RESEARCH FRONT

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AGRICULTURAL LAND USE EFFICIENCY OF RATNAGIRI DISTRICT, MAHARASHTRA

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ABSTRACT:

In this paper an attempt has been made to measure the level of Agricultural Land Use Efficiency in Ratnagiri District. Jasbir Singh's Method of Land Use Efficiency is employed to measure the land use efficiency. Ratnagiri District is chosen as unit of study. The variations in spatial pattern of land use efficiency are examined for the years 1982-87 and 1997-2002. This study also proposed plans for sustainable agricultural development in the study area.

INTRODUCTION

Various sciences employ the same or similar methods today, but their combinations and the directions in which they are used are as a rule typical only of a given science. Economic geography widly employs historical and other methods of research that are also used by other sciences.

The peculiarity of the combination of these methods in economic geography consists in their being directed to investigation of the formation of the spatial networks, systems and structures that society creates in the course of its history. The whole combination should bring out the stages and levels of development of these network system and structures. So as to establish the laws of their formation, growth and transformation, lines of forecasting them and finally means of desighing and managing them.

LAND USE EFFICIENCY

In the field of Geography the concept of land use efficiency measurement is not new one. It is a dynamic but complex phenomenon. The efficiency of land use in a study region is determined by the interaction of physical, socio-economic and technological factors. A combination of natural and manmade factors makes land use efficiency a complex device.

Land use efficiency represents the degree of optimum use and performance of cultivated as well as cultivable land. Land use efficiency indicates micro- regional differences, the result of spatial variations in the combinations of environmental and non environmental (socio-economic) factors and analysis of about 20 years in land use efficiency would throw light on the impact of various measures. It is generally believed that the efficiency of agricultural reflects itself in the yield and so the yield figure has been used as the quantitative basis for the measurement of agricultural efficiency.

M. G. Kenall (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). 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. 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

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to which the net sown area cropped or resown." Here the total area cropped as a percentage of the net sown and it indicates the intensity of cropping.

STUDY REGION

The present study region, Ratnagiri is one of the coastal district in the state of Maharashtra. The Ratnagiri District lies between 16 13' to 18 04' North latitude and 73 02' to 73 52' East longitude. The District with an area of 8,208 sq.kms. constituted only 2.67 % of the toal area of the state of Maharashtra and has a population of 1696777. The district has 9 tahsils and 8 towns with 1519 villages. Climate of district is moist and humid.

OBJECTIVES

1) To find out tahsilwise land use efficiency in Ratnagiri District during 20 years.
2) To identify areas of land use efficiency on the basis of Jasbir Singh's Method.

METHODOLOGY

In the present study Jasbir Singh's Index of Land Use Efficiency (Intensity of Cropping) method is employed in Ratnagiri District. The regional variations in spatial pattern of land use efficiency are examined from 1982-87 to 1997-2002. The emphasis is on highlighting the basis of areiculture which influence agricultural efficiency. Agricultural efficiency is the level of existing performance of unit at land which differentiate from are area to another.

The Index of land use efficiency is obtained by using the following formula :-

$$\text{Index of Land Use Efficiency} = \frac{\text{Gross Cropped Area}}{\text{Net Sown Area}} \times 100$$

The land use efficiency is refers to the number of crops grown on the area in any agricultural year. The higher the index of the efficiency of cropping the higher the land use efficiency and the lower the index the lower the land use efficiency and less utilized or under utilized the net area sown. (Singh 1976)

The extent to which cropping has been done on the net area sown is shown in Map. There are variations in the extent of double – cropping done. In the majority of tahsils Gross cropped area exceeds the net sown area for there is always a part of the latter which is sown during both the crop seasons. As such the landuse efficiency varies slightly from 80 % to over 122 % ,using average the landuse efficiency computed for the period 1997-2002.

Table indicates that Tahsilwise land use efficiency in the Ratnagiri District during the year 1982-87 & 1997-2002. Map no. 1 shows that Index of land use efficiency in the same year. The differences in the extent os area under double cropping between 1982-87 and 1997-2002 have bewen termed as volume of change in land use efficiency and shown in Map no.2.

In the Ratnagiri District Table indicates that the Index of land use efficiency was slightly increase from 102.33 % to 106.45%during the 1982-87 to 1997-2002. Map shows that land use efficiency ranges between 80.81 % to 121.93 % in all tahsils of the study region. For studying the spatial and temporal changes in land use efficiency three land use efficiency categories are Low land use efficiency (<100 %), Medium (100 % to 110 %) and High land use efficiency (>110 %).

1) Areas of Low land use efficiency

During 1997- 2002 Low land use efficiency was recorded in the Ratnagiri and Dapoli tahsils. Rugged topography, uncultivable waste land, lack of irrigation facilities, poor soil

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condition, low use chemical fertilizers, pesticides and other natural as well as socio – economical facters are responsible for low land use efficiency. In Ratnagiri and Dapoli the agricultural land use efficiency decreased during the year 1882-87 when compared with 1997-2002. It means decrease in percentage area of land use efficiency is relatively less.

2) Areas of Medium land use efficiency

Areas of Medium land use efficiency were observed in Mandangad, Khed, Lanja and Chiplun tshsils in 1997-2002. It ranges from 103 % to 110 % in the district. The highest Medium land use efficiency is recored in Guhagar tahsil (110.17%). Land use efficiency increase due to the decrease of non cultivable land in some area. Mostly North-eastern part of the district has Medium land use efficiency due to the physical and non physical determinants of agriculture.During the period of 1982-87 to 1997-2002, volume of change in Index of land use efficiency is positive change observed in four tahsils in the district. About 1% to 6.49% positive change in land use efficiency was registered in Mandangad, Khed, Chiplun & Lanja tahsils.

3) Areas of High land use efficiency

Out of the nine tahsils Guhagar tahsil (121.93%) had high efficiency observed in the period of investigation. Also Sagameshwar, Rajapur tahsils recorded high efficiency near by 115 % area. The high land use efficiency was found in these tahsils because and availability of other necessary facilities and also because of less percentage of non cultivable waste lands in it. These tahsils showing high efficiency are located in the central & Southern part of the ddistrict i.e. in the coastal area. So better moisture, fertility and irrigation conditions lead to large scale cultivation which has contributed to the high efficiency level.

During the period of investigation above 10% positive change observed in the Sagameshwar, Rajapur & Guhagar tahsils. It means the land use efficiency increased during 1982-87 to 1997-2002. The highest positive change in Guhagar tahsil is recorded 19.79 % due to increase in land use efficiency. It is significant to note that land use efficiency in the district is slightly improved during the 20 years period at various levels.

TAHSILWISE LAND USE EFFICIENCY IN RATNAGIRI DISTRICT
(Area in'00' hectares)

Sr. No.	Tahsil	1982-1987			1997-2002			
		Gross Cropped Area	Net sown Area	Index of landuse Efficiency in %	Gross Cropped Area	Net sown Area	Index of landuse Efficiency in %	Volume of change in %
1	Ratnagiri	335.6	325.2	103.19	221.75	274.4	80.81	-22.38
2	Guhagar	161.8	158.4	102.14	238.5	195.6	121.93	19.79
3	Dapoli	307.6	304.4	101.05	272.25	275.8	98.71	-2.34
4	Mandangad	136.2	135.4	100.59	200.75	192.6	104.23	3.64
5	Khed	202.2	199.8	101.20	230.5	221.2	104.20	3.00
6	Chiplun	461.2	444.8	103.68	505.25	458.6	110.17	6.49
7	San.shwar	338.6	331.8	102.04	409	355.6	115.01	12.97
8	Lanja	245.8	239	102.04	276	265.6	103.91	1.07
9	Rajapur	291	284.6	102.24	354.25	305	116.14	13.9
	Ratnagiri Dist	2480	2423.4	102.33	2711.5	2547	106.45	4.12

Source: -- Computed by Researchers (2007).

CONCLUSION

In an over all analysis of Ratnagiri's land use efficiency the role of environmental factors appears to be decisive in influencing the intensity of cropping. Despite heavy rainfall,

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acual area under double – cropping is small. This clearly brings out that areas of high values of land use efficiency are associated with the interaction between the relative favourable physical – socio – technical organizational factors. The changes are thus related to the dynamic socio – economic – cultural – organizational controls in the areas of increase and there agronomic hazards in the areas of decrease.

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