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GROWTH OF WASTE LAND IN THE STATEOF ANDHRA PRADESH

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Abstract

India being an agrarian economy, any change in the agricultural land use pattern will have a significant implication on its growth, diversification and sustainability. Studies have shown that human-induced conversions like de-forestation and modifications of land use management significance for the functioning of the earth system through their impact on biogeochemical cycles. Changes in these biogeochemical cycles, as a result of eco system conversion, can change the dynamics of green-house gas emissions. Land use changes can also have an important impact on the water and energy balance which in turn affect the climate conditions in the economy. The changes in the economy will bring the changes in the land use pattern. In India, the changes in the composition of the economy, pressure on land, changes in income levels, available technology and associated factors are affecting the land-use pattern. And the ultimate result is increasing waste land and decline in net area shown. The present study is an attempt to examine the growth of waste land in the state of Andhra Pradesh by using mainly the secondary data.

Keywords: *Waste land, current fallows, other fallows, Net area sown.*

I. Introduction

In India, intensive agricultural practices that rely heavily on water, chemical fertilizers and pesticides have caused waterlogging and salinity in many parts of the country. The continuous use of the irrigation for crops without taking steps for proper drainage of the catchment areas has exacerbated this. Meeting the targets for increased agricultural productivity led to intensive cultivation of marginal lands causing their degradation. These pressures on land are compounded by the fact that over 69.0 per cent of geographical area falls within dry zone as per the ThornwaiteClassification[1]. Land degradation has a direct effect on the productivity of soil, it is vulnerability to rainfall fluctuations, scarcity of drinking water in settlements, fodder and fuel wood.With the inter-linkages between crop production, livestock economy and environment, land degradation has major impact on the livelihood of the people, especially in rural areas. In this crucial context, the concept of cultivable waste land has attracted the attention of the administrators and policy makers.Hence, the present study is an attempt to examine the growth trends of the waste land in the state as a whole and in the districts.

II. Profile

The total area of the State of Andhra Pradesh accounts 1629669 Sq.kms. The Statelies between 12°41”and 19.07” northlatitudes and 76°50” and 84°40’east longitudes. The Bay of Bengal is its eastern frontier, Karnataka in the west; Telangana, Chattisgarh and Orissa in

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the north and Tamil Nadu in the south are the borderStates. The state comprises13 districts, 51 revenue divisions, 679 mandals, 17,389 revenue villages, 13,065 gram panchayats and 195 towns. Physiographically, there are two agricultural regions in the state viz. the coastal and Rayalaseema regions. The coastal region is comprisingof Srikakulam, Vizianagaram, Visakhapatnam, East Godavari, West Godavari, Krishna, Prakasam and Nellore districts. The Rayalaseema region comprises Anathapuramu, Kadapa, Chittoor and Kurnool districts. The total population of the State according to 2011 census accounts for 495.77 lakhs of which 248.3 lakh(50.1 per cent) are males and 247.47 lakh(49.9 per cent) are female population. The percentage share of rural and urban population is accounting for 70.5 per cent and 29.5 per cent. The total literacy rate accounts 67.4 per cent where as it was 74.77 per cent and 60.0 per cent in the case of male and female. The GSDP and per capita income at current prices accounts Rs.9,86,611crores and Rs.1,70,215during 2020-21 (Advance estimates).

III. Land Utilization in Andhra Pradesh

The category-wise land utilization in the state of Andhra Pradesh is shown in Table 1. which reveals that the percentage share of the Forest has increased to 22.6 per cent during 2018-19 from 21.6 per cent during 2001-02, whereas it has declined to 8.3 per cent from 9.3 per cent in the case Barren and Un-cultivable land. The percentage share of land put to Non-agricultural uses has increased to 12.6 per cent from 11.0 per cent whereas, it has declined to 1.3 per cent from 2.1 per cent in the case of Permanent Pastures and Other Grazing lands.The percentage share of Miscellaneous Tree crops and Groves and Cultivable waste land has declined to 1.0 per cent and 2.5 per cent from 1.3 per cent and 3.2 per cent, whereas, it has increased to 5.7 per cent and 8.9 per cent from 4.3 per cent and 6.8 per cent in the case of Other Fallows and Current fallows. At the same time, the percentage share of Net Area Sown has increased to 42.4 per cent during 2010-11 from 40.4 per cent during 2001-02 but has declined to 37.1 percent during 2018-19. The growth rate is positive in Forest, Land put to non-agricultural uses, Other Fallow and Current Fallows land categories as the compound growth rate account for 0.31 per cent, 0.88 per cent, 0.99 per cent and 2.28 per cent and is significant at 0.05 per cent level (1.740) as calculated ‘t’ value account for 6.442; 13.516; 3.083 and 2.513. At the same time the compound growth rate was negative in the case of Barren and Un-cultivable lands, Permanent Pastures, Miscellaneous Crop trees, Cultivable waste and Net area Sown categories as the compound growth rate account for−0.87 per cent, −3.48 per cent, − 2.26 per cent, − 1.95 per cent and −0.42 per cent and is highly significant at 0.05 per cent (1.740) level as the calculated ‘t’ value account for 13.516; 11.575; 12.611; 10.103 and 2.119.

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Table-1:Year and Category-Wise Percentage Share of Land Utilization in Andhra Pradesh

Year	Forests	Barren and uncultivable land	Land put to non-agricultural uses	Permanent pastures and other grazing lands	Land under misc. tree crops groves not included in net area sown	Cultivable waste	Current fallows	Other fallow lands	Total waste land	Net area sown	Geographical area
2001-2002	21.6	9.3	11.0	2.1	1.3	3.2	6.8	4.3	14.3	40.4	100.0
2002-2003	21.6	9.3	11.3	2.1	1.3	3.2	8.1	5.1	16.4	38.0	100.0
2003-2004	21.6	9.3	11.3	2.1	1.3	3.2	7.0	5.0	15.2	39.2	100.0
2004-2005	21.6	9.3	11.4	2.1	1.3	3.2	4.6	4.9	12.7	41.6	100.0
2005-2006	21.6	9.3	11.4	2.1	1.3	3.1	4.8	4.8	12.7	41.6	100.0
2006-2007	21.6	9.3	11.2	1.7	1.2	3.2	7.8	4.9	15.9	38.9	100.0
2007-2008	21.6	9.0	11.3	1.6	1.2	3.0	5.5	4.4	12.9	42.4	100.0
2008-2009	21.6	8.9	11.5	1.6	1.1	3.0	5.9	4.4	13.3	42.0	100.0
2009-2010	21.6	8.9	11.5	1.6	1.1	3.0	8.9	5.1	17.0	38.3	100.0
2010-2011	21.8	8.8	11.8	1.6	1.1	2.9	5.2	4.4	12.5	42.4	100.0

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2011-2012	21.8	8.8	12.0	1.5	1.1	2.8	6.5	4.6	13.9	40.9	100.0
2012-2013	21.7	8.4	12.4	1.3	1.0	2.6	7.1	5.1	14.8	40.4	100.0
2013-2014	21.8	8.4	12.4	1.3	1.0	2.4	6.8	4.9	14.1	41.0	100.0
2014-2015	22.5	8.3	12.4	1.3	1.0	2.4	8.6	5.3	16.3	38.2	100.0
2015-2016	22.6	8.3	12.5	1.3	1.0	2.5	8.7	5.1	16.3	38.0	100.0
2016-2017	22.6	8.3	12.6	1.3	0.9	2.5	9.2	5.3	17.0	37.3	100.0
2017-2018	22.6	8.3	12.6	1.3	0.9	2.5	8.9	5.8	17.2	37.1	100.0
2018-2019	22.6	8.3	12.6	1.3	1.0	2.5	8.9	5.7	17.1	37.1	100.0
CGR	**0.313**	**-0.873**	**0.877**	**-3.476**	**-2.264**	**-1.952**	**2.282**	**0.989**	**1.024**	**-0.419**	-
't' value	**6.442**	**13.516**	**12.410**	**11.575**	**12.611**	**10.103**	**2.513**	**3.083**	**2.119**	**2.119**	-

Source: Compiled from Annexure I.

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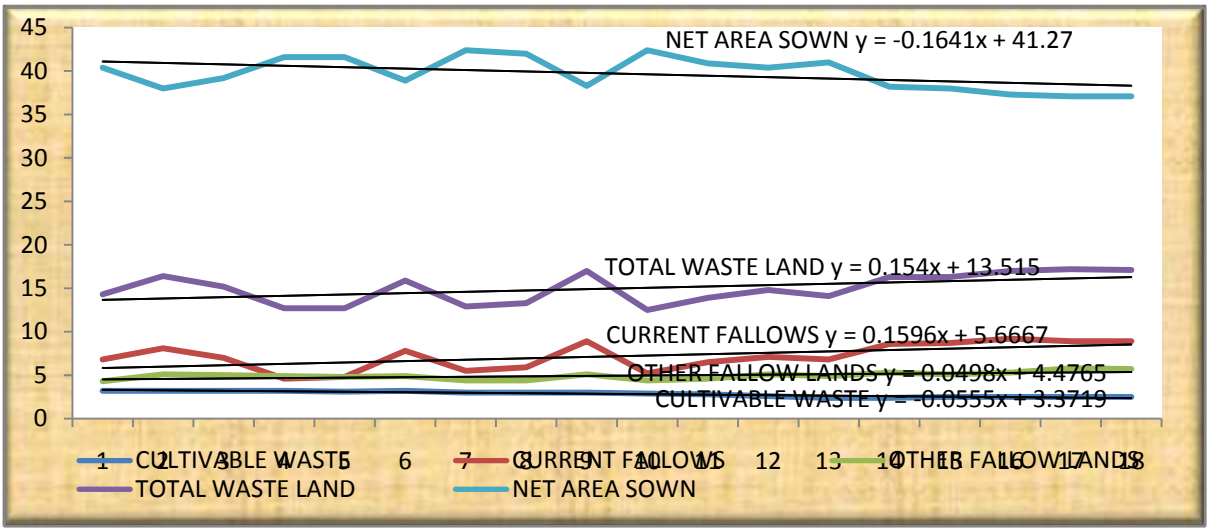
IV. Growth trends of Waste Land: The word waste land is a broad term. According to Prof. Dudly Stamp, waste land may be defined as "Land which has been previously used but which has been abandoned and for which no further use has been found (1954). Waste land survey and Reclamation Committee, Ministry of Food and Agriculture has defined "waste land as those land, which are either not available for cultivation or left out without being cultivated like fallows and cultivable waste" (1965). Bureau of Economics and Statistics, Government of India has defined wastage land "All land available for differnet kinds of cultivations whether not taken up for cultivation or abandoned after five years for one reason or other" (1979). National Remote Sensing Agency (NRSA) "waste land is described as that land which is presently lying unused or which is not being used to its optimum potential due to some constraints" (1985). According to T.Venkatanarayanan, Member Secretary, National Waste land Development Board (NWDB), New Delhi, "waste land means the degraded land which can be brought under vegetative cover with reasonable effort and which is currently under-utilized and land which is deteriorating for lack of proper water and soil management disabilities such as by location, environment, chemical and physical properties of the soil or financial or management constraints" (NWDB, 1987). Hence, for the present study the Waste land comprises the sum of cultivable waste land plus current and other fallows has been taken into consideration. The analysis is further extended to find out the density of total waste lands in the State of Andhra Pradesh.

The total percentage share of waste land has increased to 17.1 per cent during 2018-19 from 14.3 per cent during 2001-02. The compound growth rate of it accounts 1.024 per cent and is significant at 0.05 per cent (1.740) level as the calculated 't' value accounts 2.119 as shown in Table I. The linear growth rate curve of total waste land shows an increasing trend whereas, it was decreasing trend in the case of net area sown as shown in Figure I. The decline in percentage share of net area sown has led to the increase of share of waste land in the state. Hence, these two variables are highly correlated at 0.9 and is significant at 0.05 per cent (1.740) level as calculated 't' value accounts for 8.256. Among the various components of waste land, the growth is high in the case of current Fallow land. That is why the linear growth rate curve of it lies above to the linear growth rate curves of cultivable waste land and other fallow lands.

Figure I: **Growth Rate of Cultivable waste land and Other Fallow lands in the State of Andhra Pradesh**



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V. District-wise Waste land

Among the 13 districts of Andhra Pradesh, the percentage share in total geographical area is highest in Ananthapuramu district which accounts 11.7 per cent during 2018-19 whereas it was lowest in the district of Srikakulam which accounts 3.6 per cent as shown in Table 2. The percentage share of the district of Chittoor is high which account for 13.6 per cent and 16.5 per cent in total Forest and Barren and Un-cultivable land whereas it was lowest in the case of Srikakulam and Guntur which accounts 1.9 per cent and 2.4 per cent. The percentage share of the district of Nellore is high which accounts 15.3 per cent and lowest in Vizianagaram which accounts 4.0 per cent in the case of land put to Non-agricultural uses. The percentage share in the permanent pastures is highest in Prakasam district which accounts 26.3 per cent whereas, it was lowest which accounts 0.5 per cent in Srikakulam district. The percentage share of miscellaneous and Waste land is highest in Visakhapatnam and Ananthapuramu districts which account for 20.3 per cent and 18.0 per cent and lowest in Kurnool and Srikakulam districts which account for 1.2 per cent and 1.7 per cent. The percentage share of Net area sown is highest which accounts 14.6 per cent in Ananthapuramu district whereas it was lowest which accounts 4.4 per cent in Visakhapatnam district. On the whole the percentage share of both waste land and Net area sown is highest which account for 18.0 per cent and 14.6 per cent in the district of Ananthapuramu, whereas, it was lowest which account for 1.7 per cent and 4.4 per cent in the districts of Srikakulam and Visakhapatnam.

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TABLE-2DISTRICT-WISE PERCENTAGE SHARE OF THE VARIOUS CATEGORIES OF THE LAND IN THE ANDHRA PRADESH

Sl.No	District	Forests		Barren And Uncultivable Land		Land Put To Non-Agricultural Uses		Permanent pastures And Other Grazing Lands		Land Under Miscellaneous Tree Crops And Groves Not Included In Net Area sown		Waste Land		Net Area Sown		Geographical Area	
		2001-02	2018-19	2001-02	2018-19	2001-02	2018-19	2001-02	2018-19	2001-02	2018-19	2001-02	2018-19	2001-02	2018-19	2001-02	2018-19
1	Srikakulam	2.1	1.9	3.4	3.6	5.1	5.0	0.3	0.5	1.2	4.8	3.2	1.7	4.6	5.1	3.7	3.6
2	Vizianagaram	3.2	3.2	5.2	5.4	4.3	4.0	1.5	2.4	3.4	6.9	1.9	3.3	4.8	4.5	4.0	4.0
3	Visakhapatnam	13.8	12.0	8.8	9.7	5.7	5.4	0.9	1.4	16.7	20.3	3.5	4.7	4.8	4.4	7.1	6.9
4	East Godavari	9.4	12.6	5.6	6.2	7.0	7.7	7.5	10.5	3.9	3.4	4.8	4.4	6.3	7.0	6.8	7.9
5	West Godavari	2.4	3.6	2.8	3.0	6.2	6.4	4.2	5.7	3.9	4.9	3.4	2.3	7.0	7.6	4.9	5.2
6	Krishna	1.9	2.1	3.7	2.8	8.5	7.5	3.7	5.3	2.7	5.7	4.7	3.2	7.5	8.2	5.5	5.4
7	Guntur	4.7	4.4	2.3	2.4	8.9	8.7	7.4	6.7	19.5	15.6	4.0	4.2	9.7	10.1	7.1	7.0
8	Prakasam	12.8	12.4	10.4	11.4	8.5	8.9	20.2	26.3	5.5	2.3	15.2	12.6	8.4	9.2	10.7	10.8
9	SPSR Nellore	7.1	7.4	10.8	6.0	13.3	15.3	30.2	16.3	7.5	4.9	9.1	11.5	5.5	4.6	8.2	8.0
10	Chittoor	13.1	13.6	11.1	16.5	8.1	8.8	11.1	4.3	12.2	19.8	11.4	12.2	6.5	5.7	9.4	9.4
11	YSR Kadapa	14.6	9.2	16.0	9.4	9.5	7.2	4.7	1.4	4.2	4.3	9.5	11.2	6.0	5.0	9.6	10.8
12	Ananthapuramu	5.7	5.3	13.2	12.2	9.2	7.3	7.1	2.9	18.3	5.9	11.0	18.0	16.2	14.6	12.0	11.7
13	Kurnool	9.2	12.3	6.7	11.4	5.7	7.8	1.2	16.3	1.0	1.2	18.3	10.7	12.7	14.0	11.0	9.3
14	Andhra Pradesh	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	% of Total Geographical Area	**21.6**	**22.6**	**9.3**	**8.3**	**11.0**	**12.6**	**2.1**	**1.3**	**1.3**	**1.9**	**14.3**	**17.2**	**40.4**	**37.0**	**100.0**	**100.0**

Source: Compiled from Annexure II.

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On the other hand, within the district, the percentage share of Net area shown has declined in all the districts of Andhra Pradesh during the period of 2001-02 to 2018-19 except in Srikakulam as shown in Table 3. The percentage share of Waste land has increased in the districts of Vizianagaram, Visakhapatnam, Guntur, Nellore, Chittoor, Kadapa and Ananthapuramu whereas it has declined in the case of the remaining districts. Within the waste land the percentage share of Current Fallow land has increased in all the districts of the State whereas it has also declined in all the districts (except in Visakhapatnam and Chittoor) of the state in the case of Cultivable Waste land. The percentage share of other Fallow land has declined in all the districts (except in Guntur, Nellore, Chittoor and Kadapa). The percentage share of Permanent Pastures and Other Grazing lands either remains constant or declined in all the districts whereas, it has increased in all the districts of the State in the case of Land put to non-agricultural uses. The percentage share of Barren and Un-cultivable land has declined in all the districts (except in Visakhapatnam and Kurnool) whereas, it has increased in Vizianagaram, East Godavari, West Godavari, Krishna, Prakasam, Nellore and Kurnool districts in the case of forest due to bifurcation of the state of Andhra Pradesh.

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TABLE-3: CATEGORY-WISE PERCENTAGE SHARE OF LAND UTILIZATION OF WITHIN THE DISTRICTS OF ANDHRA PRADESH

1	2	3		4		5		6		7	
Sl.No	**District**	**Forests**		**Barren And Uncultivable Land**		**Land Put To Non-Agricultural Uses**		**Permanent pastures And Other Grazing Lands**		**Land Under Miscellaneous Tree Crops And Groves Not Included In Net Area sown**	
		2001-02	**2018-19**	**2001-02**	**2018-19**	**2001-02**	**2018-19**	**2001-02**	**2018-19**	**2001-02**	**2018-19**
1	Srikakulam	12.1	11.8	8.6	8.3	15.4	17.6	0.2	0.2	0.4	1.3
2	Vizianagaram	17.8	18.2	12.3	11.2	12.1	12.5	0.8	0.8	1.1	1.6
3	Visakhapatnam	42.1	39.5	11.5	11.7	8.8	9.9	0.3	0.3	3.1	2.9
4	East Godavari	29.9	36.4	7.6	6.5	11.4	12.5	2.3	1.7	0.7	1.6
5	West Godavari	10.4	15.6	5.3	4.7	14.1	15.5	1.8	1.4	1.0	8.7
6	Krishna	7.5	8.7	6.3	4.2	17.0	17.8	1.4	1.2	0.6	7.2
7	Guntur	14.3	14.2	3.0	2.8	13.8	15.8	2.1	1.3	3.6	2.1
8	Prakasam	25.8	26.1	9.0	8.7	8.7	10.4	3.9	3.1	0.7	0.2
9	SPSR Nellore	18.7	20.7	12.2	6.3	17.8	24.0	7.6	2.6	1.2	0.6
10	Chittoor	30.1	29.8	11.0	10.1	9.5	10.6	2.4	2.2	1.7	2.0
11	YSR Kadapa	32.8	32.6	15.5	14.4	10.9	11.9	1.0	0.6	0.6	0.4
12	Ananthapuramu	10.3	10.3	10.3	8.6	8.5	7.9	1.2	0.3	1.9	0.5
13	Kurnool	18.1	19.3	5.7	7.2	5.7	8.1	0.2	0.2	0.1	0.1
14	**Andhra Pradesh**	**21.6**	**22.6**	**9.3**	**8.3**	**9.3**	**12.6**	**2.1**	**1.3**	**1.3**	**1.9**

Source: Compiled from Annexure II.

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Sl. No	District	8		9		10		11		12		13	
		Cultivable waste		**Others fallow lands**		**Current fallows**		**Waste Land (8+9+10)**		**Net Area Sown**		**Geographical Area**	
		2001-02	**2018-19**	**2001-02**	**2018-19**	**2001-02**	**2018-19**	**2001-02**	**2018-19**	**2001-02**	**2018-19**	**2001-02**	**2018-19**
1	Srikakulam	0.1	0.1	12.0	2.6	0.7	5.5	12.8	8.2	50.5	52.7	100.0	100.0
2	Vizianagaram	0.6	0.6	5.4	4.7	0.8	8.9	6.8	14.2	49.1	41.5	100.0	100.0
3	Visakhapatnam	0.7	0.9	5.8	3.5	0.7	7.4	7.1	11.8	27.1	23.9	100.0	100.0
4	East Godavari	1.5	1.2	6.5	3.9	2.2	4.5	10.2	9.6	37.9	31.7	100.0	100.0
5	West Godavari	2.7	1.8	5.9	3.2	1.3	2.5	9.9	7.5	57.5	46.6	100.0	100.0
6	Krishna	3.3	2.5	5.7	4.6	3.0	3.1	12.1	10.2	55.1	50.7	100.0	100.0
7	Guntur	3.2	2.1	2.9	3.3	1.9	4.7	8	10.1	55.2	53.7	100.0	100.0
8	Prakasam	3.6	3.3	9.1	9.1	7.5	7.6	20.3	20	31.6	31.5	100.0	100.0
9	SPSR Nellore	6.7	6.2	2.9	9.8	6.2	8.7	15.8	24.6	26.7	21.1	100.0	100.0
10	Chittoor	2.7	3.1	7.2	8.1	7.5	11.4	17.4	22.6	27.9	22.7	100.0	100.0
11	YSR Kadapa	4.5	2.9	5.0	6.8	10.6	1.79	14.1	20.3	25.1	19.8	100.0	100.0
12	Ananthapuramu	2.8	2.3	6.1	5.4	4.2	18.6	13.1	26.3	54.7	46.1	100.0	100.0
13	Kurnool	4.6	2.6	12.5	4.3	6.7	10.1	23.7	17.0	46.5	48.1	100.0	100.0
14	**Andhra Pradesh**	**3.2**	**4.11**	**6.8**	**9.37**	**4.3**	**14.51**	**14.3**	**17.2**	**40.4**	**36.1**	**100.0**	**100.0**

Source: Compiled from Annexure II.

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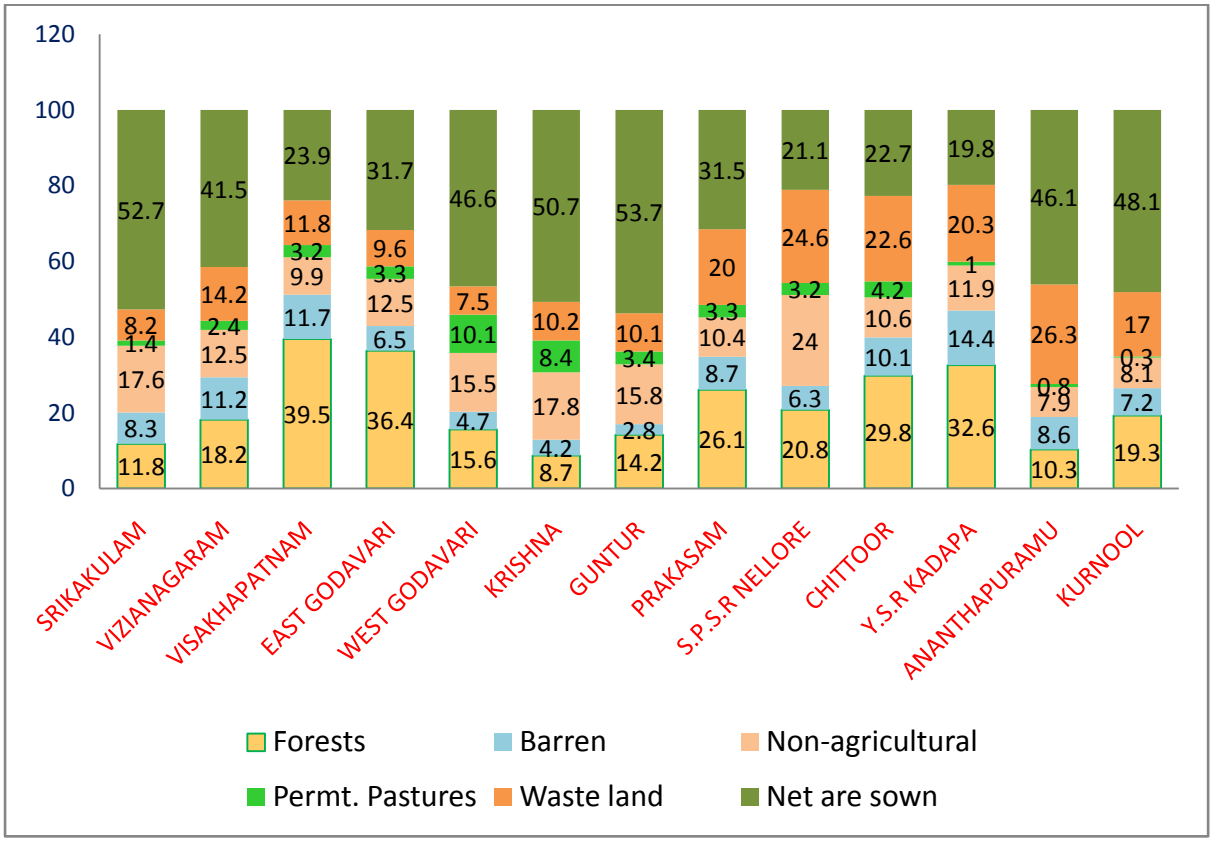
Figure II: District-wise Land utilization in Andhra Pradesh in 2018-19



Source: Table 3.

Note: Permanent Pastures and Land under Miscellaneous Tree crops clubbed together (Columns 6 and 7) in 2001-02 and 2018-19.

VI. Reasons for Increasing Cultivable waste land

The reasons for cultivable waste land are deforestation, over grazing, improper irrigation, increase in biotic presence, absence of adequate investments and appropriate management practice and high incidence of poverty in rural areas. In addition to them, the reasons the current fallows and other fallow land in the state of Andhra Pradesh are lack of irrigation facilities, lack of remunerative prices, scarcity of inputs, lack of credit facilities, lack of timely assistance and settling in other professions and jobs.

VII. Findings

The following are the main findings of the study period.

I. The percentage share of Net Area Sown in the state has significantly declined.
II. The percentage share of Waste land has increased significantly.
III. Within the total waste land, the percentage share of Current Fallows is high.
IV. The percentage share of land put to non-agricultural uses has increased significantly in all the districts. This may be due to urbanization and industrial development.

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V. Within the districts of Andhra Pradesh the percentage of Net Area Sown and Waste land is high in the district of Ananthapuramu and low in the district of Srikakulam.
VI. On the whole there is negative correlation between Net Area Sown and Waste land.

Hence, the increasing trend of waste land growth can be solved through the development of farm activities particulars in the rural area.

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Note: 1.Thornwaite Classification – A system of climate classification devised in 1931 and revised in 1948 by the American climatologist Charles Warren Thornthwaite (1889–1963) by precipitation effectiveness (P/E, where P is the total monthly precipitation and E is the total monthly evaporation).The monthly *P/E* values are used to define five humidity provinces, with associated vegetation. A *P/E* index of more than 127 (wet) indicates rain forest; 64–127 (humid) indicates forest; 32–63 (sub-humid) indicates grassland; 16–31 (semi-arid) indicates steppe; less than 16 (arid) indicates desert.

References

1. Government of Andhra Pradesh, Statistical Abstract, Directorate of Economics and Statistics, Hyderabad and Amaravathi.
2. Government of Andhra Pradesh, Social Economic Survey 2020-21 Planning Department, Amaravathi.
3. Prof.Dudely Stamp, (1954) Chief Adviser on Rural Land Utilization in the Ministry of Agriculture, U.K. (1942-55)
4. Government of India, Ministry of Food & Agriculture, 1961, New Delhi.
5. Government of India, National Remote Sensing Agency (1985).
6.Government of India, National Waste land Development Board (1987), New Delhi.

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Annexure I: Year and Category-wise Land Utilisation 2001-02 to 2018-19

Year	Forests	Barren and Un-cultivable land	Land put to non-Agricultural uses	Permanent pastures and other Grazing lands	Land under misc. Tree crops groves not included in Net area sown	Cultivable waste	Current fallows	Other Fallow lands	Total Waste land	Net Area sown	Geographical area
2001-2002	3453986	1486843	1758599	330237	207932	509198	689369	1084761	2283628	6441824	15962749
2002-2003	3453986	1486843	1796127	338905	206810	509170	1293097	807506	2609773	6070305	15962749
2003-2004	3453986	1486843	1801146	338905	206815	509170	1117426	790883	2417479	6257575	15962749
2004-2005	3453986	1486843	1813019	338905	207415	504669	734462	788797	2027928	6634653	15962749
2005-2006	3453986	1486843	1819722	338905	207236	501740	758989	767323	2028052	6628005	15962749
2006-2007	3466893	1494326	1796334	275048	206056	511748	1255724	779335	2028052	6234936	16020400
2007-2008	3466893	1432998	1820328	260562	184582	485191	884724	699093	2546807	6786029	16020400
2008-2009	3466893	1429875	1833050	259402	182815	478405	944317	699806	2069008	6725837	16020400
2009-2010	3466893	1425020	1847391	257768	179545	476349	1422957	819091	2122528	6125386	16020400
2010-2011	3487043	1409403	1899666	251796	176275	459321	831608	709590	2718397	6795698	16020400
2011-2012	3487043	1407310	1921496	250458	174705	448703	1036986	732497	2000519	6561202	16020400
2012-2013	3484363	1342707	1987441	212157	164534	413505	1133765	819106	2218186	6462822	16020400
2013-2014	3493475	1340559	1982435	212129	160057	391500	1087497	791619	2270616	6561129	16020400
2014-2015	**3663278**	**1350579**	**2022519**	**213671**	**159399**	**391405**	**1401455**	**858334**	**2651194**	**6236050**	**16296690**
2015-2016	3688461	1346606	2031758	211554	157073	410349	1410091	832196	2652636	6208602	16296690
2016-2017	3688461	1345882	2048270	211080	156325	413542	1496001	860080	2769623	6077049	16296690
2017-2018	3688461	1344710	2055387	208718	155444	413731	1442507	940161	2796399	6047571	16296690
2018-2019	3688461	1344681	2057771	208354	154645	411503	1446339	936407	2794249	6048529	16296690

Source: Various Issues of Statistical Abstract, Directorate of Economics and Statistics, Government of Andhra Pradesh, Hyderabad and Amaravathi.

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Annexure-2: District and Category-Wise Land Utilization in Andhra Pradesh

(Area in Hectares)

S. No.	District	Forests		Barren And Uncultivable Land		Land Put To Non-Agricultural Uses		Permanent pastures And Other Grazing Lands		Land Under Miscellaneous Tree Crops And Groves Not Included In Net Area sown		Waste Land		Net Area Sown		Geographical Area	
		2001-02	2018-19	2001-02	2018-19	2001-02	2018-19	2001-02	2018-19	2001-02	2018-19	2001-02	2018-19	2001-02	2018-19	2001-02	2018-19
1	Srikakulam	70840	68641	50410	48408	89895	102541	931	943	2619	7458	74602	47837	294993	307872	584290	583700
2	Vizianagaram	111969	119303	77753	72981	75995	81629	4899	4956	7205	10606	42714	92992	309503	271433	630038	653900
3	Visakhapatnam	477791	441166	130938	130404	99355	111075	3048	2696	34779	31434	80804	131222	307569	268103	1134284	1116100
4	East Godavari	323107	466494	82716	83178	123267	159460	24822	21793	8112	5313	109953	122723	409866	421564	1081843	1280525
5	West Godavari	81186	132902	41128	40155	109526	131864	14011	12005	8137	7557	77546	63749	448004	462433	779538	850665
6	Krishna	66388	76186	55342	36757	149303	155385	12051	10544	5601	8778	106172	88785	484837	496265	879694	872700
7	Guntur	161941	161941	34470	31612	155919	180123	24325	14251	40454	24180	90885	115409	624830	611584	1132824	1139100
8	Prakasam	442500	459303	154421	152781	149448	184467	66814	55539	11388	3622	347248	352058	542243	554830	1714062	1762600
9	SPSR Nellore	246400	271899	161046	81808	234593	313556	99798	34196	15515	7529	88321	322566	351107	276046	1316042	1307600
10	Chittoor	451341	452018	164267	152683	142362	160487	36537	33621	25291	30555	260189	342127	418783	343609	1498770	1515100
11	YSR Kadapa	505495	500961	238181	221805	167550	182140	15585	8815	8774	6676	216717	311396	385536	304107	1537838	1535900
12	Ananthapuramu	196778	196978	196797	164796	161754	151093	23341	5817	38000	9252	250950	503624	1045872	881440	1913492	1913000
13	Kurnool	318250	340669	99374	127313	99632	143951	4075	3178	2057	1685	417965	299761	818681	849243	1760034	1765800
14	Andhra Pradesh	**3453986**	**3688461**	**1486843**	**1344681**	**1758599**	**2057771**	**330237**	**208354**	**207932**	**154645**	**2283328**	**2794249**	**6441824**	**6048529**	**15962749**	**16296690**

Source: Various Issues of Statistical Abstract, Directorate of Economics and Statistics, Government of Andhra Pradesh, Hyderabad and Amaravathi.

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