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Land use and Cropping Pattern in Satara District of Maharashtra: A Geographical Analysis.

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Abstract:

The pattern of land utilization has acquired a special significance in developing countries like India. In view of pressure of the population on land, scientific studies dealing with different aspects of land use are of great importance. The present study proposes to examine the land use and cropping pattern in Satara district, which is representative of southern Maharashtra in many ways. Include methodology and sources of data. The analysis reveals that net sown area and fallow land and fallow land happen to be major land use categories and Jowar rank first in the cropping pattern of the study area. To mitigate the increasing demand for foods and fodder, there is sample scope for double cropping provided sources of water are tapped fully through integrated watershed development and management schemes.

Key Words: Land use pattern, Cropping pattern.

Introduction

Land use studies are of particular significance in developing countries like India in view of the rapidly rising population and consequent pressure on the exiting land. Such studies help in evaluating the various aspects of current land use and correlate them with the cropping pattern.

Objectives

The present study aims –

1. To analyse the existing land use pattern and cropping pattern.
2. To correlate the land use with cropping pattern.

Data Base and Methodology

The present study is based on secondary data collected through District Stastical Office, Department of Agriculture Satara District, Season and Crop Reports published by the department of Agriculture (1990-91 to2000-01),Socio Economic Abstract 1992,2002,2012, District census and hand book, Gazetteer Agricultural epitomes, Agricultural statistical information Maharashtra state etc. were also scanned for getting relevant information. For the present investigation, district is selected is as in general and tahsils in particular.

The data present study have been abstracted from the published records of Bureau of Economics and Statistics, Govt. of Maharashtra. The land use has been cartographically represented at the tehsil level on the basis of selected scale. Crop ranking have been computed on the basis of the occupancy strength of each crop ranking first, second third and fourth and the same have been mapped tehsil wise. In order to correlate the land use with net sown area under each crop scatter diagram has been drawn to represent the distribution pattern of crops.

Study Area:

The Satara district is situated in west part in Maharashtra state. This district consists eleven tahsils covering 1739 villages. The total area extent is of 10,480 sq. km. extending from 17° 05' to 18° 11' north latitudes and 73° 33' to 74° 54' east longitudes. This district is confined by Pune district to north, Solapur district to east, Sangli district to south and Ratanagiri district and Raigarh districts to west (Fig.1). It has very short boundary of Raigad district to the northwest. Although the boundaries are main administrative line along with several lines this considered with physical features. Satara district has typical landscapes due to variations in relief, climate and vegetation. The variation of relief ranges from the pinnacles and high plateau of the main Sahyadrians range having heights over 1200 meters above mean sea level to the subdued basin of Nira river with an average

height of about 600 meters above mean sea level. The climate ranges from the rainiest in the Mahabaleshwar region which has an average annual rainfall of over 6000 mm to the driest in Man, Phaltan, Khandala and Khatav tahsils where the average annual rainfall is about 500 mm. Satara is predominately a rural district of the 23 inhabited places in the district, 1739 are villages and 15 towns including the city of Satara.

Fig. 1: Study area-Location Map of Study area.

Concept of Land Use Pattern :

The land is the basic source of human society and land use is the surface utilization of it .For development of vacant land, man used series of recognized category. Land use is an important economic activity of man. It is the function of four variables like land, water, air, and Man. The certain proportion of its available for cultivation, which the best base for the agricultural production, land use changes occur to meet the variable demands of the society in its new way of life .The primary use of land for Crops, Forest, Pasture, Mining, Transportation, Gardening, Residential, Recreational, Industrial, Commercial, Cultivable Waste, Barren And Fallow Land. The land use study in its spatial context is essential to understand the regionalization of the areas of optimum land use degraded area etc. The change in the land use pattern of Satara district depicts the interaction among all these elements. To study these changes the total area has been studied under two categories i.e.

1. Non cultivable land
2. Cultivable land

Table No. 1: Land Use Pattern

(Area in hector)

Sr. No.	Land use Category	Area in 1990-91	Percentage change in land use pattern over the base year 1990-91	Area in 2000-01	Percentage change in land use pattern over the base year 2000-01
I	**Non Cultivable land**				
	1)Forest	140500	13.27	145800	13.77
	2)Area not available for Cultivation	123800	11.69	105100	10.87
	a)Area under non Agriculture	23700	2.23	22800	2.15
	b)Barren and Uncultivated land	100100	9.45	86300	8.15
II	**Cultivable Land**				
	3) Net sown area	638000	60.28	589700	55.72
	4) Fallow land	63800	6.02	71400	6.74
	a) Current Fallow	18400	1.73	16300	1.54
	b)Other Fallow	45400	4.28	55100	5.20

	Other uncultivated land	92200	8.78	136300	12.90
	Total		100	1058300	100

Source: Socio Economic Abstract 1992,2002.

The non-cultivable land comprises forest land and area not available for cultivation. Forest occupies 13.77 % of the total geographical area in 2000-2001 which was about 13.27 % in 1990-91. The forest area is in the western part of the study area which coincides with the rainfall distribution and topography. Area not available for cultivation is about 11.69% (i.e. 121212 hector) of the total study area in year 1990-91. It includes land which cannot be brought under cultivation unless at very heavy cost and rugged and barren topography. The land put to non-agricultural use is 2.23% (23700 hector) and barren and uncultivated land is 9.45% (100100 hector) of the total area of Satara district shows the regional distribution of area not available for cultivation. Its proportion is high in eastern, western, North western part of study area.

The cultivable land which includes the net area sown and follow land shares about 55.72 %(587700 hector) of the geographical area in the present study during 2000-01 There was increase of 5 % (638000 hector) in the year decrease in 1990-91 but unfortunately there was decrease in area under net sown area by 8%(589700 hector) in the year 2000-2001. The same meaning is taken for analysing the impact of irrigation generally in central, northern, southern part of such area has high percentage (over 75%). Generally high proportion of net sown is due to levelled land. The northern eastern and south central have moderate (70 to 75%) area under this category the low (60 to 70 %) intensity of net area sown lies in eastern and western part study area due to mountains and hilly area, rugged topography with undulating surface. The land which remains vacant for 6 to 10 seasons comes under fallow land class. The total fallow land during 2000-01 was 6.74 % (71400 hector) and in1990-91 it was 6.02%(63800 hector) to the total geographical area means showing positive change in fallow land.

Concept of Cropping Pattern and Its Ranking

The cropping pattern and agrarian economy of the district has changed because of the land under the cash crops increased while the land under food crops decreased. The agricultural production increased due to introduction of canal and lift irrigation. Jawar, Wheat, Rice, Bajara and various Pulses are main food crops. In the central part Wheat and Jawar, Bajara and pulses are the main food in eastern part of study area.

The climate and physiographical condition are quite suitable for cultivation of different crops In the Satara district cultivated crops can be classified into different categories like cereals, pulses oilseeds, cash crops and vegetables etc. An attempt has been made to investigate the production of major crops in the study area. In the recent years more than 60 percent area under various crops including fallow land .It indicates there is more scope for cultivation.

The cropping pattern of the region is typical of an under developed agricultural economy in which most of the cultivated area is devoted of food crops shown in table no. 2.

Jowar is the most important crop occupying 17.25 per cent of total cultivated area. Jowar is the major crop produced in both Kharip and Rabi season. In eastern zone of Satara district it is more i.e. in Phaltan taluka. There is somewhat increase in area under Jowar in Patan, Jawali i.e. 18333 hector (36.21percent) 170501 hector (33.75percent) and in Mahabaleshwar 4591 hector (9.13percent) it was just 285 hector during 1984.85. The positive change shows by Man and Khatav taluka i.e. 11.87percent and 11.48percent.Phaltan shows negative change i.e. -23.35percent due to source of irrigation facilities area under Jowar crops increased. Wheat is the most significant crop grown during the winter season. It requires a cool climate with moderate rainfall less than 50cm and irrigation. As such in the study region the post monsoon rainfall is not sufficient for optimum production. Therefore it is the irrigation which determines it's a real extent wheat occupies maximum are in eastern part of the district i.e 9413 hector.

Among the cereals rice crop is more important requiring high temperature and rainfall. Western and central part of the district occupies more land under rice cultivation. The area under rice cultivation has increased in all talukas of the district

region wise it is increasfrom1073 hector 11265 hector in eastern region. Introduction of high yielding varieties irrigation facilities and attentive provides seem to have encouraged rice cultivation. Attraction to the farmers and it has made rapid strides particularly in the irrigated tracts of the Krishna valley in recent year. The part of Krishna basin is very famous for the production of sugarcane. The confluence of Krishna and Venna at Sangam Mahuli (near Satara city), Krishan and Koyana at Karad made it possible to increase in land under irrigation with irrigation facilities and special efforts made by co-operative sugar factories. Increase in sugarcane production is proportionate to increase in irrigated area.

Groundnut is a leguminous crop and can synthesize atmospheric nitrogen and thereby increase fertility, sandy loams, loams and well drained black soil which allow enough of root turning are suitable for groundnut cultivation. It cannot stand for severe drought and water stagnation groundnut is cultivated in Kharip and Rabi season it can grow both as an irrigated and rain fed corp. Gram is one of the important pulses grown in Rabi season along with wheat or some time separately. In the eastern part of study area Khatav taluka recorded 311 hector (76.36 percent) land under gram production. Due to change in farmer's outlook, government policies, irrigation facilities introduction of agro service centres there is drastic change in the production of all types of crops. In the duration of 20 years it is observed that farmers started to cultivate cash crops.

Table no: 2 Satara District: Cropping Pattern (2011-2012)

Sr. No.	**Crops**	**Area in Hector**	**Percentage of Total Geographical area**
1	Rice	45417	3.91
2	Wheat	35304	3.04
3	Jowar	200108	17.25
4	Bajara	89903	7.74
5	Majze	13323	1.14
6	Sunflower	2690	0.23
7	Total Pulses	398202	34.32
8	Total Food grains	45377	3.91
9	Sugarcane	43694	3.76
10	Cotton	3614	0.31
11	Other Masala crop	3558	0.30
12	Fruit	17966	1.54
13	Vegetables	24314	2.09
14	Total Cash Crops	3899	0.33
15	Groundnuts	61220	5.27
16	Other Cerial crops	13047	1.22
17	Total Cerials	69484	5.98
18	Total Oil seeds	86993	7.49
19	Total non-Food Crops	2032	0.17
20	Net area sown	695739	-
	Gross Cropped Area	1160145	100%

Source: Socio Economic Abstract 2012.

Conclusion :

The land use pattern of the region is the reflection of the effects of varied physical and Socio-economic factors. Cropping pattern of this area is typical of an under developed agricultural economy. Therefore intensity of agriculture has to be stepped up by adopting technological changes. Jowar is the first ranking crop in Satara district with 17.25 per cent of the total geographical area. Bajara occupy the second place with 7.74 per cent of the total geographical area. Groundnut occupies the third place with 5.27 per cent of the total geographical area in the district. Sugarcane is the fourth ranking crop with 3.76 per cent of the total geographical area. Change in cropping pattern may be brought out by providing irrigation facilities in the region, for which development of minor irrigation schemes is necessary. Similarly watershed development and management schemes need be implemented on priority basis. This may help to bring additional land under cropping.

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