

AGRICULTURAL LAND USE EFFICIENCY OF NELLORE DISTRICT, ANDHRA PRADES

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ABSTRACT : In this paper an attempt has been made to measure the level of Agricultural Land Use Efficiency in Nellore District. The Kendall's Ranking Co-efficient method is employed to measure the land use efficiency. Mandals are chosen as units of study. The variations in spatial pattern of land use efficiency are examined for the years 1984-85 and 1989-90. The reasons for low land use efficiency are arrived at. This study also proposes plans for sustainable agricultural development in the study area.

LAND USE EFFICIENCY

"Agricultural production is the effect of farming". In the field of geography, the concept of land use efficiency measurement is not a new one. It is a dynamic but complex phenomenon. The efficiency of land use in a given region is determined by the interaction of physical, socio-economic and technological factors. A combination of natural and man-made factors make land use efficiency a complex device.

Land use efficiency represents the degree of optimum use and performance of cultivated as well as cultivable land. Quantification of land use efficiency provides a precise and objective measure to examine the level of efficiency that land with certain natural characteristics given technological level and socio-economic set up is put to use.

M.G. Kendall (1939) was the first to develop a measure for agriculture land use efficiency on the basis of output per unit area and he devised the system of ranking co-efficient method. Previously this method was applied in different countries of the world by L.D. Stamp (1960) and in Uttar Pradesh by Shafi (1960). Stamp gave a definite shape to this efficiency, when he advocated the concept of carrying capacity of land and presented it to the International Geographic congress (IGC) at Brazil in 1956. Sapre and Deshpande (1964) suggested an equation to measure land use efficiency to multiplying and ranking of crops with that of land share divided by the total of crop land share. The formula is as follows¹.

$$E_i = \frac{r_1 c_1 + r_2 c_2 + r_3 c_3 + \dots + r_n c_n}{c_1 + c_2 + c_3 + \dots + c_n}$$

1. *Indian Journal of Agricultural Economics - Sapre and Deshpande (1964)*

Bhatia (1967), Gupta (1968) and M. Ali (1972) among Indian geographers paid attention to the study of land use efficiency in India. Jasbir Singh (1972, P. 316) explained land use efficiency as "the extent to which the net sown area has been cropped or resown". Here the total area cropped is expressed as a percentage of the net sown and it indicates the intensity of cropping.

METHODOLOGY

In the present study Kendall's Ranking Co-efficient method is employed in measuring land use efficiency in the Nellore district. The variations in spatial pattern of land use efficiency are examined for the years 1984-85 and 1989-90. The following five variables are taken in the present analysis of land use efficiency, namely 1. Net sown area 2. Area sown more than once 3. Net irrigated area, 4. Non-cultivable land 5. Cultivable waste land. These variables form a direct reflection on the efficiency of the land use.

Among the above five parameters, the first three are positive variables i.e., net sown area, area sown more than once and net irrigated area, and the last two are negative variables, i.e., non-cultivable land and cultivable waste land. The percentage values of the five variables of each areal unit (Mandal) was calculated and the average were recorded. The study of land

use efficiency brings out the impact of various controls stimulating the intensive use of net sown area of a given region.

For studying the spatial and temporal changes in land use efficiency, three land use efficiency categories are registered, namely High (<15), medium (15-20) and low(>20).

In the Nellore district the land use efficiency has a slight increase in terms of average range values of mandals but a sharp decrease is found in low efficiency values in six mandals. In 1989-90, land use efficiency increased due to increase of net area sown and net irrigated area of the district, shown on figure No.1.

HIGH LAND USE EFFICIENCY :

Out of the 46 mandals, 11 mandals had high efficiency in 1984-85 and 14 mandals in 1989-90. These are Jaladhanki, Bogolu, T.P. Gudur, Kovvuru, I. Peta, Chejerla and Manubolu etc. The highest land use efficiency was found in the Vidavalur mandal (range 12), because of possible improvements in cultivation methods and availability of other necessary facilities and also because of less percentage of non-cultivable waste lands in it. The mandals showing high efficiency are located in the eastern part of the district i.e., in the Coastal region. So, better moisture, fertility and irrigation conditions lead to large scale

Table - 1

Pattern of land use efficiency :

Average range	Category of land use efficiency	Number of Mandals		Variation
		1984-85	1989-90	
< 15	High	11	14	+3
20-15	Medium	22	25	+3
> 20	Low	13	7	-6

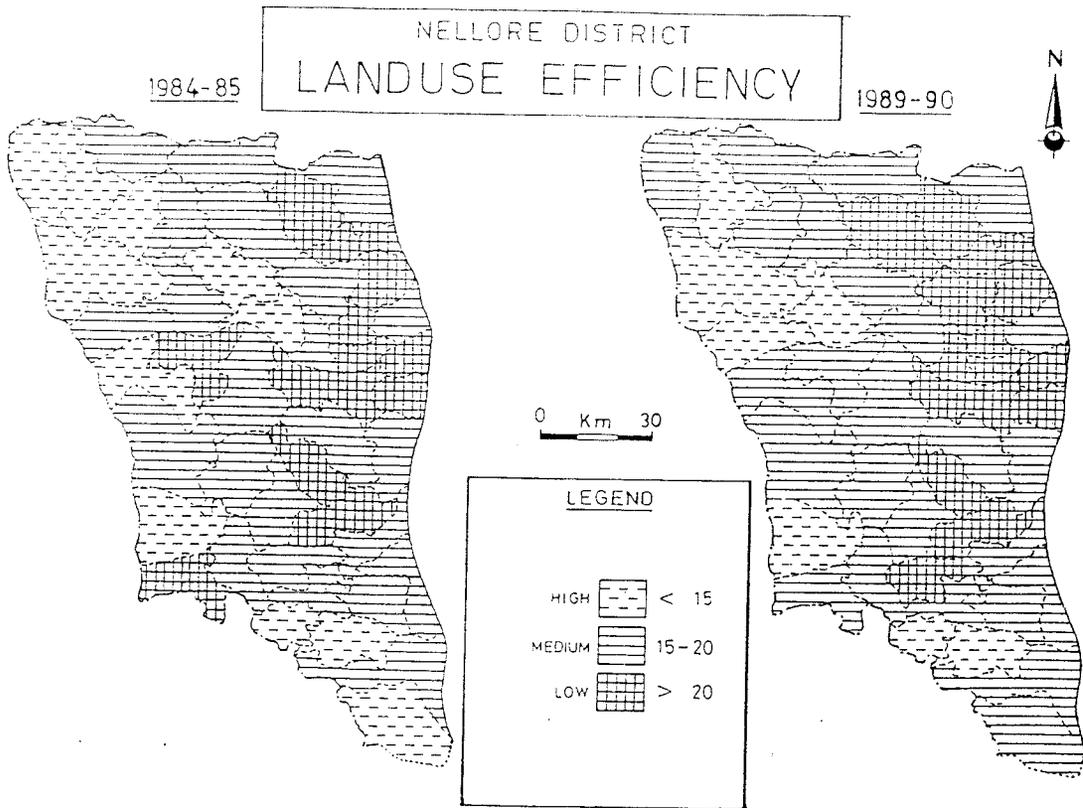


Fig. 1 : Nellore District - Landuse Efficiency

cultivation which has contributed to the high efficiency level.

MODERATE LAND EFFICIENCY :

A good many mandals of the district have a moderate level of land use efficiency. The 22 mandals in 1984-85 and 25 mandals in 1989-90 had moderate land use efficiency (ranging from 15 to 20) in the district. The second category efficient areas are Varikuntapadu, Kavali, Rapur, Dagadarthi, Muthukur, Vakadu, Sularpeta and Podalakur etc. (Fig. No. 1). Land use efficiency increases due to the decrease of non-cultivable land in any area. Mostly the central part of the district has moderate land use efficiency, due to provisions of medium canal and well irrigation.

LOW LAND USE EFFICIENCY :

Low land use efficiency was found in 13 mandals in 1984-85 and 7 mandals in 1989-90. This low efficiency is recorded in Udayagiri, MARRIPADU, DAKKILI, PELLAMUR, D. SATRAM and KALUVOYA. Here the rainfall is scanty and irrigation is poor, cultivable waste land is more, and fertility of the soil is less for agriculture. In Udayagiri and MARRIPADU the agricultural land use efficiency further decreased during the year 1989-90 when compared with 1984-85 because of the increase of forest area.

It is significant to note that land use efficiency in the district is slightly improved during the 10 years period at various levels. In a few

mandals the land use efficiency is unaltered in terms of average range values.

DISCUSSION :

Land can not sustain an unlimited population (i.e., both persons and Live stock) within a limited area. The ever increasing population is creating the problem of sustainability. Therefore to maintain sustainability it is necessary to increase the agricultural land use efficiency with in the area. For this purpose the non-cultivable land and cultivable waste land must be brought under cultivation employing

suitable reclamation methods. Besides this the already cultivated land can be utilised effectively by increasing it's efficiency using assured irrigation, suitable crop combinations, high yielding and nutritious varieties for better yield, manures and chemical fertilisers to increase the soil fertility, different medicines to protect plants from different discases, modern management techniques and financial resources available form all platforms. This attempt shall increase the agricultural land use efficiency which in turn brings in sustainable agricultural development.

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