	6705	-9.42	9543	8042	-15.7
Total	127186	127186	-	129109	129109	-	130043	130043	-

**Table 1.2B**

Classification of Land	Patharia			Batiagarh			Hatta			Patera		
	2010-11	2019-20	% Change	2010-11	2019-20	% Change	2010-11	2019-20	% Change	2010-11	2019-20	% Change
Forest	1582	1580	-0.12	34649	34749	0.28	30520	30562	0.13	23584	23033	-2.33
Land not available for agriculture	6126	5958	-2.74	10113	10274	1.59	5415	5883	8.64	12952	13063	0.85
Fallow land	506	270	-46.64	792	560	-29.2	1428	694	-51.40	1097	1186	8.11
Net sown area	59575	60111	0.89	40633	41323	1.69	47170	48875	3.61	43516	44545	2.36

Other uncultivated land	3402	3272	3.82	7339	6620	-9.79	8364	6883	-17.7	3554	2876	19.0
Total	71191	71191	-	93526	93526	-	92897	92897	-	84703	84703	-

It is clear from the table No.1.2A and 1.2B that in one decades forest has recorded on declining trends in six tehsils because forest has been brought under different use. Out of seven tehsil only Batiyagarh tehsil has recorded increasing trend in forest land with only 0.28 percent. Forest land decreased in Damoh, Jabera, Tendukheda, Patharia, Hatta and Patera tehsil. The highest proportion of forest land is presented in Tendukherda tehsil with 75387 hectares [28.21 %] followed by Jabera 59275 hectares [22.18 %], Damoh 42368 hectares [15.96 %], Batiyagarh 34749 hectares [13.00%], Hatta 30562 hectares [11.44], Patera 23033 hectares [8.62 %] and Patharia with only 1580 hectares which is only 0.59 percent of the total geographical area. Fallow land in the district has decreased in all tehsil except Patera tehsil .Fallow land decreased by 51.40 percent in Hatta tehsil to only 9.19 percent in Damoh tehsil. Fallow land increased from 1097 hectares in 2010-11 to 1186 hectares in 2019-20 in Patera tehsil recorded a change of 8.11 percent. Maximum fallow land is found in Tendukheda with 1207 hectares [23.64 %] followed by Patera, Damoh, Jabera, Hatta Batiyagarh and Patharia with 23.23, 15.67, 13.59, 13.5, 10.97 and 5.29 percent respectively. The proportion of net sown area has increased in all the tehsil. It ranges between 0.85 percent in Patharia tehsil to 9.25 percent in Tendukheda tehsil. Among the tehsil the proportion of net sown area has increased in Damoh, Jabera, Tendukheda, Patharia, Batiyagarh, Hatta and Patera with 1.83, 3.09, 9.25, 0.89, 1.69, 3.61 and 2.36 percent respectively. The highest proportion of net sown area is concentrated in Damoh tehsil with 60306 hectares while lowest in Tendukheda 30282 hectares. Area under land not available for cultivation ranges between 5883 hectares [6.39%] in Hatta to 26258 hectares [28.50%] in Jabera tehsil. The proportion of land not available for cultivation in other tehsil is Damoh 18368 hectares [19.94%], Patera 13063 hectares [14.18%], Tendukheda 12322 hectares [13.38%], Batiyagarh 10274 hectares [11.15%] and Patharia 5958 hectares with 6.47 percent of the total geographical area. The highest proportion of other uncultivated land is found in Tendukheda with 8042 hectares followed by Hatta 6883 hectares, Jabera 6705 hectares, Batiyagarh 6620 hectares, Damoh 50760 hectares, Patharia 3272 hectares and Patera 2876 hectares.

#### CONCLUSION:

The above analysis clearly indicates that present land use pattern in the district reflects the impact of climate, terrain and soil. Out of total available land in the region 320086 hectares (44.4%) is used for cultivation and belongs to net sown area and has increased by 1.45 percent. The proportion of forest land and fallow land had declined by 0.82 and 39.18 percent respectively. While the proportion of land not available for agriculture, other uncultivated land, net sown area and double cropped area has increased by 0.55, 2.36, 1.45 and 109.0 percent respectively. Total double cropped area in the region was 140436 hectares in the 2010-11 which increased to 293599 hectares in 2019-20 recording growth of 109 percent. This rapid growth in the double cropped area in the district has been possible with the expansion of irrigation area during the period.

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