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AN ANALYSIS OF CHANGING LAND USE AND CROPPING PATTERN IN ANDHRA PRADESH

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Abstract: Cropping patterns are defined as the sequence and spatial arrangement of annual crops on a piece of land. Land and water are the basic resources of agriculture. Land is a most important resource in the economy of any country and agricultural resources have remained the principle occupation of man since ancient period. In olden days population was less and necessities were limited. With the huge increase in human population, their requirements increased and became complex. More than 85% of the water used for irrigation is groundwater. Thus, agriculture irrigated by surface water and groundwater suffers from the vagaries of monsoon. In the world, India has the second largest net irrigated area after China. The irrigation efficiency under canal irrigation is not more than 40% and for ground water schemes, it is 69%. In a major boost to the export prospects of agricultural produce, India registered a significant surge in export of agricultural and processed food products in April-October period of current Financial Year, 2021-22, in comparison to the corresponding seven month period of last fiscal, 2020-21.

Index Terms: crops, land use, farmers, irrigation

Introduction : Knowledge of cropping patterns is crucial for crop production and land-use intensity. While cropping patterns are related to crop production and land use intensity, they are rarely reported in agricultural statistics, especially those relating to small farms in developing countries. Remote sensing has enabled mapping cropping patterns by monitoring crops' spatial and temporal dynamics. In this paper, we reviewed remote sensing studies of single, sequential and intercropping patterns of annual crops practiced at local and regional scales. Land and water are the basic resources of agriculture. Land is a most important resource in the economy of any country and agricultural resources have remained the principle occupation of man since ancient period. In olde n days population was less and necessities were limited. With the huge increase in human population, their requirements increased and became complex. As a result of increasing pressure of population, changes are occurring in the land-use and cropping pattern. Owing to increasing pressure of human and livestock population on the land and ever growing demand of food, fodder and fuel, there is bare need of scientific, rational and economic use of every piece of land in a sustainable manner. Rapid land use change has taken place in Andhra Pradesh over the past three to four decades due to accelerated and mainly for agriculture, industrialization and urbanization. Due to the growth of population the food requirements are also increased. In order to meet the basic requirements, the govt. has planned to increase the irrigation facilities and the agricultural inputs. (HYV and of seeds, agricultural implements etc.,) to the farmer s and also implement the schemes and incentives.

Land use change may be examined by considering conversion of forest to crop and rangeland; losses of productive land through various factors; conversion of wetlands to agriculture and urban use: and conversion of other types of land to various human uses. Andhra Pradesh is bestowed with multipurpose irrigation projects; supply of irrigation water from Tungabhadra, Krishna and Godavari has an added advantage for fast dynamics in land use and cropping pattern. In order to develop an agricultural planning strategy for a region, it is very much essential to know the type of crops grown and area having less or more concentration of a crop. Besides, it is equally important for a planner to know about the level of specialization or diversification of a region in terms of crop growing in it. Both land use and cropping pattern are dynamic aspects of an agricultural landscape, as they gradually undergo a change. It is perhaps more pertinent to take a sufficiently longer interval of time to study the changing pattern as it will help in detecting the change, as well as its magnitude and direction. Land is the ultimate asset of Andhra Pradesh MOUZAM et al., Dynamics of Land Use and Cropping Pattern in Andhra Pradesh 1401agrarian economy. In such economies both the quantity and quality of land determines the process of development and general wellbeing of the people. Their economic prosperity, by and large, depends upon how best land is being utilized. This study tries to examine the land use and cropping pattern of Andhra Pradesh.

Review of Literature

Arijit Roy(2013) have conducted a study in two villages with similar geographical and socio-economic features, namely Keshabpur and Bajitpur under No.3, Chaitanyapur Gram Panchayat, Sutahata block, East Midnapore district of West Bengal. The sample consists of two distinctive groups. Group I consist of 80 households who constructed different water harvesting structures and consequently cultivated the land thrice in a year. Group II includes 20 households who did not care for water harvesting and depended mostly on rain-water, cultivated their land twice in a year. Keshabpur and Bajitpur villages are under No.3 Chaitanyapur Gram Panchayat, Sutahata block, East Midnapore district of W.B. the cropping pattern is clearly better for the group using chowkas (Gr-I) compare to the group not using chowkas(Gr-II). Better availability of irrigation water from chowkas results in multiple cropping and mixed cropping systems for the Group-I farmers. Consequently, the cropping intensity for Gr-I is much higher than that for Gr-II. Vegetables register 300 per cent higher productivity for Gr-I compared to Gr-II. Pooling all the employment generating activities, 59.48 per cent more employment opportunities have been generated by Gr-I farmers compared to Gr-II farmers. The higher income and assets of the farmers in Gr-I is basically due to increased productivity of crops and livestock and more employment generation.

Prasad, R and Preeti Vaishnav (2011) studied 149 tribal families and 146 other families. It was found that the average size of landholding was very small in the survey area. Agriculture, horticulture and forestry were the prominent sources of livelihood of the borrowers in the study area, particularly in remote areas. The important crops cultivated were paddy, maize, wheat, millet, sugarcane, pulses, fruits (Water melon, mango, lemon, banana,) and miner forest product. It was observed that the banking habit of the beneficiaries was very insignificant out of 320 borrowers, 70 per cent reported that they opened an account with CGGB only for getting loan. Among the principal occupation of tribal borrowers, percentage of change between pre-loan period and post loan period was highest in transport and other services occupation. However, in agriculture activity banks created an insignificant additional employment compared to other activities. Purpose wise, the increase in net income was observed in all the activities during the post-loan period. However, for the borrowers who took loans for agriculture their receivable income increased only marginally Rs. 239. This may be due to continued use of primitive methods in agriculture in the study areas. It can be concluded from the above discussion the CGGB's loan has helped the sample borrowers in raising their level of income and thereby in improving their economic condition.

Panda B.K, R.K.Panda and P.Sarangi (2007) have conducted at Munsiguda mini-watershed in Phulbhi district of Orissa, it is found that due to this resource management programme, considerable progress has been achieved not only in crop production but also in improving the socio- economic condition of the inhabitants. The productivity levels of the traditionally grown crops like maize, ragi, blackgram, greengram, mustard and groundnut have been increased by 132, 50, 48, 38, 78 and 70 per cent respectively (Bhol, Senapati and Dikshit, 1990). In another study on Padalsingi watershed project, it was observed that due to watershed activities, the per capita annual income of people in the catchments area increased from Rs. 1,587 to Rs. 6,541. The annual income per hectare increased from Rs.1780 to 7815 and the cropping intensity increased from 106 to 150 per cent. The study is based on primary data collected from a random sample of 200 households selected from four villages-two from the project area and two outside the project area of Kashipur block in Rayagada district. The survey was conducted during January 2005. It is striking to note that the farmers in the project area are replacing traditional crops by vegetables and cash crops which is definitely a positive impact of watershed in the diversification of cropping pattern. The results of the yield rate indicate that these rates are higher in the project areas than in the non-project areas for almost all crops.

Singh, P.K. et. al. (1995) study envisaged that the impact on the following parameters: Changes in land use pattern; improvement in water potential; cropping intensity and productivity; returns gross returns and per capita income; employment generation; system developed for management of common property resources and benefit-cost ratio. The number of dug wells has increased from 5 to 10. The per capita income has gone up. People residing in the watershed area have formed a registered society called "Watershed Resource Society" after the implementation of the project. The society is running very smoothly and active people's participation to manage the common property resources.

Objectives : The main objectives of the study is the land use and cropping pattern in Andhra Pradesh.
assess the area under different types (Land use) divided total geographical area of Andhra Pradesh.
area under different crops yield and profit in the study area.
Number of Operational Holdings and Area Operated According to Size Class in the study area.

Methodology : The study has chosen one of the southern state of Andhra Pradesh in India, which is also one of the most backward state, The study covered land utilisation pattern, crop wise area under irrigated and class size of land holdings of the State. The study used secondary data. Secondary data was collected from the DRDA's, Ministry of Rural Development, Directorate of Economics and Statistics and also from internet.

Land Use Pattern

It was an established fact that the state of Andhra Pradesh is an agrarian state where majority of the workforce is engaged in the agriculture and related activities. Going a step further, the land use pattern presented in the state. The details on the land use pattern of Andhra Pradesh are presented in Table 1. The data on land utilization pattern during 2019-20 show that the total geographical area of Andhra Pradesh is ha 162.97 lakh. The area under forest constitutes 22.63 per cent, land put to non-agricultural use (12.63%), current fallows (8.88%), and barren and uncultivable land (8.25%) in 2019-20. The percentage of total cropped area to total geographical area is accounted for 45.74 and net area sown is constitutes 37.12. On the whole, the percentage of area cultivable waste land, current fallows and other fallows are more in the State of Andhra Pradesh

Table 1
Land Use Pattern in Andhra Pradesh:2019-2020

(Area in Lakh ha.)

Item	Andhra Pradesh	
	Area	%
Total Geographical Area	162.97	100.00
Forests	36.88	22.63
Barren and uncultivable land	13.45	8.25
Land put to non-agricultural uses	20.58	12.63
Cultivable waste land	4.12	2.53
Permanent pastures and other grazing lands	2.08	1.28
Land under miscellaneous trees and grove	1.55	0.95
Other fallows	9.36	5.75
Current fallows	14.46	8.88
Net sown area	60.49	37.12
Area sown more than once	14.06	8.63
Gross cropped area	74.55	45.74

Source: Andhra Pradesh Statistical Abstract-2020


Land Use Pattern in Andhra Pradesh:2019-2020
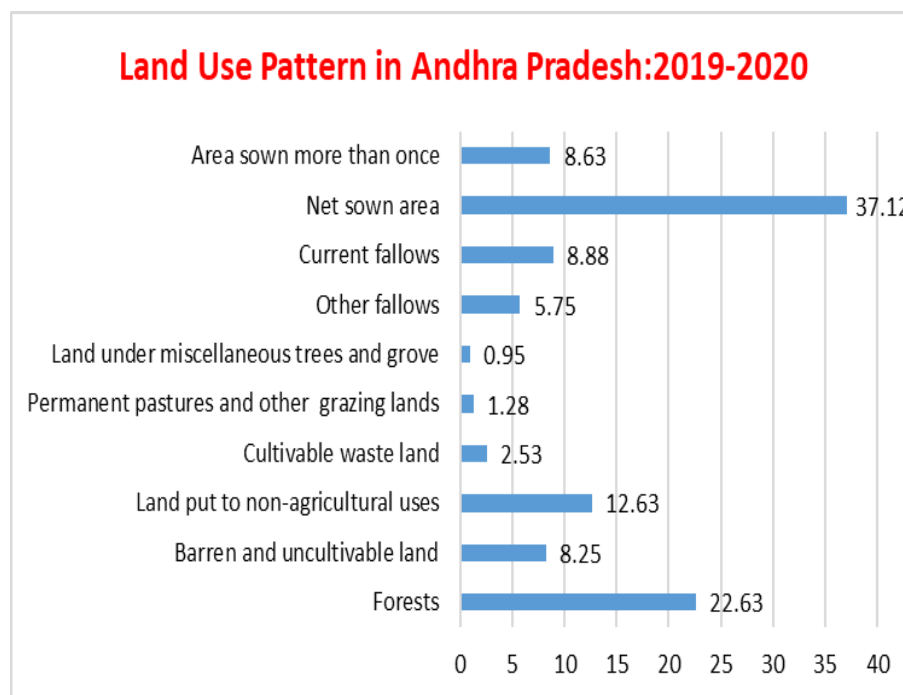
Operational Land Holdings

According to agricultural census 2015-16, the operational holdings of marginal and small farmers accounts for almost 85 per cent of the total holdings. About 67 per cent of the operational holdings belongs to marginal farmers, the area operated by marginal farmers constitutes only 22.5 per cent. The landholdings determine the socio-economic status of the family. The number of operational holdings and area operated has been divided into five categories viz., marginal, small, semi-medium, medium and large. The number of operational holdings and area operated of the Andhra Pradesh is shown in Table 2. In Andhra Pradesh, looking at the number of operational holdings, it was found that the ratio of marginal farmers stood at 69.26, small farmers 19.31 and semi-medium 2.22. The proportion of marginal farmers in the State of Andhra Pradesh 69.26 (59,04,039).

Table 2
Number of Operational Holdings and Area Operated According to Size Class of Andhra Pradesh
(2015-16 Census)

Size Class of Holdings (ha.)	Andhra Pradesh			
	Number of Holdings		Area Hectares	
	No.	%	Area	%
Marginal Farmers (Below 1.00 ha.)	5904039	69.26	2336410	29.19
Small Farmers (1-2 ha.)	1646246	19.31	2334052	29.16
Semi-Medium (2-4 ha.)	769843	9.03	2019757	25.23
Medium (4-10 ha.)	189034	2.22	1038254	12.97
Large (10 ha. & Above)	14748	0.17	276000	3.45
Total	**8523910**	**100.00**	**8004472**	**100.00**

Source: Andhra Pradesh Statistical Abstract-2020

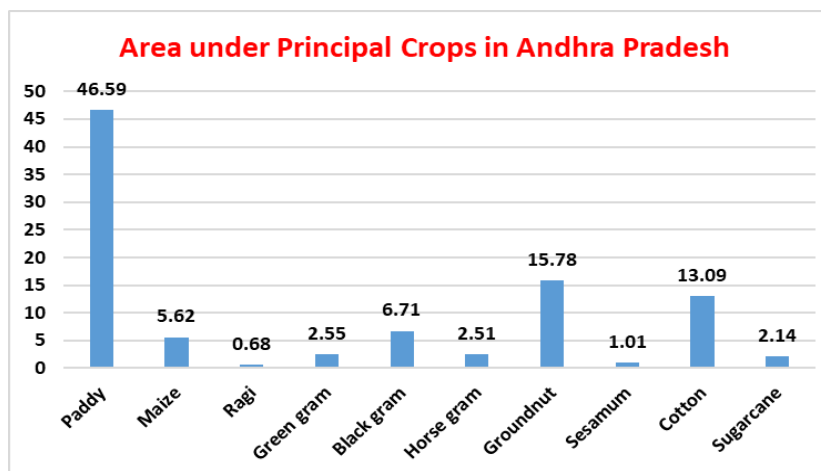**Number of Operational Holdings and Area Operated**
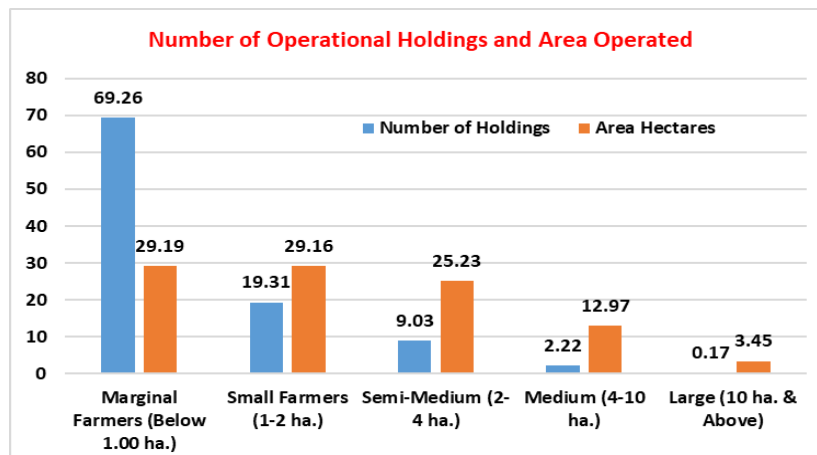
Cropping Pattern

Primarily Andhra Pradesh is an agrarian economy like India. However, the pattern of crops depends on the nature of soil and availability of irrigation facilities. As such the crops grown in each region differ from other regions. Looking at the cropping pattern in the Andhra Pradesh (Table 3). The total cropped area in Andhra Pradesh constitutes ha.47.40 lakh. Of the total cropped area, the highest proportion of area under paddy (46.59), followed by groundnut (15.78), cotton (13.09), black gram (6.71), maize (5.62), chillies (3.34), green gram (2.55), horse gram (2.51), sugarcane (2.14) and other two crops each less than two per cent during the year 2019-20.

Table 3
Area under Principal Crops in Andhra Pradesh: 2019-2020

(Area in 000' ha.)

S. No.	Crop	Andhra Pradesh	
		Area	%
1	Paddy	2208.30	46.59
2	Maize	266.22	5.62
3	Ragi	32.14	0.68
4	Green gram	120.96	2.55
5	Black gram	318.02	6.71
6	Horse gram	118.80	2.51
7	Groundnut	747.95	15.78
8	Sesamum	47.71	1.01
9	Cotton	620.27	13.09
10	Sugarcane	101.53	2.14
11	Chillies	158.43	3.34
	Total	**4740.32**	**100.00**

Source: As ex ante

Conclusion:

The percentage of total cropped area to total geographical area is accounted for 45.74 and net area sown is constitutes 37.12. In Andhra Pradesh, looking at the number of operational holdings, it was found that the ratio of marginal farmers stood at 69.26, small farmers 19.31 and semi-medium 2.22. The total cropped area in Andhra Pradesh constitutes ha.47.40 lakh. Of the total cropped area, the highest proportion of area under paddy (46.59).

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