



ANALYSIS OF LANDUSE IN CHITTOOR DISTRICT OF ANDHRA PRADESH

Eswara Naick, M¹, Prof.Krishna Kumari, A²

¹Research Scholar, Department of Geography, Sri Krishnadeveraya University, Anantapuramu-515003

²³Professor of Geography, Sri Krishnadeveraya University, Anantapuramu-515003

ABSTRACT

The pattern of land use is complex and dynamic and spatially it is variable. "The complex land use pattern in an area manifests the outcome of trial and errors of many thousand years of settlement. The present pattern of land use in India is the result of long continued operation of the whole range of environmental factors but modified by socioeconomic and historical elements" (Shafi 1966). The need of the hour is a careful planning of land resources for the future which must take the present and past trends into full consideration. Any land use planning must accordingly be dynamic and static, flexible and not rigid, capable of being adapted to changing conditions, not for getting the changing habits of the people (Stamp 1962). The geographer by applying his technique of survey, mapping, analysis and interpretation would provide, the correct base to evolve a rational scheme of land use planning (Shafi 1967). Agricultural land use planning should not be considered merely as the rational use of land put to cultivation and bringing more land under plough making it viable for cultivation, but should include conservation of land from erosion, salinity, water logging, development of nutrients through multiple cropping system, improving the fertility of land, application of modern technology and lastly the impact of over exploitation of land (Sinha and Mandal 1979). It is in this context an endeavour is made here to study the spatio-temporal patterns of land use in Chittoor District of Andhra Pradesh.

INTRODUCTION

Originally, the idea of landuse studies and surveys formed part of the regional surveys which were rather academic exercises. However, soon the planners discovered the value of landuse studies. The idea of depicting the use of land in a map was first conceived by Sauer in 1919. Landuse studies assumed greater academic and practical significance, especially after the brilliant contributions of Baker (1923) in the United States, Stamp (1930) in Britain and Buck (1937) in China. The real start in this direction began when the British Landuse survey was set up in 1930 under the Directorship of Dudley Stamp. Most of the landuse studies in India have been carried out by scholars in university Geography Departments, S.P.Chaterjee (1941), M.A. Shafi (1951), Rao (1957), C.D. Deshpande (1959), Roy (1961) and V.R. Singh (1970). Shafi (1951) studied the landuse pattern and associated problems in eastern Uttar Pradesh. Ganguli(1964), Jasbir Singh(1974), Ali Mohammad(1978), Hussain (1979), Moonis Raza(1981), Noor Mohammad(1981) and others made significant contributions in the field of landuse studies. Swaminathan, E. (1984) attempted to study the impact of growingmetropolis on changing

agricultural landuse of Madurai region. Ramanaiyah, Y.V. (1984) Krishna Kumari, A (1990, 2016, 2019) studied the pattern of landuse and cropping in Andhra Pradesh.

STUDY AREA

Chittoor district lies in the southernmost part of Andhra Pradesh. It forms a part of the semi-arid as well as backward Rayalaseema region. Geographically, it is located between 12° 37' and 14° 8' Northern latitudes and between 78° 33' and 79° 55'. Eastern longitudes. It is bounded by Karnataka in the west, Tamilndnu in south and south east, Nellore district in east and north east, Kadapa district in north and Anantapur district in north western part. The total geographical area of Chittoor district is 15,152 sq.kms. It is the fifth largest district both in terms of area (5.51%) and population (8.44%) in Andhra Pradesh State. Administratively, the district is divided into three revenue divisions and 66 mandals.



OBJECTIVES

- To study the Spatio- temporal patterns of General land use for the two periods i.e., 2005-06 and 2018-19.
- To study the changes in General land use during 13 years period.

DATABASE AND METHODOLOGY:

In the Present analysis, Landuse data pertained to two time periods i.e., 2005-06 and 2018-19 have been collected from the Government records and reports from Chief planning officer, Hand book of Statistics, Agricultural Department of Chittoor District taking 'Mandal' as Unit. Simple statistical techniques such as percentages and averages have been used to analyses the data. The TCCAS classification of Landuse has been adopted in the study.

DISCUSSIONS

The total geographical area of Chittoor District is accounted as 1515100 hectares. The land use in Chittoor District is little unique, Where forest land use is more compared to all other land use types. Nearly 30% of total geographical area is under this land use category. It can be regarded as the minimum required percentage for maintaining the ecological balance in the District. The other significant land uses in the district are Net area sown, Current fallows, Land put to Non-agricultural uses, Barren and Uncultivable area and so on. (Table-1).

SPATIAL DISTRIBUTION OF FOREST LAND USE (2005-06)

During the year 2005-06, the total area under Forest land use in the District is accounted as 452018 hectares with a percentage of 29.83 to the total Geographical area. Very high (>60%) concentration is reported in 3 mandals during the study period namely, Chandragiri (80%), Tirupati (urban) (68%) and Somala (60%). High concentration (45-60%) is observed in 14 mandals mostly belong to eastern and southern part of the District, Medium concentration (30-45%) of forest land use is found in 8 mandals. The low (15-30%) and very low (<15%) concentration is noticed in 22 & 19 mandals of the District respectively and most of these are geographically belong to middle and north western part of Chittoor District. The lowest concentration of forest land use is observed in Peddathippasamudram with only 1.40% forest and in Santhipuram Mandal it is completely absent.

SPATIAL DISTRIBUTION OF FOREST LAND USE (2018-19)

During 2018-19 the total area under forest land use is accounted as 452018 hectares with a percentage share of 29.80% to the total geographical area of the District. Very high (60%) concentration of forest land use has been seen only in Chandragiri (79.50%) Tirupati urban (68%) mandals. Whereas the high (45-60%) and medium (30-45%) concentrations are reported in 13 & 10 mandals of Chittoor District respectively. The low (15-30%) and very low (<15%) concentration of forest land use is observed in 40 mandals of the study area mostly confined to north western and south central part of the District. Again Peddathippasamudram Mandal is reported as the lowest percentage of forest and in Santhipuram, the forest area is a completely absent.

CHANGES IN THE FOREST LAND USE (2005-06 & 2018-19)

Interestingly there is no change in the area of Forest land use in Chittoor District during the 13 years period. In the years of both study periods, 452018 hectares of land with 29.80% to the total geographical area is reported under this category. One can find only the change in the number of mandals under some concentration categories of forest land use (Table-2). In both the study period Chandragiri Mandal topped in the Forest land percentage with 80% in (2005-06) and 79.50% in (2018-19). Peddathippasamudram is recorded with lowest percentage of 2% in 2005-06 and 1.40% in 2018-19. Change occurred slightly in the percentage of area only. In Santhipuram Mandal, Forest land is not at all reported during the study period.



Table-1
General Land Use - Chittoor District
2005-06 & 2018-19

S.No:	Land use category	2005-06		2018-19		Increase / Decrease during 13 year period	
		Area in Hectares	% to total Geographical area	Area in hectares	% to total Geographical area	In Hectares	In Percentages
1	Forest Land	452018	29.80	452018	29.80	No change	No change
2	Barren & Uncultivable Land	163650	10.80	152683	10.10	-10967	-0.70
3	Land put to Non-agricultural uses	144440	9.53	160487	10.60	+16047	+1.07
4	Cultivable Waste	41309	2.73	46547	3.10	+5238	+0.37
5	Permanent Pastures & Other Grazing Lands	34735	2.29	33621	2.20	-1114	-0.09
6	Miscellaneous Tree crops & Groves	38493	2.54	30555	2.00	7938	-0.54
7	Other Fallows	117334	7.74	123406	8.20	+6072	+0.46
8	Current Fallows	158436	10.46	172174	11.40	+13738	+0.94
9	Net Area Sown	364685	24.07	343605	22.70	-21080	-1.37
Total Geographical area		15,15,100	100	15,15,100	100	-	-

Table-2
Changes in the Spatial Distribution of Forest land use - Chittoor District
2005-06 & 2018-19

S.No:	Concentration of Forest Land Use	No of Mandals		Changes in 13 years period
		2005-06	2018-19	
1	>60% (Very high)	3	2	-1
2	45-60% (High)	14	13	-1
3	30-45% (Medium)	8	10	+2
4	15-30% (Low)	22	22	No change
5	<15% (Very low)	18	18	No change
6	Nil	1	1	No change
7	Maximum	Chandragiri (80%)	Chandragiri (79.50%)	Change occurred only in percentage
8	Minimum	Peddathippasamudram (2%)	Peddathippasamudram (1.40%)	Change occurred only in percentage
9	District total	29.80%	29.80%	No change



SPATIAL DISTRIBUTION OF BARREN & UNCULTIVABLE AREA (2005-06)

About 163650 hectares of land is registered under barren & uncultivable area of the District. In percentage it amounts to 10.80% to the total geographical area during the study period. High concentration of >20% Barren & uncultivable area is found in 7 mandals, with maximum percentage in Karvetinagar (44%) followed by Narayanavanam (41%), Vedurukuppam (38%) and so on. Moderate concentration (10-20%) is observed in 17 mandals of the District, spread over entire District. Where as in 42 mandals, low concentration (<10%) is noticed during the year 2005-06 with minimum percentage in Chandragiri Mandal (2%). In Vijayapuram Mandal, this category of land use is absent.

SPATIAL DISTRIBUTION OF BARREN & UNCULTIVABLE AREA (2018-19)

The total reported area under Barren & Uncultivable Area is 152683 hectares in Chittoor District which amounts to 10.10% to the total geographical area. The category of high concentration

(>20%) is found in 6 mandalas namely Narayanavanam (31.80%), Karvetinagar (31.40%), Vedurukuppam (30.30%), Palasamudram (25.30%), Sodam (22.70%) and Sri Rangarajapuram (21.30%). Moderate concentration (10-20%) is found in 15 mandals mostly confined to south western and eastern part of the District. The low concentration (<10%) of Barren & Uncultivable area is observed in 45 mandals. The lowest concentration is seen in Vijayapuram (0.30%), Chandragiri (1.90%) and so on.

CHANGES IN BARREN & UNCULTIVABLE LAND (2005-06 & 2018-19)

A decrease of 10967 hectares of area has been registered in Barren & Uncultivable land in 13 years period with a percentage decrease of 0.70%. In high (>20%) and moderate (10-20%) concentration category, decrease in the number of mandals is noticed under this category where as an increase of 3 mandals in low concentration (10%) category. Change has been observed both in percentage and location of the mandals under maximum and minimum concentration of this land use (Table-3).

Table-3
Changes in Barren & Uncultivable Land - Chittoor District
2005-06 & 2018-19

S.No:	Concentration of Barren & Uncultivable Land	No of Mandals		Changes in 13 years period
		2005-06	2018-19	
1	>20% (High)	7	6	-1
2	10-20% (Medium)	17	15	-2
3	<10% (Low)	41	45	+3
4	Nil	1	-	-
5	Maximum	Karvetinagar (44%)	Narayanavanam (31.80%)	Change occurred both in percentage and location on of the Mandal
6	Minimum	Chandragiri (2%)	Vijayapuram (0.30%)	Change occurred both in percentage and location of the Mandal
7	District total	10.80%	10.10%	-0.70%

SPATIAL DISTRIBUTION OF LAND PUT TO NON-AGRICULTURAL USES (2005-06)

The total area under land put to Non-Agricultural uses on Chittoor District during the year 2005-06 is 144440 hectares. To the total geographical

area it measures to 9.53%. The high concentration (>15%) is found in 6 mandals namely Srikalahasti (24%), Tirupati [rural] (19%), Yerpedu (16.14%), Thavanampalle (15.89%), Nagari (15.87%) and Vedurukuppam (15.33%) under 1015 concentration



category 23 mandals and in 5-10 % category 33 mandals have been recognized. The low concentration (<5%) is reported in 4 mandals namely Kuppam (2.33%), Chandragiri (2.47%), Venkatagirikota (3.28%) and Somala (4.58%) mandals.

SPATIAL DISTRIBUTION OF LAND PUT TO NON-AGRICULTURAL USES (2018-19)

About 160487 hectares is reported under land put to Non-Agricultural use in the District with 10.60% to the total geographical area during 2018-19. High (>15%) concentration of this land use category is observed in 10 Mandals with a maximum in Tirupati [rural] (19.30%) followed by Ramasamudram (18.30%), Yerpedu (17%) and so on. The concentration categories of 10-15% and 5-10% have been found in 26 mandals respectively spread over the entire District. Low concentration of (<15) land put to

Non-agricultural uses is observed in only Vijayapuram (4.30%) and Chandragiri (4.50%) mandals of the District.

CHANGES IN THE LAND PUT TO NON-AGRICULTURAL USES (2005-06 & 2018-19)

An increase of 16047 hectares has been seen in Land put to Non-agricultural uses category in the study area (from 144440 hectares in 2005-06 to 160487 hectares in 2018-19) with 1.07% expansion during 13 years period. There is an increase in the number of Mandals in >15% & 10-15% concentration categories of this land use and decrease in other two categories (Table-4). Change in the mandals and percentages also occurred in maximum and minimum concentration mandals of the District during 13 years of study period.

Table-4
Changes in Land Put to Non-Agricultural Uses - Chittoor District
2005-06 & 2018-19

S.No:	Concentration of Land Put to Non-Agricultural Uses	No of Mandals		Changes in 13 years period
		2005-06	2018-19	
1	>15% (High)	6	10	+4
2	10-15% (Medium)	23	26	+3
3	5-10% (Low)	33	28	-5
4	<5% (Very low)	4	2	-2
5	Maximum	Srikalahasti (24%)	Tirupati [rural] (19.30)	Change occurred both in percentage and location of the Mandal
6	Minimum	Kuppam (2.33%)	Vijayapuram (4.30%)	Change occurred both in percentage and location of the Mandal
7	District total	9.53%	10.60%	+1.07%

SPATIAL DISTRIBUTION OF CULTIVABLE WASTE LAND (2005-06)

In Chittoor District, about 41309 hectares of land is noticed under Cultivable waste land which amounts to 2.73% to the total Geographical area during the study period. High concentration (<6%) is observed in 7 mandals namely, Piler (13%), Thottambedu (10%), Gangadar Nellore (8%), Yerpedu

(7.37%), Tirupati [rural] (7.36%), Kalakada (6.68%) and Pakala (6.54%). All these mandals are located in the northern center part of the District. In about 12 & 19 Mandals, the concentration categories of 4-6% and 2-4% have been reported in the study area. Low percentage (<2%) is reported 26 mandals spread almost all over the District with a minimum concentration in Chittoor (0.01%) and



Mulakalacheruvu (0.02%). Cultivable Waste land is not seen in Ramasamudram and Kuppam mandals during 2005-06.

SPATIAL DISTRIBUTION OF CULTIVABLE WASTE LAND (2018-19)

During the year 2018-19, about 46547 hectares of area is found under this category of land use. It accounts to 3.10% to the total Geographical area of the District. High concentration (>6%) is recorded in 10 mandals with maximum concentration in Piler (15.60%), Thottambedu (9.70%),Penumuru (8.80%), Pakala (8.50%) and so on. In 9 mandals of the District 4-6% concentration and 26 mandals with 2-4% concentration has been reported with regard to cultivable waste land. Low (<2%) is seen in 21 mandals of the District with a minimum in Tirupati [urban] (0.10%) followed by Mulakalacheruvu (0.20%), Pungunur (0.80%) and so on.

CHANGES IN CULTIVABLE WASTE LANDS (2005-06 & 2018-19)

There is a slight increase in the Cultivable Waste Land of Chittoor District from 41309 hectares in 2005-06 to 46547 hectares in 2018-19 with a net expansion of 5238 hectares, which amounts to 0.37% of increase. The number of mandals have been increased in the concentration categories of <6% and 2-4%, and decreased in the categories of 4-6% and <2% (Table-5). Completely absent mandals also lost ground in 2018-19 Piler remained as maximum concentration mandal in both the years of study period with slight increase in the percentage where as in the minimum concentration, change has been occurred both in percentage and location of the mandal.

Table-5
Changes in Cultivable Waste Land - Chittoor District
2005-06 & 2018-19

S.No:	Concentration of Cultivable Waste Land	No of Mandals		Changes in 13 years period
		2005-06	2018-19	
1	<6% (High)	7	10	+3
2	4-6% (Medium)	12	9	-3
3	2-4% (Low)	19	26	+7
4	<2% (Very low)	26	21	-5
5	Nil	2	-	-2
6	Maximum	Piler (13%)	Piler (15.50%)	Change occurred only in percentage not in mandal location
7	Minimum	Chittoor (0.01%)	Tirupati [urban] (0.10%)	Change occurred both in percentage and location of the Mandal
8	District total	2.73%	3.10%	+0.37

SPATIAL DISTRIBUTION OF PERMANENT PASTURES & OTHER GRAZING LANDS (2018-19)

About 33621 hectares of land has been registered under Permanent Pastures & other Grazing lands in Chittoor District during the study period. It accounts to 2.20% to the total Geographical area. High

concentration (>6%) is observed in 6 mandals namely, Piler (7.80%), Vayalpadu (7.20%), Chinnagottigallu (6.60%), Rompicherla (6.40%), Kalikiri (6%) and Yerravaripalem (6%). The other concentration categories (4-6% and 2-4%) have been reported in 8 mandals of the District respectively Low concentration (<2%) of Permanent pastures & other Grazing lands is



seen in more than half of the mandals (37 mandals) of the study area with lowest percentage in Palamaner (0.20%) and Ramakuppam (0.20%) and so on. This category of land use is not present in Yedamarri mandal during 2018-19.

CHANGES IN THE PERMANENT PASTURES & OTHER GRAZING LANDS (2005-06 & 2018-19)

There is a decrease of 1114 hectares of area from 34755 hectares in 2005-06 to 33621 hectares in 2018-19 under Permanent Pastures & other Grazing lands in the District. In actual percentage there is a

contraction of only 0.09% of area is observed under this category. Decrease in the number of mandals registered in all the higher concentrations of this land use category during the study period and increase of 10 mandals has been reported in the low concentration category (Table-6). In both the study periods, Piler is topped with maximum percentage under this land use category and with regard to minimum percentage, change occurred slightly in percentage and also in the location of the mandals (Table-6).

Table-6
Changes in Permanent Pastures & Other Grazing Lands - Chittoor District
2005-06 & 2018-19

S.No:	Concentration of Permanent Pastures & Other Grazing Lands	No of Mandals		Changes in 13 years period
		2005-06	2018-19	
1	<6% (High)	7	6	-1
2	4-6% (Medium)	12	8	-4
3	2-4% (Low)	19	14	-5
4	<2% (Very low)	27	37	+10
5	Nil	1	1	No change
6	Maximum	Piler (8%)	Piler (7.80%)	Slight change in percentage but not in the location of mandals
7	Minimum	Nagari (0.199%)	Ramakuppam (0.20%)	change occurred Slightly in the percentage and also in the location of the mandals
8	District total	2.29%	2.20%	-0.09%

SPATIAL DISTRIBUTION OF MISCELLANEOUS TREE CROPS AND GROVES (2005-06)

About 38493 hectares of land is found under miscellaneous Tree crop and Groves in the District, which are not included in the net area sown. It amounts to 2.54% to the total Geographical area of the District. High (>10%) concentration of this land use is noticed in 4 mandals namely, Nindra (14.22%), Peddathippasamudram (13.57%), Srikalahasti (12%) and Chittoor (10%). In 5 mandals of the District medium concentration (5-10%) of miscellaneous Tree

crops and Groves is reported and low concentration (<5%) is observed in majority of the mandals of the District (56 mandals) with lowest percentage in Nagari (0.03%), Rama kuppam (0.9%), Tirupati [urban] (0.10%) etc. The land under miscellaneous Tree crops and Groves in Ramasamudram mandal is absent during the year 2005-06.



SPATIAL DISTRIBUTION OF MISCELLANEOUS TREE CROPS AND GROVES (2018-19)

In Chittoor District an area of 30555 hectares has been registered under this Category of land use which accounts to 2.0% to the total Geographical area. During the study period, only Srikalahasti mandal registered maximum percentage of 11.30% and it is the only mandal reported under high (>10%) concentration category. Moderate concentration of (5-10%) is seen in 6 mandals and low concentration (<5%) of miscellaneous Tree crops and Groves is observed in about 90 percent of the mandal of the District, with lowest percentage of area in Nagari (0.03%), Tirupati [urban] (0.10%), Yadamarri (0.20%) etc.

CHANGES IN MISCELLANEOUS TREE CROP AND GROVES (2005-06 & 2018-19)

The area under Miscellaneous Tree Crop and Groves has been decreased from 38,493 hectares (2005-06) to 30,555 hectares (2018-19), with a net loss of 7,938 hectares during 13 years period. In actual percentage the changes accounts to 0.54%. Loss of 4 mandals observed in high (<10%) concentration category during 13 years period and slight increase in

the number of mandals took place in the medium (5-10%) and low (<5%) concentration category (Table-7). Zero percentage mandal disappeared in the study area during 2018-19. In the maximum percentage mandals change has been occurred both in percentage and location of the mandal, whereas with regard to minimum percentage mandals, in both 2005-06 & 2018-19, Nagari reported with same percentage of 0.03%.

SPATIAL DISTRIBUTION OF OTHER FALLOWS (2005-06)

During 2005-06 area under Other Fallows is recorded as 117334 hectares with a percentage share of 7.74% to the total Geographical area of the District. High concentration (>20%) is observed in only 3 mandals such as Rompicherla (25%), Chowdepalle (24%) and B.Kothakota (21%) Regarding medium concentration (10-20%), 15 mandals and in low concentration (<10%) maximum number of mandals (48) have been reported in this land use category. The minimum percentage of is Other Fallows noticed in Palamaner (0.70%), Karvetinagar (1.14%), Bangarupalyam (1.16%) and so on.

Table-7
Changes in Miscellaneous Tree crops and Groves - Chittoor District
2005-06 & 2018-19

S.No:	Concentration of Miscellaneous tree crop and groves	No of Mandals		Changes in 13 years period
		2005-06	2018-19	
1	>10% (High)	4	1	-3
2	5-10% (Medium)	5	6	+1
3	<5% (Low)	56	59	+3
4	Nil	1	-	-1
5	Maximum	Nindra (14.22%)	Srikalahasti (11.30%)	Change occurred both in percentage and location of the mandal
6	Minimum	Nagari (0.03%)	Nagari (0.03%)	No change occurred neither in the percentage nor in the location of the mandal
7	District total	2.54%	2.00%	-0.54%



SPATIAL DISTRIBUTION OF OTHER FALLOWS (2018-19)

The land under Other Fallows has spread over an area of 123406 hectares in the District during 2018-19 with a share of 8.20% to the total Geographical area. High concentration of more than 20% is seen in 3 mandals only namely, Kurabalakota (25.40%), Mulakalacheruvu (23.90%) and B. Kothakota (20.90%). Moderate concentration (10-20%) is appeared in 22 mandals and low (<10%) in 41 mandals of the District. The lowest percentage of Other Fallows is noticed in Chandragiri (1.30%), Srikalahasti (1.60%), Palasamudram (1.70%) mandals etc.

CHANGES IN OTHER FALLOWS (2005-06 & 2018-19)

An expansion of 6072 hectares from 117334 hectares in 2005-06 to 123406 hectares in 2018-19 is reported in the other fallows category in the District. With a percentage Change of 0.46. The number of mandals in the high concentration category remained same in both the study period, but there is a decrease of 7 mandals in medium concentration category and

increase of 7 mandals in the low concentration category regarding to maximum percentage change has been occurred both in the location of the mandals and percentage during 2005-06 and 2018-19 where as in the case of minimum percentage of other fallows also, change took place in both way (Table-8) in the District.

SPATIAL DISTRIBUTION OF CURRENT FALLOWS (2005-06)

In Chittoor District about 158436 hectares of land registered in the category of Current Fallows during the year 2005-06. In actual percentage it amounts to 10.46% to the total Geographical area of the District. High concentration (<20%) is found in 9 mandals with a highest percentage in Tirupati [rural] (26%) followed by Gangadar Nellore (25%), kalikiri (24.09%), kalakada (24.03%) and so on. Moderate concentration (10.20%) of Current Fallows is appeared in 27 mandals and the low (10%) concentration in 30 mandals of the District with minimum percentage in Chowdepalle (0.66%), Somala (0.67%), Chandragiri (1.67%) etc.

Table-8
Changes in Other Fallows - Chittoor District
2005-06 & 2018-19

S.No:	Concentration of Other Fallows	No of Mandals		Changes in 13 years period
		2005-06	2018-19	
1	>20% (High)	3	3	No change
2	10-20% (Medium)	22	15	-7
3	>10% (Low)	41	48	+7
4	Maximum	Rompicherla (25%)	Kurabalakota (25.40%)	Slight change occurred slightly in the percentage and location of the mandal
5	Minimum	Palamaner (0.70%)	Chandragiri (1.30%)	Change occurred both in percentage and location of the mandal
6	District total	7.74%	8.20%	+0.46%

SPATIAL DISTRIBUTION OF CURRENT FALLOWS (2018-19)

During the year 2018-19, about 172174 hectares of Current Fallows land has been recorded in Chittoor District with 11.40% to the total Geographical area. High concentration (>20%) is noticed in 9 mandals such as Thavanampalle (28.20%), Tirupati

[rural] (27.10%), Nagari (23.70%), Peddamandyam (23.10%), Mulakalacheruvu (21.70%), Madanapalle (21%), Santhipuram (20.70%), Peddathippasamudram (20.50%) and Kurabalakota (20.20%). Medium concentration (10-20%) is observed in 26 mandals of the District and low concentration (<10%) is appeared in 31 mandals of the district. The lowest percentage is



reported in Piler (1.70%), Somala (2.0%), Tirupati [urban] (2.20%) and so on.

CHANGES IN CURRENT FALLOWS (2005-06 & 2018-19)

An expansion of 13738 hectares of Current Fallows land has been added during the 13 years of study period in the District from 158436 hectares in 2005-06 to 172174 hectares in 2018-19. In percentage about 0.94% of area is increased in this land use category.

The number of mandals remained same in the high concentration category of Current Fallows during the study period of 13 years and an addition of two mandals in the moderate concentration of Current Fallows is reported in the District. Where as in the low concentration category a decrease of 2 mandals is occurred. Regarding to the maximum and minimum concentration of Current Fallows change has been occurred both in percentage and location of the mandals (Table-9).

Table-9
Changes in Current Fallows - Chittoor District
2005-06 & 2018-19

S.No:	Concentration of Current Fallows	No of Mandals		Changes in 13 years period
		2005-06	2018-19	
1	>20% (High)	9	9	No change
2	10-20% (Medium)	25	27	+2
3	>10% (Low)	32	30	-2
4	Maximum	Tirupati (Rural) (26%)	Thavanampalle (28.50%)	Change occurred both in percentage and location of the mandal
5	Minimum	Chowdepalle (0.66%)	Piler (1.70%)	Change occurred both in percentage and location of the mandal
6	District total	10.46%	11.40%	+0.94%

SPATIAL DISTRIBUTION OF NET AREA SOWN (2005-06)

In Chittoor District Net Area Sown occupied 2nd position among all the land use types after Forest land use. It is spread over 364685 hectares of area with a percentage of 24.07 to the total geographical area during 2005-06. Very high (40%) concentration is reported in 3 mandals of the District namely Santhipuram (52%), Thavanampalle (46%) and Mulakalacheruvu (43%), high concentration (30-40%) is appeared in 14 mandals medium (20-30%) in 31 mandals, low (10- 20%) in 16 mandals and very low (<10%) in 2 mandals i.e., Tirupati [urban] (1.79%) and K.V.B.Puram (8%) mandals.

SPATIAL DISTRIBUTION OF NET AREA SOWN (2018-19)

Under Net Area Sown, 343605 hectares of land is recorded in the District during 2018-19. It amounts to 22.70% to the total Geographical area of the District .The spread of various concentration zones of Net Area Sown is confined to the entire District not limiting to a particular patch or part of the District. Very high (>40%) concentration is noticed in Thavanampalle (44.20%) and Santhipuram (43.40%) which are geographically located in south western part of the District. High concentration Net Area Sown (30-40%) is noticed in 15 mandals, medium (20-30%) in 26 mandals, low (10-20%) in 18 mandals and very low (<10%) in 5 mandals of the District. The lowest concentration is registered in Tirupati [urban] (0.80%) followed by Nagalapuram (6.60%), Chandragiri (7.30%), Renigunta (7.60%) etc.



CHANGES IN NET AREA SOWN (2005-06 & 2018-19)

Significant amount of 21080 hectares of area has been sprinkled in the Net Area Sown category of land use in Chittoor District during 13 years period. In percentage the shrinking accounts to 1.37%. The decrease may be due to increase in land put to Non-agricultural use, Cultivable waste land, other fallows and current fallows. With regard to the changes in the concentration zone and number of mandals, except in

moderate concentration zone change is not so significant (Table-10). In the case of maximum percentage of Net Area Sown change occurred both in percentage (decrease of 7.8%) and location of the mandal (from Santhipuram to Thavanampalle), during the study period regarding to minimum concentration change occurred only in percentage (decrease of 1.2%) but not in the location of the mandal. In both 2005-06 & 2018-19, Tirupati [urban] mandal remained with a record of minimum percentage of Net area sown.

Table-10
Changes in Net Area sown - Chittoor District
2005-06 & 2018-19

S.No:	Concentration of Net Area Sown	No of Mandals		Changes in 13 years period
		2005-06	2018-19	
1	>40% (Very high)	3	2	-1
2	30-40% (High)	14	15	+1
3	20-30% (Medium)	31	26	-5
4	10-20% (Low)	16	18	+1
5	<10% (Very low)	2	5	+3
6	Maximum	Santhipuram (52%)	Thavanampalle (44.20%)	Change occurred both in percentage wise and location of the mandal
7	Minimum	Tirupati [urban] (2%)	Tirupati [urban] (0.80%)	Change occurred only in percentage but not in the location of the mandal
8	District total	24.07%	22.70%	-1.37%

CONCLUSION

On the whole, the summarized points of the General Land Use in Chittoor district during 2005-06 & 2018-19 are as follows. The forest land remained same without any change during 13 year period. Increase has been reported in the categories of land put to Non-Agricultural uses (16047 hectares), Current Fallows (13738 hectares) Other Fallows (6072 hectares) and Cultivable Waste land (5238 hectares). Whereas decrease is registered in net area sown (21080

hectares), Barren and Uncultivable Land (10964 hectares) and percentage Pastures and Other Grazing land (1114 hectares). The major change in the District during 13 year period is decrease in the Net Area Sown and increase in the Land put Non-Agricultural Uses.

REFERENCE

1. *Bala Ankanna, N. & Krishna Kumari, A. (2019): Geographical Analysis of Landuse in cyclone prone SPS. Nellore District. EPRA International*



- Journal of Economic and Business Review- Peer Review Journal Vol. 7, No. 8(A), PP. 36-43.*
2. **Dr. Karunakara Rao, M., Prof. Krishna Kuamri, A., Dr. Sreenivasulu, V. & Mr. Subhankar Rana (2016):** Landuse / Landcover pattern in Dharmavaram Mandal of Anantapur District using Remote Sensing & GIS Technologies, Andhra Pradesh, India. *The International Manager*, Vol. 3, No.11, PP.69-76.
 3. **Dr. G. Rambabu, Prof. Krishna Kumari, A. (2016):** Landuse Analysis of Perannar River Basin. *International Journal of Economic and Business Review*, Vol, 4 No.10, PP. 92-97.
 4. **Krishna Kumari, A. & Swaminathan, E. (1990):** Changing Farming Scene in Nellore District, India. *The Indian Geographical Journal* Vol 65, No 2, PP. 123-129.
 5. **Mankar , Ganesh (2008) :** Agricultural Land use Pattern in Mulshi, Tahsil, Pune District, *The Deccan Geographer*, Vol.46, PP-85-91.
 6. **Prakasam, C. (2010):** Land use and Land cover change Detection through Remote Sensing approach – A case study of Kodaicanal Taluk, Tamil Nadu, *Intenational Journal of Geomatics and Geosciences*, Vol. 1, No. 2 , PP. 150-158.
 7. **Patil, B.D. (2013):** A Geographical Analysis of Spatio-temporal Variation in Cropping Intensity & Concentration of irrigated crops in Dhule & Nandurbar Districts (ms). *Indian system Research Journal*, Vol 3, No.11, PP. 1- 6.
 8. **Rathod . H. B, Naik. V. T (2009):** Agricultural Land use Cropping Pattern in Yavatmal District, Shodh, Samikshaur Mulayankar (*International Research Journal*), Vol 2, No. 6, PP. 780-782.
 9. **Siddiqui, M. F. (1973):** Agricultural Land use in Block Soil Regions of Bundelkhand, *Geographical Review of India*, Vol.35, No. 4, PP. 341-354.
 10. **Singh. K. N and Singh . B. (1979):** Land use Cropping Pattern and their Ranking in Shahganj Tahsil, A Geographical Analysis, *The National Geographical Journal of India*, No.16, Pts. 3-4, P. 221.