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GEOGRAPHICAL ANALYSIS OF HORTICULTURAL DEVELOPMENT IN THE NASHIK DISTRICT, MAHARASHTRA

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ABSTRACT

Agriculture plays an important role in the Indian Agriculture. Horticulture is the important sector of Indian Agriculture. It has gained commercial tone in the recent years in the country. India is now second largest producer of fruits and vegetables in the world after china. There is an overall increase in the demand for fruits and vegetables for consumption in both fresh and processed form at national as well as local level.

The main aim of the present paper is to investigate the spatial and temporal analysis of horticultural development in the Nashik District of Maharashtra during the year1960-61 to 2008-09.The secondary data is used for the present study. The study has observed a shift in cropping pattern in favour of horticulture in the Nashik District during the study periods. In 1960-61 only 1.53 percent area was under fruits and vegetables, which has increased up to 17.08 percent in 2008-09 in the study region. It means during the span of forty eight years 15.55 percent area under fruits and vegetables is increased in the study region. Horticultural development is not uniform in the study region. Grapes, pomegranate, onion and tomato are the major horticultural copes in the study area.

Keywords: *Horticulture, Diversification, Globalization & Agricultured Infrastructure*

INTRODUCTION:

Agriculture plays an important role in the Indian Agriculture. Horticulture is the important sector of Indian Agriculture. It has gained commercial tone in the recent years in the country. Indian farmers are now appreciating the importance of horticulture, the sector improving the productivity of land, generating employment, providing the nutrient security and improving their economic condition *(Datt & Sundharam,2010)*[2].

India is now second largest producer of fruits and vegetables in the world after china .Horticulture today, is not merely a means of diversification but forms an integral part of food and nutritional security, as also an essential ingredient of economic security. Adoption of horticulture, both by small and marginal farmers has brought prosperity in many regions of the country. Such adoption of horticulture also observed at local level in the study area. There is an overall increase in the demand for fruits and vegetables for consumption in both fresh and processed form at national as well as local level. Since independence, India has made tremendous progress with respect to food and the overall livelihood security. India has emerged as one of the leading producers of rice, wheat, pulses, fruits, vegetables, milk and other commodities *(Mittal, 2007)*[3].

STUDY AREA:

Nashik District is situated partly in the Tapi basin and partly upper Godavari basin. It lies between 19° 33` to 20° 53` north latitude and 73° 15' to 75° 16' east Longitude *(Nashik Gazetteer,1983)*[1]. Nashik is one of the major agriculturally and industrially developed district in the North Maharashtra. Nashik District has an area of 15,530 Sq.k.m. In 2011, Nashik District had population 6,109,052 as per the 2011 census. Location of the study area is showed in Fig. No.1.

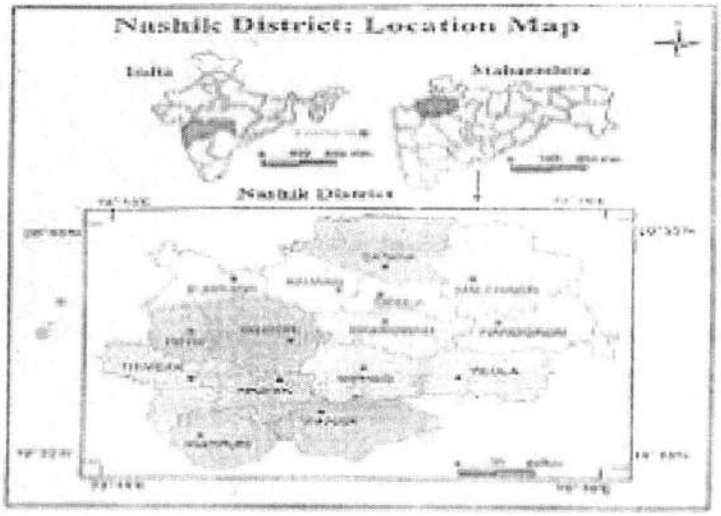

FIG. NO.1

There are 15 tahsils included in the Nashik District. The main system of hills is the *sahyadries*, which run north- south in the western portion of the district. The district has two main rivers the *Girna* and the *Godavari*. Rice, Sugarcane, Onions, Grapes, Jowar, Bajra and Vegetables are the dominant crops of this region. The climate of the district is generally dry except during the monsoon season. The average annual rainfall of the district as a whole is 1034.5mm. The rainfall in general decreases from west to east. The summer season is moderately hot and the temperature varies from 36° c to 43°c.

MATERIAL & METHODS:

Present study is based on the secondary source of data. Secondary data is obtained from socio-economic abstract of the Nashik District (1965-66, 1973-74, 1983-84, 2004-05 and 2013), District census handbook & District Gazetteers. The Tahsil has been taken as a unit for spatial- temporal analysis of horticultural development in the study region. Statistical tools like percentage, average etc. have been used in the study. Data is processed and represented with the point map and simple line graph.

RESULT AND DISCUSSION:

The cropping pattern in any region cannot remain static. It always changes with respected to local physiographic, economic and cultural factors. When the proportion of area under different crops change, it effect on cropping pattern of area. During the study periods there is a change in the cropping pattern of the study region. There is an overall increased in the area under fruits and vegetables in the study region with respected to local physiographic, economic and cultural factors. When the proportion of area under different crops change, it effect on cropping pattern of area. During the study periods there is a change in the cropping pattern of the study region. There is an overall increased in the area under fruits and vegetables in the study region.

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TABLE NO.1 NASHIK DISTRICT: AGRICULTURAL LAND USE PATTERN (1960-61 AREA IN PERCENT TO TOTAL GROSS CROP AREA)

Sr. No	Tahsil	Cereals	Pulses	Spices	Fruits	Vege-tables	Oil-seeds	Fibers	Fodder	Total Area
1	Surgana	57.38	11.59	0.16	0.00	0.11	17.87	0.00	12.98	100
2	Kalwan	64.17	18.20	1.38	0.08	0.82	13.37	0.92	1.11	100
3	Deola	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4	Satana	62.93	13.78	2.57	0.06	0.28	15.61	4.14	0.53	100
5	Malegaon	65.89	8.27	3.28	0.05	0.35	14.01	5.55	2.57	100
6	Nandgaon	72.63	9.79	0.49	0.10	0.24	14.59	0.77	1.39	100
7	Chandwad	63.61	11.78	2.41	0.17	1.83	6.57	0.12	13.51	100
8	Dindori	59.78	13.29	1.35	0.46	2.07	9.82	0.12	13.11	100
9	Peth	66.93	15.26	0.06	0.00	0.01	13.61	0.01	4.11	100
10	Trambak	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
11	Nashik	63.00	10.71	0.34	0.09	2.93	4.36	0.14	17.52	100
12	Igatpuri	59.60	12.53	0.05	0.00	0.15	9.86	0.06	17.76	100
13	Sinnar	72.87	8.22	1.41	0.13	2.36	6.64	0.15	8.26	100
14	Niphad	66.17	7.61	2.38	0.34	3.80	9.72	0.24	9.73	100
15	Yeola	73.77	10.79	2.13	0.06	6.49	10.62	0.08	2.05	100
Total		65.87	11.13	1.69	0.19	1.34	11.00	1.32	7.45	100

Source: Socio-Economic Abstract of Nashik District, 1965-66

TABLE NO.2.NASHIK DISTRICT: AGRICULTURAL LAND USE PATTERN-2008-09 (AREA IN PERCENT TO TOTAL GROSS CROP AREA

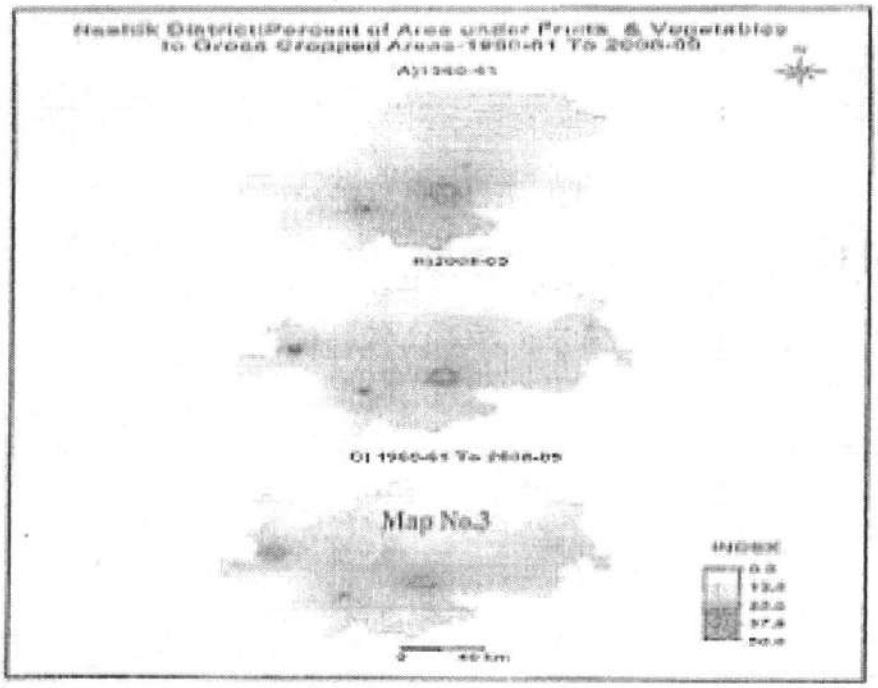
Sr. No	Tahsil	Cereals	Pulses	Spices	Fruits	Vege-tables	Oil-seeds	Fibers	Fodder	Total Area
1	Surgana	76.34	16.53	0.08	0.54	0.29	0	0.00	6.22	100
2	Kalwan	67.84	11.73	7.82	0.02	9.57	2.67	0.00	0.35	100
3	Deola	68.64	5.82	3.23	0.21	16.64	3.05	0.00	2.5	99.99
4	Satana	67.19	7.9	4.97	0.89	5.15	7.56	0.00	6.34	100
5	Malegaon	81.47	9.44	0.76	0.33	5.61	0.00	0.00	2.39	100
6	Nandgaon	72.53	2.05	0.39	0.07	23.61	0.74	0.00	0.61	100
7	Chandwad	65.11	7.14	0.95	3.47	15.8	0.01	0.00	7.51	99.99
8	Dindori	32.93	11.08	10.33	9.67	13.35	8.45	0.00	14.18	99.99
9	Peth	49.7	12.68	0.24	37.29	0.09	0.00	0.00	0.00	100
10	Trambak	75.64	24.36	0.00	0.00	0.00	0.00	0.00	0.00	100
11	Nashik	36.71	9.49	6.37	5.88	27.1	0.00	0.87	13.57	99.99
12	Igatpuri	61.5	8.78	5.82	0.22	2.74	13.92	0.00	7.02	100
13	Sinner	68.23	7.69	2.84	1.67	12.82	2.81	0.00	3.94	100
14	Niphad	35.6	3.53	14.23	24.95	20.38	0.00	0.00	1.3	99.99
15	Yeola	53.21	17.85	0.36	0.59	21.11	6.09	0.00	0.79	100
Total		60.55	10.2	4.2	5.34	11.74	3.46	0.03	4.48	100

Source: Socio-Economic Abstract of Nashik District, 2013

Table No.3: Nashik District: Agricultural Land use Pattern -1960-61 to 2008-09
(Area in Percent to Total Gross Crops Area)

Sr. No	Tahsil	Cereals	Pulses	Spices	Fruits	Vege-tables	Oilseeds	Fibers	Fodder
1	Surgana	18.96	-4.94	-0.08	0.54	0.28	-17.87	-0.01	-6.76
2	Kalwan	3.67	-6.47	6.44	-4.01	8.75	-10.7	0.92	-0.76
3	Deola	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4	Satana	4.26	-5.88	2.4	0.83	4.77	-8.05	-4.14	5.81
5	Malegaon	15.58	1.17	-2.52	0.28	5.23	-14.01	-5.55	-0.18
6	Nandgaon	-0.1	-7.74	-0.1	-0.03	23.37	-13.85	-0.77	-0.78
7	Chandwad	1.5	-4.64	-1.46	3.5	13.98	-6.56	-0.12	-6
8	Dindori	-26.85	-2.21	8.98	9.21	11.28	-1.37	-0.12	1.07
9	Peth	-17.23	-2.58	0.18	31.20	0.08	-13.61	-0.01	-4.11
10	Trambak	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
11	Nashik	-26.29	-1.22	6.03	4.89	24.17	-4.36	0.73	-3.95
12	Igatpuri	1.9	-3.75	5.77	0.22	2.59	4.06	-0.06	-10.74
13	Sinner	-4.59	-0.53	1.43	1.56	10.44	-3.83	-0.15	-4.32
14	Niphad	-10.57	-4.08	11.85	24.61	16.58	-9.72	-0.24	-8.43
15	Yeola	-20.56	7.06	-1.27	0.51	20.62	-4.53	-0.08	-1.26
Total		-5.32	-0.93	2.51	5.15	10.4	-7.54	-1.29	-2.97

Source: Compiled by Researcher, 2015



Map No.3

Table No.1 reveals the variation about area under various crops in the study region. During the year 1960-61, the area under Fruits and vegetables was increased by 10 percent to 40 percent. Whereas the area under cereals crops (65.87 %), pulses (11.13 %) and oilseeds (11.00 %) were comparatively much more than horticulture crops like fruits and vegetables. But in the year 2008-09 the area under horticulture crops was increased by 15.55 percent and it reached up to 17.08 percent in the study area. Especially in Niphad, Nashik, Chandwad, Sinnar and Peth tahsils, it which is shown in the Table No.3.In other hand the area under cereals crops (-5.32), pulses (-0.93), oilseeds (-7.54) and fodder (-2.67) is decreased in large scale. Tahsilwise temporal variation indicates that the area under cereals crops and pulses is decreased in most of tahsils.

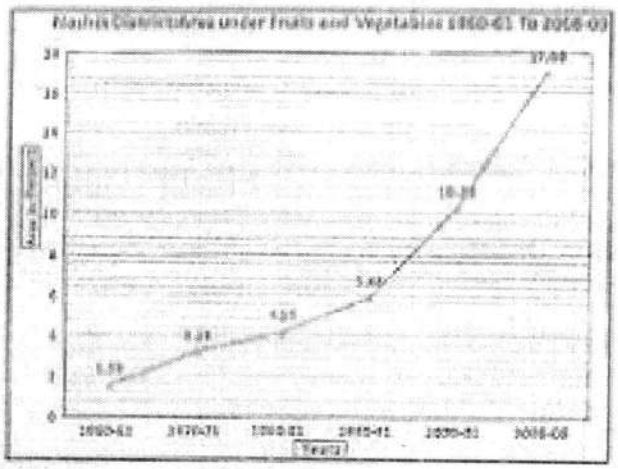
TABLE NO-4: NASHIK DISTRICT: AREA UNDER TOTAL FRUITS AND VEGETABLES (1960-61 TO 2008-09) (AREA IN PERCENT TO TOTAL GROSS CROP AREA)

Sr. No	Tahsil	1960-61	1970-71	1980-81	1990-91	2000-01	2008-09	Change 1960-61 to 2008-09
1	Surgana	0.01	0.01	0.00	0.05	0.00	0.83	0.82
2	Kalwan	0.84	2.46	3.65	3.17	10.24	9.59	8.75
3	Deola	N.A.	N.A.	N.A.	N.A.	12.6	16.85	N.A.
4	Satana	0.44	1.46	1.65	3.23	9.29	6.04	05.6
5	Malegaon	0.43	3.59	2.91	4.19	7.08	5.94	05.51
6	Nandgaon	0.34	1.78	1.63	2.14	4.05	23.68	23.34
7	Chandwad	1.99	5.99	7.27	7.16	19.05	19.27	17.28
8	Dindori	2.53	4.77	6.3	12.83	7.82	23.02	20.49
9	Peth	0.01	0.00	0.04	24	0.00	37.38	37.37
10	Trambak	N.A.	N.A.	N.A.	N.A.	0.04	00	N.A.
11	Nashik	3.91	5.76	8.78	16.66	27.94	32.98	29.07
12	Igatpuri	0.15	0.22	1.17	1.615	1.34	2.96	02.81
13	Sinner	2.49	2.54	3.85	4.566	8.5	14.49	12.00
14	Niphad	4.14	5.67	8.4	11.89	25.79	45.33	41.19
15	Yeola	0.57	2.4	3.3	6.34	7.47	21.7	21.16
Total		1.53	3.18	4.15	5.88	10.23	17.08	15.55

Source: Compiled by Researcher, 2015

The area under cereals crops decreased a maximum i n the Niphad (-30.57 %), Nashik (-26.29 %) and Dindori (-26.85 %) tahsils. In the case of pulses crops, the area under cultivation is decreased by 2 % to 8 % in each tahsils of the study periods in the Nashik District., which is shown in the Table No.3.During the span of forty eight years, the area under horticulture crops increased due to an overall increase in the demand for fruits and vegetables for consumption in both fresh and processed form at national as well as local level. Increased in irrigation facilities, agro- based industry, transpiration facilities, globalization, supply of capital from agricultural credit societies and other agricultural infrastructure also responsible to horticultural development.

In the study region pattern of horticultural development is largely control of relief. Spatial pattern of horticultural development indicates that it is not uniform in all tahsils of the study region .In 1960 central and southern tahasils were developed, which are shown in the Map No.3.But in 2008-09, Niphad Nashik, Dindori, Sinnar, Peth and Chandwad are the importance tahasils, where horticultural developm observed more as compare rest part of the study region. In these all tahasils major horticulture crops were grapes, pomegranate, onion and mango. During the study period the area under these crops increased by 4 percent to 10 percent.



These tahasil it is observed that cropping pattern is shift from subsistence cropping to horticultural cropping is mainly due to higher prize for horticultural crops, increases the continue demand from Mumbai and local market, increases in irrigation and transportation facilities, development in agro-based industries and other agricultural infrastructure. Map No.3 also indicates that horticulture development is not too much in southwestern, northwestern and northern part of the study region due to rugged and hilly topography, steep slope, poor soil, and lack of irrigation facilities, lack of transportation and other agricultural infrastructure. In the eastern part of the study region horticultural development also not found very much due to low rainfall and lack of irrigation facilities, which are important for horticultural development.

CONCLUSION:

It is concluded that the level of horticultural development is not uniform in the study region. The level of horticultural development in northwestern, northeastern, northern and southwestern part of the Nashik district is low, where physical environment is unfavorable & agricultural infrastructure is less developed. On the other hand western, central & southern parts of the district have witnessed to development. It is mainly due to favorable physical environment & well developed agricultural infrastructure. Niphad tahsil is highly developed in horticulture point of view in this region, where cash crops & agro-based industries are well developed. In vegetables onion is the important crop which occupied nearly 7.03 percent of cropped area of the district. In fruits grapes is important crops, which covered 2.99 percent cropped area of the study region. Special attention should be given to horticultural backward areas by the Planners, so that regional disparities could be minimized. Irrigation facilities should be developed in northern & eastern part of the study region; it will help to increase the area under horticulture crops in this region.

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