



A CRITICAL STUDY OF CROP CONCENTRATION AND CHANGES THEREIN IN MARATHWADA REGION

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ABSTRACT:

Agricultural geography is as the study of regional variations in agriculture and the factors responsible for them. Agricultural regionalization is an aggregation of areal unites in the form of contiguous in geographic and taxonomic spaces with similar features of agriculture. Delimitation of agricultural region have great importance because it is very important for agricultural planning and development. Crop concentration enables the geographers and planners to understand the areas of specialization to different crops grown in a region at a given point of time. The continuous cultivation of a particular crop in a unit or region, however leads to progressive reduction in yield. Therefore an attempt is made here to study crop concentration region in Marathwada region. The present paper is based on secondary sources. To find out crop concentration Bhatia's (1965) method is used. The study reveals that there is great influence of geographical factors on crop concentration in Marathwada region.

Keywords: *Agricultural regions, crop concentration, Bhatia's method.*

INTRODUCTION:

Agriculture geography has been defined as the science which deals with the regional or spatial variations in the distribution of agricultural entities and to explain the causes of such variations (M. Husain, 2002). Agricultural geography is as the study of regional variations in agriculture and the factors responsible for them. In India development of agriculture and allied activities provides a source of live hoods to over 70 percent of its total population. (Katar Sing, 2009). Agriculture is base of industry, trade and transportation India. Agricultural regionalization is an aggregation of areal unites in the form of contiguous in geographic and taxonomic spaces with similar features of agriculture (Pragati & Ramanaiah, 1999). Agricultural regionalization is not simply an operation of dividing the country into a number of agricultural

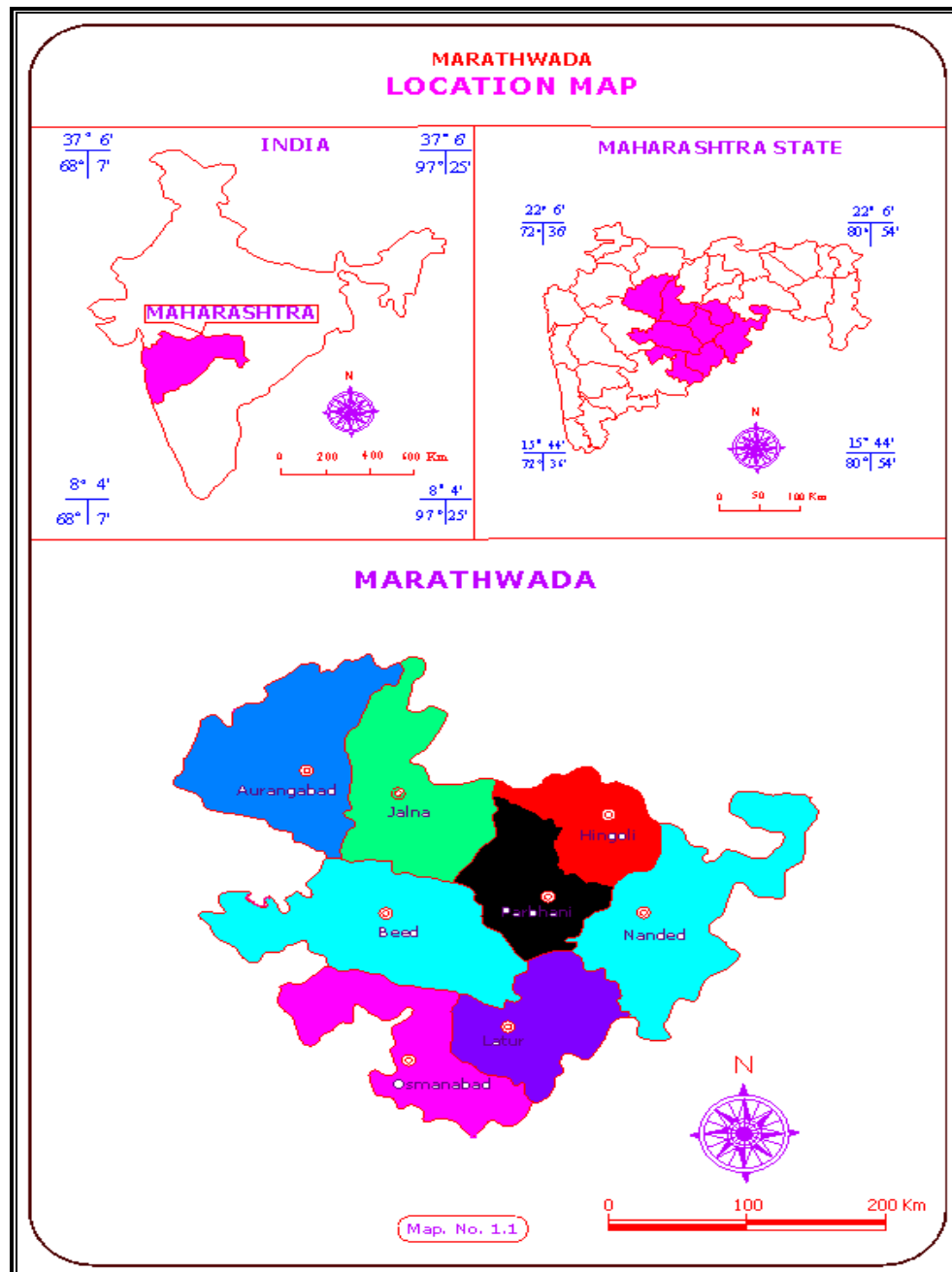
regions, but it is also a method of understanding the agricultural pattern and agro- geographical relationship. It conveys that it is a contiguous area having some kind of agricultural homogeneity. Any segment or portion of the Earth's surface possessing a distinctive form of agriculture is an agricultural region (Jasbir Singh, 1984).

The term agricultural region has been used in its traditional sense but still it does not lose any significance; rather it's used much wider. Delimitation of agricultural region has great importance because it is very important for agricultural planning and development. Crop concentration means the variations in the density of any crop in an area or region at a given point of time. (Hussain, 2002). The concentration of crop in an area largely depends on its terrain, temperature, Rainfall and pedological condition. Crop concentration enables the geographers and planners to understand the areas of specialization to different crops grown in a region at a given point of time. The continuous cultivation of a particular crop in a unit or region, however leads to progressive reduction in yield. This depletion of soil happens because the crop exhausts certain nutrients from the soil. Consequently, the natural fertility of the soil steadily declines. So that crop rotation is important for maintain soil fertility. Therefore an attempt is made here to study crop concentration region in Marathwada region.

STUDY REGION:

The Maharashtra state is administratively divided into six divisions, viz. Konkan, Nasik, Pune, Amravati, Nagpur and Aurangabad. The Aurangabad division, known also as Marathwada was formerly a part of Hyderabad state. Marathwada forms the central portion of Maharashtra with Aurangabad city being located almost in the centre of the state (Map -1). Marathwada is one of the most backward regions of Maharashtra state.

The Marathwada region lies in the upper Godavari basin. The absolute location of district is 17° 35' to 20° 40' North latitude and 74° 40' to 78° 19' East longitude. The study region is bounded on the north by Jalgaon, Buldhana, and Akola districts, to the North-east by Yavatmal district, to the East by Kamareddi, Nizamabad and Adilabad districts of Andhra Pradesh, to the South and South-east by Bidar and Gulbarga districts of Karnataka state, to the West by Ahmednagar to the Southwest by Solapur and to the North-west by Nasik district. Its shape is roughly triangular. East-West maximum extent is 394 Kilometers and North-south extent is 330 Kilometers. The total geographical area of district is 64434 Sq. Km. which constitutes 20.95 percent of the state and its population is 1.87 cores which is 16.66 percent of the state (2011). Administratively area is divided into eight districts that 76 tahsils.

**OBJECTIVES:**

The main objective of present study is to analyse crop concentration regions in Marathwada region.

DATA COLLECTION AND METHODOLOGY:

The present paper is based on secondary sources. The data regarding area under different crops are collected from socio economic review and District Statistical Abstract of Districts of Marathwada, Seasonal Crop Reports for the

period of 1981-1985 to 2005-2010. Apart from this other data is collected from District Census Handbook and Gazetteers.

The collected data are processed. To avoid fluctuation in area under crops and to get reliable result quinquennial average is taken into consideration. Percentage of area under each crop to total cropped area is calculated. To find out crop concentration Bhatia's (1965) method is used. Bhatia's formula is as following

<p>Area under 'X' Crop in the Component areal unit</p>	<p>÷</p>	<p>Area under 'X' Crop in the entire region</p>
<p>Index of Crop Concentration= -----</p>		
<p>Area under all Crops in the Component areal unit</p>		<p>Area under all crop in in the entire region</p>

The crop concentration patterns are worked out considering district as a study unit. After the calculation crop concentration table is prepared and on the basis of this table analysis and conclusions are drawn.

CROP CONCENTRATION IN MARATHWADA REGION:

I) Jowar:

The table -1 indicates that high degree of concentration of Jowar is recorded in Nanded, Parbhani and Osmanabad districts during 2005-2010 due to suitable agro climatic soil condition. Furthermore Jowar is drought resistance crop. The moderate concentration of jowar is found in Latur and Beed districts, while Low concentration is recorded in Aurangabad, Jalna and Hingoli districts, because of fertile Soil and suitable climate most of the farmers of these district devote their land to Cotton.

During the period under review high to moderate Jowar concentration shift is observed in Beed district. Moderate to high concentration shift is recorded in Nanded and Parbhani districts, while moderate to low concentration in Aurangabad district due to development of irrigation facilities majority farmers devoted their land to cash crops. There is no change in Jalna, Hingoli, Latur and Osmanabad districts in Jowar concentration.

During 2005-2010, high concentration of wheat is in Beed, Parbhani and Hingoli districts due to fertile soil of Manjra and Godavari basin and development of irrigation. The moderate concentration of Wheat is found in Latur and Aurangabad districts, whereas low concentration is found in Jalna, Nanded and Osmanabad districts.

Table 1: Crop Concentration In Marathwada Region

Crops	Year	A.bad	Jalna	Nanded	Os.bad	Latur	Beed	Parbhani	Hingoli
Jowar	1981-86	0.96	0.79	0.99	1.22	1.04	1.08	1.00	0.90
	2005-10	0.80	0.66	1.22	1.45	0.93	1.02	1.22	0.70
Wheat	1981-86	0.94	1.17	0.87	1.18	0.68	0.99	0.95	1.42
	2005-10	0.89	0.84	0.64	0.86	1.10	1.23	1.22	1.34
Bajara	1981-86	2.72	1.02	0.03	0.13	0.28	2.43	0.13	0.06
	2005-10	1.91	0.96	0.07	0.38	0.15	3.21	0.14	0.11
Sugarca ne	1981-86	1.87	0.84	0.83	1.17	1.12	0.86	0.19	0.86
	2005-10	0.71	0.63	0.68	1.94	1.65	1.19	0.68	0.56
Tur	1981-86	0.68	0.84	0.9	1.66	1.66	0.82	0.70	0.89
	2005-10	0.77	0.98	0.8	1.67	1.51	0.76	1.07	0.50
Gram	1981-86	0.99	0.55	0.56	1.92	1.11	1.08	1.31	0.45
	2005-10	0.74	0.58	0.58	1.61	1.70	0.91	1.10	1.01
Cotton	1981-86	0.53	1.37	2.36	0.01	0.30	0.30	1.60	1.91
	2005-10	1.38	1.95	1.50	0.05	0.03	0.60	1.25	1.08
Ground nut	1981-86	0.91	0.7	0.77	1.41	2.08	0.80	0.83	0.47
	2005-10	0.70	0.01	0.61	0.41	0.14	0.65	4.40	1.28

Source: Compiled by Researcher on the basis of Socio Economic Review and District Statistical Abstract of District in Marathwada 1981-1985 & 2005-2010.

II) Wheat:

Low to moderate concentration shift of Wheat is observed in Latur district due to development of surface irrigation facilities. The a change from moderate

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to low concentration shift is found in Jalna district due to high yielding variety of Bajara, whereas moderate to high concentration shift is found in Beed and Parbhani districts. High to moderate concentration shift is recorded in Osmanabad district. There is no change in Wheat concentration in Aurangabad, Hingoli and Nanded district during the period of 1981-86 to 2005-2010.

III) Bajara:

The table -1 indicates that high concentration of Bajara is found in Beed district during 2005-2010, due to the favorable climatic and soil condition, further more it's drought resistance nature. Moderate concentration of Bajra is registered in Aurangabad district, whereas low concentration is found in remaining six districts namely Jalana, Parbhani, Hingoli, Latur, Osmanabad and Nanded.

During the period of investigation high to low concentration shift of Bajra is found in Beed district. Aurangabad district shows, the shift from high to moderate, whereas it is from moderate to low in Jalna district. There is no change in Bajara concentration in Nanded, Osmanabad, Latur, Parbhani and Hingoli districts.

IV) Sugarcane:

During 2005-2010, the high concentration of sugarcane is found in Osmanabad and Latur districts due to development of surface irrigation facilities, whereas it is moderate in Beed district. The low Concentration of Sugarcane is recourses in Aurangabad, Jalna, Nanded, Parbhani and Hingoli districts because of availability of black cottan soil most of farmers cultivate cotton as a cash crop and jowar as food crop.

During the period of investigation high to low concentration shift of sugarcane is found in Aurangabad district, whereas moderate to high concentration shift is observed in Osmanabad and Latur districts due to development of surface irrigation facilities. Low to moderate concentration shift is found in Beed district. There is no change in Sugarcane concentration in Jalna, Nanded, Parbhani and Hingoli districts.

V) Tur:

During 2005-2010, the high concentration of Tur is found in Osmanabad and Latur districts due to suitable agro-climatic condition and availability of Dal mil market in Barshi town. The moderate concentration of Tur is recorded in Jalna and Parbhani district, whereas it is low in Nanded, Beed, Hingoli and Aurangabad districts. In Aurangabad, Hingoli and Nanded it is low due fertile soil resulted in to cotton cultivation, while in Beed due to lowdue to rainfall condition.

VI) Gram:

the high concentration of Gram is found in Osmanabad and Latur districts during 2005-2010,. The moderate concentration of Gram is recorded in Hingoli and Parbhani districts, whereas it is low in Aurangabad, Nanded, Jalana and Beed districts.

During the period under review low to moderate shift of Gram concentration is found in Hingoli districts, whereas moderate to low concentration in Aurangabad and Beed districts, Moderate to high concentration shift of Gram is observed in Latur district, in the rest of districts there is no change in Tur concentration.

VII) Cotton:

During 2005-2010, high concentration of Cotton is found in Aurangabad, Jalana and Nanaded districts due to fertile soil in Godavari river basin. Furthermore farmer prefers it as a cash crop. The moderate concentration of cotton is recorded in Parbhani and Hingoli districts, whreas it is low in Hingoli, Osmanabad, Latur and Beed districts.

During the period of investigation high to moderate concentration shift of cotton is observed in Parbhani and Hingoli districts, whereas moderate to high concentration shift is in Jalna district. Low to high concentration shift is in Aurangabad district. There is no change in Cotton concentration in Osmanabad, Latur, Nanaded and Beed districts during the period of investigation.

VIII) Groundnut:

During 2005-2010, the high concentration of Groundnut is found in Parbhani district, whereas it is low in Aurangabad, Jalna, Nanded, Oamanabad, Latur, Beed and Hingoli districts.

During the period of investigation high to low concentration shift of groundnut is found in Latur district. moderate to low concentration shift is recorded in Osmanabad district. Low to high concentration shift is registered in Parbhani district. There is no change in Groundnut concentration in Aurangabad, Jalna, Nanaded and Beed districts.

CONCLUSION:

Forgoing analysis reveals that there is great influence of geographical factors on crop concentration in Marathwada region. The high degree of concentration of Jowar in Nanded, Parbhani and Osmanabad is a result of suitable agro climatic, soil condition and it's drought resistance nature. High concentration of wheat in Beed, Parbhani and Hingoli districts is mainly due to fertile soil and development of irrigation. The high concentration of sugarcane in Osmanabad and Latur districts is a result of development of surface irrigation

facilities. High concentration of Cotton in Aurangabad, Jalana and Nanaded districts indicates influence of Black cotton soil in Godavari river basin. The moderate to high concentration shift of Sugarcane in Osmanabad and Latur districts is mainly due to due development of surface irrigation facilities. The study of cop concentration indicates that the farmers of Marathawada prefer food crops firstly and they cultivate Cotton or Pulses as cash crop to fulfill their economic needs due to lower development of irrigation facility. The special verification in the degree of concentration is found to be result of the interaction of physiographic, hydrological, socioeconomic and technological factors of study region. Jowar and Bajara play important role as food crops while cotton pulses and oilseeds are grown to earn money in many district. Irrigation facility, availability of high yielding variety, technological factors, capital and farmers personal decisions are the fundamental factors responsible for the emerging changes in the crop concentration.

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