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Research Paper

SPATIAL AND TEMPORAL CHANGES IN SUGARCANE CULTIVATION IN NASHIK DISTRICT (MAHARASHTRA) 1959-60 to 1999-2000

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ABSTRACT

Agriculture is one of the fundamental activity of mankind. It is considered as on of the oldest and most important of all the economic activities of man. Agriculture is related to the raising of Domesticated plants and animals as activities to satisfy mans need. Agriculture still forms the backbone of the Indian economy. Despite concerted efforts towards industrialization in the last three decades. Agricultural contribute a high share of net domestic product by sector. Agriculture as the main primary activities in India has dominated the rural land scape.

More than 75 percent population is still engaged in this activity. Every geographical reality is transformed with three groups of factors (1) Man in a certain socio economic environment (2) Natural environment (3) Degree of Social economic progresses of a region.

In connection with study area of agricultural landuse of village level we focus light on the spatial disparities in Nashik District and also point on the causes responsible for the temporal variation. The economy of the region revolves round agriculture which the main occupation of over 70% of the habitants. In fact it has becomes a tradition, a way of life to manly. The present study is mainly directed at the appreciation of variation in agricultural landuse over the area of the district as well as that of change undergone in the spatial distribution of agriculture landuse overtime. The agriculture landuse is direct application of efforts to the available land resource.

The spatial variation find a direct expression in the cropping pattern in the area which in turns is related to the crop ecology & village of land. The spatial distribution of various crops, crop ecology & temporal variation are studied. Crop shows a market tendency to adopt themselves to a wide range of environments but the crops also required specific set at physiological elements of their optimum In Nashik District Variety of crops are grown food crops & cash crops produced in Nashik District. There are No. of cash crops produced in Nashik District, but Sugarcane is main cash crop produced in Nashik District. Sugarcane is main source of sugar in India and it is premier cash crop. Sugarcane is grown mainly in the irrigated area in the study region. It holds the top most position in the economic of the District. Sugarcane grows most successfully in the tropical climate. It means it is cultivated in region where there are no temperature extremes. The temperature ranging 20°c to 32°c means favorable for sugarcane cultivation. Sugarcane required the rainfall of 700 mm to 1000 mm. It cans also be successfully grown under irrigation. Since sugarcane is the irrigated crops, land with assured water supply is selected for sugarcane cultivation.

In the Nashik District sugarcane account for 0.8% of net sown area as per the reference year 1959-60. it has increased by 2.5% during 40 years which is the period under consideration. It has become 3% in the reference here 1980-81 and has also increased upto 3.5% in year 1988. In the production cash crops, Nashik District has made a gran progress. Among these cash crops, sugarcane is an important crop, grown in the major part of District. It is highest concentration is in Niphad, Baglan, Malegaon, Kalwan, Nashik and Dindory talukas as they have intensive irrigational facilities and favorable agro-climatic conditions. The concentration is less in Igatpuri, Peinth, Surgana chandor and Sinner talukas due to hilly area in west and poor irrigation facilities in central and eastern part of the district. Maximum positive spatial change has been visualized in Belgan, Kalwan and Malegaon talukas, because of the replacement of bajara, jawar, cotton with sugarcane, while negative changes has been recoreded in Igatpuri and Chandor talukas. Thus in the conclusion in Nashik district sugarcane account for 3.0% of the net sown area s per reference year 1959-60. It has increased by 4.0% during forty years which is the period under consideration. It has become 7.0% in the reference year 1998-99 and has also increased up to 6.0% 1999-2000.

KEY WORDS
Spatial temporal, cultivation landuse, cropping pattern, crop landuse of agricultural.

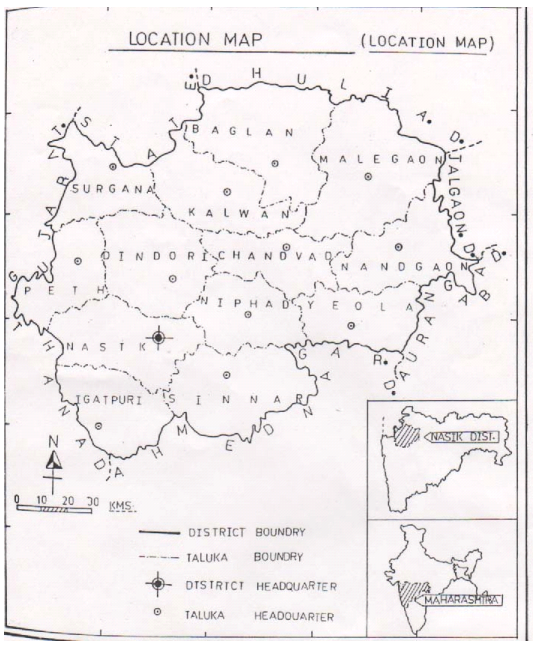
INTRODUCTION: -

Agriculture is one of the fundamental activities of mankind. lt is considered as one of the oldest and most important of all the economic activities of man Agriculture is related to the raising of domesticated plants and animals as activities to satisfy mans need. Agriculture still forms the backbone of economy of

Nashik district, despite concerted efforts towards industrialization in the last three decades. Agricultural contribute a high share of net domestic product by sector in study area. Agriculture as the main primary activities in Nashik district has dominated the rural land scape. More than 75 percent of its population (1991 census) is still engaged in this activity .Nashik district, in the production of cash crops, has made a grand progress. It contributes the sown area of the district Area under sugarcane in the varies greatly, so a grand progress. It contributes the sawn area of the district Area under sugarcane in the varies greatly, so these variations in the relative concentration at Sugarcane are related mostly with climatic conditions, adequate irrigational facilities and social economic factors, along with cultural factor Nashik district has achieved the position of being the premier Sugarcane producing district in Maharashtra State

KEY WORDS
Spatial, temporal, cultivation, Landuse. Cropping pattern, crop Landuse, Agricultural.

THE STUDYAREA: -
Nashik one of the important district of Maharashtra, lying between 19 35 and 20 52 North latitude and 74 16 and 74 56 east longitude, with an area a 15582 km 2 has a population3851320 as per the census of 1991. Rhomboidal in shape with the longer diagonal of about 170km.is.Nashik district. Of bounded on the north-west by the Dangs and Surat districts of Gujrath state, on the north by the Dhulia district, on the east by the Jalgaon and Aurangabad Districts, Thana on the south by the Ahmadnagar district and towards Thana the southwest by the district. Nashik is one of the largest districts in the state both in area and in population



METHODOLOGY AND SOURCCE OF DATA: -
The spatial aspect of agricultural lands use in Nashik districts are studied from the geographical point a view. This necessities the development of a regional frame for the analysis and competition of taluka level data. The spatial patterns of landuse patterns reveled through maps were based upon quantitative analysis. The data collected through primary and
secondary sources were processed and represented by statistical and cartographic techniques.
A spatial analysis based on this methodology covering a period of forty years from 1958-59-to 1999-2000 has thus facilitated the understanding of cropland use behaviurs
Of the region for enhancing the quality a the work further the smallest viable administrative unit of taluka has been used in the study.

SPATIAL DISTRIBUTION OF SUGARCANE CULTIVATION (1989-90): -
The spatial variation in sugarcane cultivation in Nashik district are depicted in table no. 1 spatially its distribution in the state is quite uneven. Some taluka have high concentration, while others occupy lower order. These variations are partly the result of agora climatic conditions. For having a detailed study of the variations in sugarcane cultivation in the district the following broad categories are identified.

1) HIGH CONCENTRATION AREA: -(8 to 11 percent)
Only Niphad taluka having 10.8 percent area to net sown area was included under this category .In this taluka the soil is black. The water table was high in this taluka. Canal irrigation as well as well irrigation play a important role on the sugarcane cultivation. This taluka is located in central part at the district.

2) MODERATE CONCENTRATION AREA (4 to 8 percent)
The taluka of Kalawan Baglan, Malegaon and Yeola are inclu4e concentration in this category the concentration of sugarcane is modert due to agro climatic environments The water level was high in Kalwan and Baglan Talukas. The quality of groundwater ranges from fresh water to brackish water. All these factors are favorable for sugarcane cultivation.

LOW CONCENTRATIONAREA (> 4 PERCENT): -
Of the total eight taluka possess low area under sugarcane. The Talukas Nashik, Peinth, Dindori, Surgana Chandwad, Nadgaon, Sinner and Igtpuri are include in this category. Out of these Surgana, Peinth, Igatpuri area include in this category. Out of these Surgana, Peint Igatpuri and Lie in Dindori western part of the district having rugged topography, to very low water table and fertility is very less. They all of soil were unfavorable factor for sugarcane Cultivation. Nashik, Sinner, Chandwad and Nandgaon talukas in

central and eastern part of the district. The concentration of sugarcane is less due to agro-climatic environment.

Table No. 1

Sugarcane Cultivation in Nashik District

(Percentage of area under sugarcane to net sown area for year 1959-60, 1999-2000 and change (Taluka wise)

Sr. No.	Name of Taluka	Percentages of 1959-60	Percentages of 1999-2000	Volume of Change in Percentage	
				(+)	(-)
1	Nashik	2.5	3.7	1.2	-
2	Peint	0.5	0.3	-	0.2
3	Dindori	1.5	2.5	1.0	-
4	Surgana	0.4	0.5	0.1	-
5	Baglan	5.5	6.9H	1.4	-
6	Kalwan	4.0	8.6 H	4.6	-
7	Malegaon	4.5	5.1 M	0.6	-
8	Chandore	1.0	0.5	-	0.5
9	Nandgaon	1.0	0.5	-	0.5
10	Yeola	4.0	2.0	-	2.0
11	Niphad	10.8	5.5M	-	5.3
12	Sinnar	1.0	1.5	0.5	-
13	Igatpuri	0.5	0.2	-	0.3

SUGARCANE CULTIVATION(1999-2000): -

In the reference year 1989-90, in most of the taluka sugarcane was cultivated on well irrigation as well canal irrigation. During the period under consideration district changes have taken place. So for sugar cane is concerned. Area under sugar cane is increased in some talukas, but in some talukas the area under this crop is decreased in the reference year 1999-2000. Because of new sugar industries, electrification, truck labour fertilizers supplied from factories to cultivators. In other words the cultivation of sugarcane is confined in major part of the district where irrigation facilities are very much available and secondly, human responses are quite favorable. All these factor either independently or combinedly tend to produce different concentration pattern of sugar cane.

On this back ground spatial analysis of talukas has been attempted for the reference year 1999-2000.In the reference

A clear picture of regional disparities in sugarcane cultivation in the district shown in table No-1 by following Categories.

1) HIGH CONCENTRATION AREA: (8 to 11 percent)

Under this category Baglan and Kalwan talukas are included. The highest concentration is concentrated in Baglan taluka had maximum concentration. The high concentration of sugarcane was due to intensive irrigation facilities and favorable agro-climatic. conditions. These factors were also supported by productive of fertile loam laid soil Mosam and Girana rivers basins. Ravalgaon, Vithewadi, Dabhadi, Kadva sugar factories play a vital rolem increasing the area under sugarcane. These sugar factories provide a new seeds fertilizers and labors to the cultivators of Baglan and Kalwan talukas liberal loans sanctioned by these factories helped the farmers very much. All these factors have been responsible for expansion of area under sugarcane.

2) MODERATE CONCENTRATION AREA: (4 to 8 percent)

This category includes the talukas of. Malegaon and Niphad. In this talukas soil is black and fertile, irrigation facilities and modern mechanization is responsible for the moderate concentration. Niphad Sahakari sugar factory and Dabhadi sugar factory play a dominant role on sugarcane cultivation.

3) LOW CONCENTRATION AREA: (> 4 Percent)

The remaining Nine talukas of the district namely, Nashik, Dindori, Chandwd, Sinner, Yeola, Igatpuri, Peint and Surgana are included under this category. The low concentration of sugarcane in these talukas due to high range of temperature less amount of rainfall, less irrigation facilities and unfortile land.

The canal irrigation is not available for farmers. Now a day the area under sugarcane is slightly increased because of electrification and development of Kadva, Nashik, Sahkari sugar factories.

Table No. 2

Distribution of Talukas- Cateogrywise

Category	Name of Taluka 1959-60	Total Taluka	Name of Talukas 1999-200	Total Talukas
High concentration Above 8%	Niphad	01	Baglan, Kalwan Yeola	03
Moderate concentration 4 To 8 %	Kalwan, Dewala, Baglan, Malegaon, Yeola	05	Niphad, Baglan	02
Low Concentration Less Than 4%	Nashik, Peinth, Dindori, Surgan a, Chandvad, Trumbkeshwar Malegaon, Sinanr, Igatpuri	09	Nashik, Peinth, Dindori, Surgana, Chandvad, Trumbk eshwar Nadgaon, Yeola, Sinnar, Igatpuri	10

TEMPORAL ANALYSIS: -

Temporal analysis for the period under consideration brings out following points. All the talukas are involved In the process of change either positive or negative (Table no) these seven talukas involved in the positive and six talukas in the negative change.

TENDANCY OF TALUKAS TOWARDS POSITIVE CHANGE: -

This category includes the talukas of Nashik, Dindori, Surgana, Kalwan, Baglan, Malegaon and Sinner from central and Northern the district. The main reason for positive changes is mainly the increase in irrigation

facilities, electrification, development of new sugar factories, truck services and labour, are supplied to the cultivators. Further sugar factories provide loan fertilizer such as suflas, uriya are resulted in increasing the production. Tendency of farmers have changed to cash crops so they replaced traditional crops. (Jawar and Bajra) by sugarcane. All these factors have been responsible for expansion as the area under sugarcane.

TENDANCY OF TALUKAS TOWARDS NEGATIVE CHANGE: -

The remaining talukas at Nashik district, i.e. Niphad, Igatpuri Yeola, Chandor, Nadgaon and Peints are included under this category. The reasons for such change vary in different talukas In Niphad taluka, the changed cropping pattern of grapes, Dalimb and vegetables are responsible for it, including the factor of no new development in the cultivation of sugarcane while in western northern and central eastern part, less favorable agro-climatic conditions, meager irrigational facilities, less rain fall and less mechanization etc. are the reasons for negative changes in sugarcane cultivation in this talukas. The rainfall amount and irrigation facilities are less in Nandgaon , Sinner and Yeola taluka as Agroclimatic condition and soil are not favorable for sugarcane cultivation in Igatpuri, Peint and surgana talukas .

CONCLUSION AND SUGGESTIONS: -

In Nashik district sugarcane account for 3.00Percent of the net sown area as per reference year 1958-59. It has increased by 4.0 percent during forty year which is the period under consideration. It has become 7.0 percent in the reference year 1998-99 and has also increased up to 6.0percent in year 1999-2000.

Nashik district has major changes in per hectare yield and acreage of sugarcane during 1958-59 and 1999-2000. It has also observed that these changes are highly variable in their spatial distribution. The sugarcane production recorded Maximum positive change in Kalwan and Bagaln talukas. The reasons for this significant increase was the replacement of Bajra and Jawar cultivation with Sugarcane due to the availability a more assured and adequate irrigation facilities followed by the adoption of other agricultural innovations. It has been observe that the areas which have more irrigation facilities high fertile land have more acreage under sugarcane cultivation and area under sugarcane is less where irrigational facilities are less and soil is not fortile. It is also observed that day by day there may be shortage of water source. Hence, the need for economic use of water is felt. As such it is suggested that farmers shoulder start drip irrigation instead of flood irrigation for sugarcane cultivation. It is also suggest that loan be made available at low interest to the farmers high yielding varieties of seeds should be discovered and provided to the farmers at the cheapest possible price rate of electricity fair be reduced for the farmers for increase the area under the sugarcane cultivation.

Niphad was stood first in sugarcane cultivation in reference year 1959-60 but the area under sugarcane was reduced in year 1998-99 because farmers replaced sugarcane by grape and vegetable production.

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