

A GEOGRAPHICAL ANALYSIS OF LAND USE PATTERN IN MYSURU DISTRICT

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Abstract

Land is an important natural resource in the world. The development of any region is depending on the use of resources. Land is used for different economic activities. The concept of land use is related to the use of land for different purposes in a given region for a given period of time. It describes the degree of interaction between man and land resource. To satisfy the needs, man is continuously using the land for different purposes. Different activities are based on the type of land. Environment, Cultural and Economic aspects are reflecting on the type and usage of land. The development of Science and Technology have greatly influenced on the use of land. It is mainly used for cultivation, mining, industrial, transport, residential, commercial, recreational and other activities. Here an attempt is made to study the changing pattern of land use in different time period in Mysuru District. Secondary data has been collected and compared for twenty five years of time. Location quotient method has been used to know the inequality in the land use pattern. Thematic maps are used for analysis.

Key words: Barren Land, Cultivable Waste, Fallow Land, Net Sown Area, Location Quotient.

Introduction

As we know that the dependency on land is continuously increasing with increase of population. The wise use of land for different purpose is the need of the hour. Land use is a combination of natural factor and fulfilling the needs of man. Land use in a region, to a large extent is influenced by the nature of economic activities carried out by man in that region. But the economic activities changes over time. Land like many other natural resources is fixed in terms of its area. As and when the size of the economy increases, the composition of the economy changes over time and the pressure on land for agricultural activities increases, the usage of land by man also changes.

Objectives

To know the spatial pattern of land use in the district. To examine the temporal changes in land use in the study area.

Methodology

The study is based on secondary data. The data has been collected from district statistical office. Twenty five years of time gap has been selected to know the changes in the land use pattern in the district. 1988-89 and 2015-16 data have been analyzed. Location Quotient method has been adopted to know the inequality in the land use pattern. Simple thematic maps are used for analysis.

Study Area

Karnataka state consist 30 districts. Among these Mysuru forms a distinct cultural centre. It is located in southern part of Karnataka State. It lies between 12° to $20^{\circ} 17'$ North latitudes and 75° and 19° to 77° and $17'$ East longitudes. It covers an area of 6320 km^2 and accounts

for 3.29% of the state's total geographical area. It ranks 14th place in the state in terms of area. But it ranks 4th place in population in the state. The district has 3001127 people in 2011 census. Among this, 61.3% of people are living in rural areas. The district comprises seven taluks namely H.D.Kote, Hunsur, K.R. Nagar, Mysore, Nanjangud, Periyapatana and T.Narasipura as shown in figure 1. Among these, H.D.Kote taluk is the biggest (1618 km²) and K.R.Nagara is the smallest (596 km²) taluks in the district.

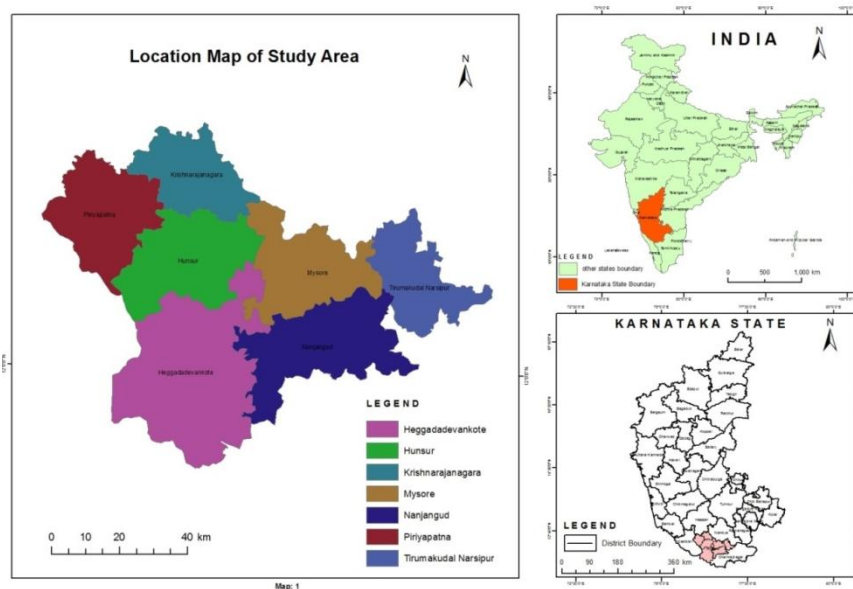


Figure 1. Study Area

The Technical Committee on Co-ordination of Agricultural Statistics has classified the land utilization into Nine categories. They are - 1) Forests 2) Area under Non-agriculture use 3) Barren and Uncultivable land 4) Cultivable Waste 5) Permanent Pasture 6) Trees and Groves 7) Current Fallow Land 8) Other fallow land 9) Net Sown area.

As we know that the land is used for different purposes based on natural, economic, social, cultural and technological aspects. So it indicates the influence of man's conditions over the land use pattern. Table 1. shows taluk wise Rural-Urban population and volume of change of these in the study area for four decades.

As we observe this table, during 1981, 71.1% of people in Karnataka are resided in rural area and remaining people were in urban area. Where as in the district it was 66.7% and one-third of people are in urban area in the district in same period. Compared to 1961 there is a negative change of rural population in the state (-4.6%) where as it was -2.5% in the district. The share of rural population in Karnataka and the district is continuously decreasing. In 2011, the rural population has accounted 61.3% in the state, where as in Mysuru district is only 58.5%. Compared to 1981, in a span of 40 years there is a change of -9.8% rural population in the state, where as it is -8.2% in the district. In this context, we can study, is there any changes in land use pattern in the district during this period.

Land use Pattern in Mysuru district during 1988-89 and 2015-16: The main aim of this study is to know the land use pattern of Mysuru district in the past 25 years. Is there any changes found in this pattern? From this, it is possible to understand the spatial and

temporal changes taken place in land use pattern in the study area. The growing population and other economic activities are changing in their volume during this period. The data for this study is taken from Mysore district at a glance and district gazetteer. Table – 2 shows

Table 2. Land use pattern in Mysuru District during 1988-89 & 2015-16

Sl. No.	Taluks	Forests			Land put to Non-agricultural use			Barren & Uncultivable land		
		1988-89	2015-16	Volume of Change	1988-89	2015-16	Volume of Change	1988-89	2015-16	Volume of Change
1	H.D.Kote	17.01	17.01	0	9.66	10.62	0.96	8.61	8.61	0
2	Hunsur	7.93	7.93	0	8.42	10.26	1.84	10.7	9.86	-0.84
3	K.R.Nagara	0.27	0.27	0	11.7	12.84	1.14	7.24	7.24	0
4	Mysuru	3.93	3.93	0	6.56	16.93	10.37	8.28	8.28	0
5	Nanjangud	3.75	3.74	0	12.36	13.21	0.85	2.51	2.28	-0.23
6	Periyapatana	17.82	17.82	0	3.89	5.05	1.16	5.21	5.25	0.04
7	T.Narasipura	0.26	0.26	0	8.83	9.35	0.52	1.35	1.33	-0.02
DISTRICT		9.29	9.29	0	8.91	11.12	2.21	6.81	6.66	-0.15

(% to total area of the taluk) **Source:** Mysore District at a Glance 1990-91 & 2015-16.

Area under Forest: It consist all the areas under forests under any legal enactment can be termed as Forest. In 1988-89, the area under the forest is 62,851 hectares in the district, which accounts only 9.29% , is lower than the state average. Nearly 1/6th of the area of periyapatana and H.D.Kote taluks are covered by forest. These two taluks have borders with semi-malnad region. In these two taluks, the urban population is also less compared to other taluks of the district. (table.1.0). The forest covered area has been gradually decreased from west to east. Lowest forest area is found in T.Narasipura (0.26%) and K.R.Nagara taluks (0.27%). After 25 years of time there is no change in the forest area of the district which can be observed in table.1. When we calculate Location Quotient for this in both the periods, It is higher in Periyapatana (1.92) and H.D.Kote (1.83) taluks, whereas it is too less in K.R.Nagara (0.03) and T.N.Pura (0.03) taluks

Area under Non-Agricultural use: It includes all lands occupied by river beds, streams, ponds, canals, settlements, Industries, roads and railways. In future, these lands will not be available for cultivation. Increase in population, urbanization, Industrialization, development of transport and other infrastructure facilities, this kind of land use pattern is continuously increasing. During 1988-89, the land under non-agricultural use was 60241 hectares in the district which stands 8.91% of the total area of the district. Among the taluks, Nanjangud (12.36%) and K.R.Nagar (11.70%) have more area of this kind. Whereas Periyapatana taluk bordering to Western Ghats has only 3233 hectares (3.89%) for non-agricultural use. If we observe table-1, it clearly shows that the taluk has lowest urban population in the entire district (6.5%) during 1981. In 1991, Mysore taluk has recorded highest volume of change in urban population. It shows that the urban population has significantly increased (2.5%) in the district. In the same time Periyapatana and T.Narasipura have recorded negative change in urban population.

When we compare 1981 to 2011 census data, there is a significant increase of urban population in the district. In the entire district, there is an increase of 8.2% of urban population compared to 1981. Highest change has been observed in T.Narasipura (6.7%) followed by Mysore taluk with 4.8%. In the same period Mysore taluk has recorded highest volume of change (10.37%) of land which is used other than for agricultural purpose.

When we worked out Location Quotient for this, during 1988-89, H.D.Kote, K.R.Nagara and Nanjangud have more than one value, which indicates more area under non-agricultural use. T.Narasipura taluk has also recorded almost to one. Whereas Periyapatana taluk has least value of 0.44 compared to all other taluks of the district.

3. Barren and Uncultivable land: It consist rocky areas, hills, plateau, mountains, deserts etc., this land cannot be used for cultivation due to natural and other factors. During 1988-89, 6.8% of area (16709 hectares) in the district was considered as Barren and Uncultivable land. Hunsur taluk has highest (10.7%) area of this type followed by H.D.Kote (8.6%), Mysuru (8.28%) and K.R.Nagar taluks (7.24%). Whereas T.N.Pura (1.35%) taluk has least area under this type. In next 26 years of time this type of land has been slightly reduced to 6.66% in the district. Highest negative change has been recorded in Hunsur taluk with - 0.84%. T.N.Pura taluk retained its last position with 1.33% of area under this. It can be observed in table – 2.

When Location Quotient has been worked out for these two periods, Concentration of this type of land is found in Hunsur (1.57), H.D.Kote (1.26), Mysuru (1.24) and K.R.Nagara (1.09) taluks. Lowest has been recorded in T.Narasipura (0.2) taluk during 1988-89. In next 26 years the situation has slightly changed. Hunsur has recorded highest concentration (1.48) followed by H.D.Kote (1.29), Mysuru (1.24) and K.R.Nagara (1.09) taluks. T.Narasipura, Nanjangud and Periyapatana taluks have lowest concentration of this kind of land. It can be observed in figure 2.0

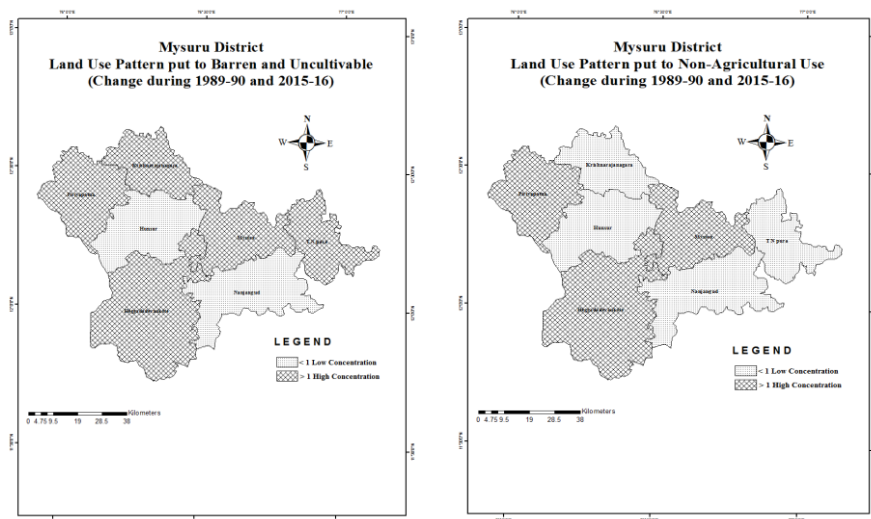


Figure 2. Land use pattern of Mysuru District (Non-agricultural use & Barren and uncultivable land)

Cultivable Waste land: This land can be used for cultivation, but not cultivated during the current year and last five years or more continuously. It is left untilled due to physical and other factors. In 1988-89 the district has 24,944 hectares of this land which accounts 3.69% of its total area. Among the taluks H.D.Kote has highest (8.52%) followed by K.R.Nagara (3.17%) and Mysuru (2.62%). Lowest cultivable waste land has been found in Hunsur taluk (1.0%). In the next 26 years this kind of land has been reduced to 21,407 hectares which is 3.16% of total geographical area of the district. In Mysuru, Nanjangud and Hunsur taluks

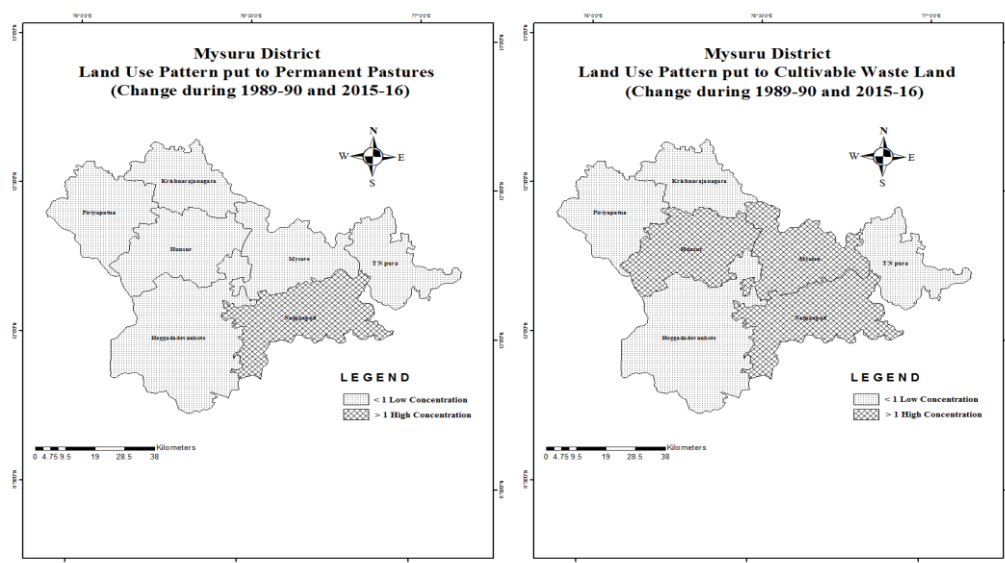
this kind of land has slightly increased. Where as in other taluks it has been significantly reduced.

When we observe the. (LQ) highest concentration has been found H.D.Kote taluk (2.31). In all other taluks they recorded low concentration of this kind of land. In next 26 years, in several taluks this type of land has slightly reduced and it is noticed in location quotient also. Highest change has been recorded in K.R.Nagar taluk compared to other taluks of this district. It can be noticed in figure 3.0

Permanent Pastures: It includes all grazing lands which may consist permanent meadows and village common pastures. In 1988-89, nearly 9.8% (66278 hectares) covered by permanent pastures in the district. Among the taluks, highest permanent pasture has been found H.D.Kote taluk (33865 hectares) which is about 17.44% of its total area. K.R.Nagar (15.28%) is in the next position. It is followed by Periyapatana (12.62%) taluk. Lowest has been found in T.Narasipura taluk (1258 hectares) which has 2.18% of its area. In the same period this taluk has highest net sown area in the entire district (78.26%). Hence there is a less area of pasture land in this taluk. In 2015-16, the land under permanent pasture has been reduced to 46808 hectares of area in the district. It is about 6.92% of its total area. Compared to 1988-89, there has been a negative change of -2.88% . K.R.Nagar taluk has recorded highest negative change (-11.6%) in this period. In the same time there is an increase of 10.39% of net sown area in this taluk. Urbanization in Mysuru taluk has reduced the land under permanent pasture (-6.48%), Periyapatana (-4.09%), H.D.Kote (-2.37%) and Hunsur (-1.0%) have also recorded negative trend during this period.

Highest Location Quotient (concentration) is found in H.D.Kote (1.78), K.R.Nagara (1.56) and Periyapatana (1.29) taluks, where as it is very less in Nanjangud (0.11) taluk during 1988-89. In next 26 years, the trend has slightly changed. It has been increased in H.D.Kote (2.18) taluk. But it has been reduced in K.R.Nagara taluk significantly (1.56 to 0.53). It can be noticed in figure 3.0

Figure 3. Land use pattern of Mysuru District (Cultivable Waste & Permanent Pastures)



Trees and Groves: It covers all cultivable land which is not included in the net area sown. But it is used for some agricultural use other than seasonal cropping. Less than 1% of area (6410 hectares) in the district consist trees and groves during 1988-89. Periyapatana (2.01%) and H.D.Kote (1.68%) have more area under tree and groves in the district. Lowest has been found in Mysuru (0.16%) and K.R.Nagara (0.18%) taluks. In next 26 years, there is a decrease of -0.08% of area under trees and groves in the district. There is a very little increase of this area in Nanjangud, Periyapatana and T.N.Pura taluks, whereas in other taluks it has been decreased.

In 1988-89, high concentration is found in Periyapatana (2.12), H.D.Kote (1.77) and T.N.Pura (1.0) taluks when we worked out location quotient. In 2015-16, the location quotient value has been increased in Periyapatana (2.71) and T.N.Pura (1.68) taluks. In both the periods, Mysuru taluk has recorded lowest concentration of about 0.16. These changes have been noticed in figure 4.0

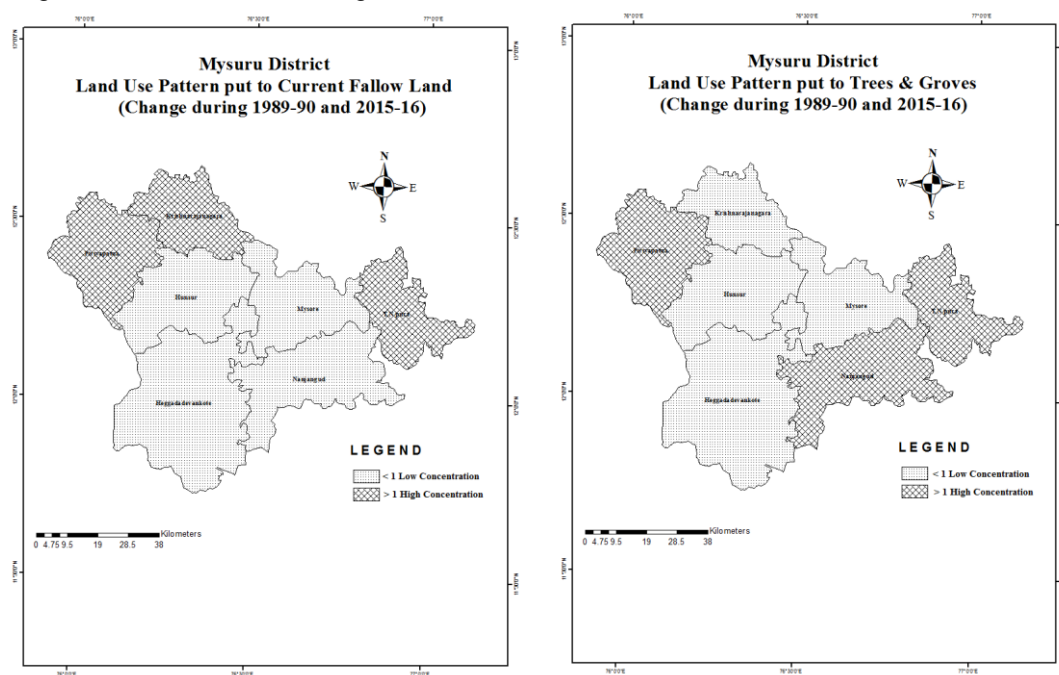


Figure 4. Land use pattern of Mysuru District (Trees & Groves, Current Fallow Land)

Current Fallow Land

It includes the land left unsown during the current agricultural year to regain the fertility and remained uncropped in the short term for want of moisture and economic reasons. In 1988-89, the district has 28042 hectares of this kind of land which is about 4.15% of area in the district. It is highest in Nanjangud taluk (9.2%) followed by Mysuru (5.95%) and H.D.Kote (5.93%) taluks. Lowest has been found in Hunsur (1.08%) taluk. After two and half decade, the current fallow land has been decreased to 24651 hectares which is about -0.51% change during this period. But this kind of land has been increased significantly in T.Narasipura taluk from 2591 (4.42%) to 5784 hectares (9.86%). There is a slight increase of this land in Periyapatana and K.R.Nagara taluks during this time. But it has been greatly reduced in

Nanjangud taluk from 9057 (9.2%) to 4072 (4.13%) hectares. This negative trend is also been observed in Mysuru, H.D.Kote and Hunsur taluks of the district.

When Location Quotient technique has applied for this, it shows that high concentration is found in Nanjangud (2.22), Mysore (1.43), H.D.Kote (1.07) and T.N.Pura (1.06) taluks. Lowest has been found in Hunsur (0.26) during 1988-89. In the next 26 years, there has been a drastic change in Nanjangud and T.N.Pura taluks. It has been reduced from 2.22 to 1.14 in Nanjangud taluk, whereas it has been increased from 1.06 to 2.71 in T.N.Pura taluk. In Mysore taluk also it has been changed from 1.43 to 0.67 during this period of time. But lowest has been found in Hunsur taluk in both the period of time. These changes can be observed in figure 4.0

Table 4. Land use pattern in Mysuru District during 1988-89 & 2015-16 (% to total area of the taluk)

Sl. No.	Taluks	Current Fallow land			Other Fallow land			Net Area Sown		
		1988-89	2015-16	Volume of Change	1988-89	2015-16	Volume of Change	1988-89	2015-16	Volume of Change
1	H.D.Kote	4.43	3.86	-0.57	3.05	4.09	1.04	29.60	32.51	2.91
2	Hunsur	1.08	1.05	-0.03	1.73	0.94	-0.79	65.88	66.54	0.66
3	K.R.Nagara	1.27	2.72	1.45	0.56	1.82	1.26	60.33	70.72	10.39
4	Mysuru	5.95	2.50	-3.45	4.33	2.57	-1.76	59.22	60.49	1.27
5	Nanjangud	9.2	4.13	-5.07	5.67	5.85	0.18	64.05	65.22	1.17
6	Periyapatana	1.31	3.04	1.73	0.62	1.60	0.98	55.00	55.02	0.02
7	T.Narasipura	4.42	9.86	5.44	2.05	7.86	5.81	78.26	66.59	-11.67
DISTRICT		4.15	3.64	-0.51	2.78	3.52	0.74	53.62	54.82	1.20

Source: Mysore District at a Glance 1990-91 & 2015-16.

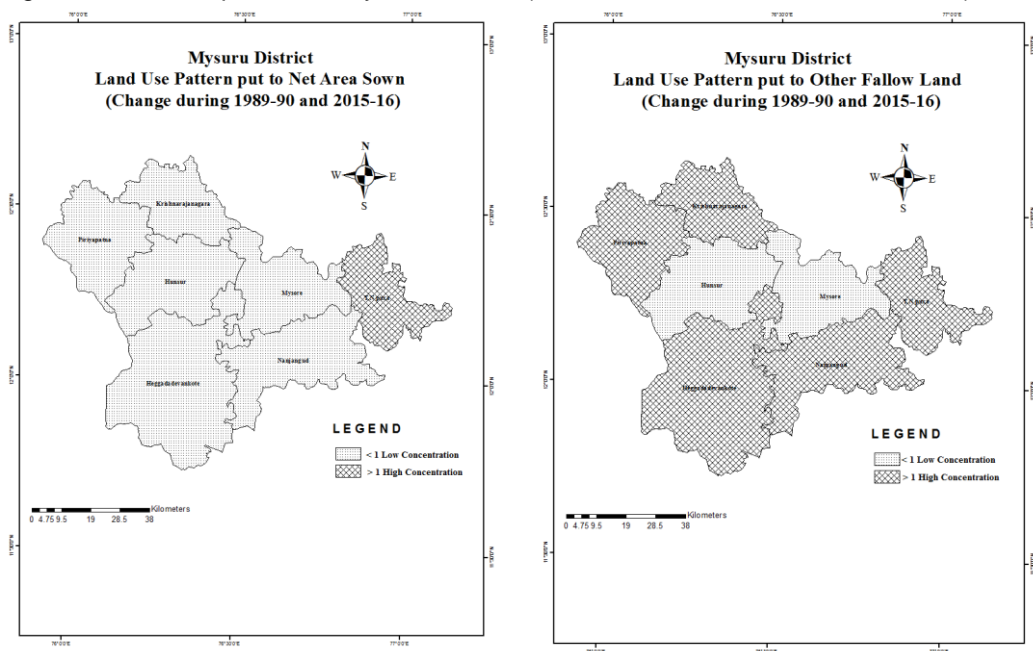
Other Fallow Land: It includes the lands which are not sown in this year and not more than five years. In 1988-89, the district consisted 18592 hectares (2.78%) of this type of land. Nanjangud taluk has highest of this kind of land (5.67%) in the district, followed by Mysuru (4.33%), H.D.Kote (3.05%) and T.N.Pura (2.05%) taluks. Lowest has been found in K.R.Nagara (0.56%) taluk in the district. After two and half decades, this type of land has been increased to 23777 hectares (3.52%) in the district with a change of 0.74% to its area. Significant positive change has been found in T.Narasipura taluk, it is about 386% during this period (1196 hectares to 4614 hectares). K.R.Nagara (1.26%), H.D.Kote (1.04%) and Periyapatana taluks (0.98%) have also recorded increase of this kind of land. It has been reduced in Mysuru taluk from 3533 hectares to 2098 hectares (-1.76%) during this time. It is due to that the outskirts of Mysore city which has been left vacant has been converted into residential and for other purposes. It is also decreased in Hunsur taluk (-0.79%).

After the calculation of Location Quotient for this period, Nanjangud (2.04) has recorded highest in the district during 1988-89 followed by Mysore taluk (1.56%). Low concentration is found in K.R.Nagara taluk with 0.2. After 26 years, high concentration is found in T.Narasipura (2.23), Nanjangud (1.66) and H.D.Kote (1.16) taluks. Whereas Hunsur (0.27), Periyapatana (0.45), K.R.Nagara (0.52) and Mysore (0.73) taluks have recorded lowest during 2015-16. These changes can be viewed in figure 5.0.

Net Sown Area: It shows the actual sown area during a year. It is also called as net cropped area. It consist the land which is cultivated more than once in a year due to more water and other facilities. In 1988-89, the district has more than half of its area under net

sown (53.62%). It is about 3,62,684 hectares. Highest net sown area has been found in T.Narasipura (78.26%) which has more than $3/4^{\text{th}}$ of its area is used for agriculture. It is followed by Hunsur (65.88%) and Nanjangud (64.05%) taluks. Nearly $2/3^{\text{rd}}$ of their geographical area are used for cultivation. Lowest net sown area has found in H.D.Kote (29.60%) taluk. After 26 years of time, the net sown area is slightly increased from 53.62% to 54.82% with a change of 1.20%. It is from 3,62,684 hectares to 3,70,790 hectares. Nearly 8106 hectares of net sown area has been increased during this time in the district. Among the taluks, in some taluks there is an increase of this and in other taluks it has been reduced. K.R.Nagara taluk has increased its net sown area from 37398 hectares to 43828 hectares (60.33% to 70.72%) with an increase of 10.39%. H.D.Kote (2.91%), Mysuru (1.27%) and Nanjangud (1.17%) taluks have also recorded a slight increase of net sown area during this period. Whereas T.Narasipura taluk has recorded a negative trend. It was 45919 hectares during 1988-89 and reduced to 39067 hectares (78.26% to 66.59%) in 2015-16. It may be noticed that, in this taluk Current fallow and other fallow land have significantly increased during this period. Hence there is a decline of Net sown area in this taluk. When Location Quotient has been worked out for this, during 1988-89 the highest concentration is found in T.Narasipura (1.46) which has shifted to K.R.Nagara (1.29) during this period. Except H.D.Kote all other taluks have more than one. It is clearly observed in figure 5.0.

Figure 5. Land use pattern of Mysuru District (Other Fallow Land & Net Sown Area)



Findings

The land use pattern can be identified into nine categories. Among these, changes have not been found in forest area both spatially and temporally. But changes have been found in non-agricultural land use pattern. It has been increased from 8.9% to 11.12% in the entire district with an increase of 2.21%. Highest change has been found in Mysore taluk due to

the expansion of Mysore City, in the same period, the barren and uncultivable land has been slightly decreased. Due to Urbanization process in the district. It has been supported by the growth of Urban Population in district in different periods (Table-1). The cultivable waste land has slightly reduced in all the taluks. But the area under permanent pastures have reduced significantly. K.R.Nagara taluk has recorded highest negative change (-11.6%) followed by Musuru taluk (-6.48%). Very negligible reduction has been seen in T.Narasipura taluk. There is no major change has been found in Trees and Groves as well as current fallow land. But it is significantly increased in T.Narasipura taluk (5.44%) and reduced in Nanjangud taluk (-5.07%). Other fallow land has been increased in H.D.Kote, K.R.Nagara, T.Narasipura, Periyapatana and Nanjangud taluks. There is a slight increase in Net area sown in the district. It has been increased significantly in K.R.Nagara (10.39%). But it has been reduced in T.Narasipura (-11.67%) taluk.

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