

IMPACT OF IRRIGATION ON CROP DIVERSIFICATION IN AHMED NAGAR DISTRICT (MAHARASHTRA)

* Prof. R. R. Bhalsing

In the field of geography, the concept of crop diversification is not a new one. It indicates raising the variety of crops on arable land. It can be examined over space and time. This is based on agroclimatic, irrigation as well as technological consideration. Crop diversification index method seek to identify the behavior of crops over a period of the and space. It is one of the most important criteria of agricultural regionalization and useful for the identification of cropping pattern of the region. The main advantage of the study of diversification region lies in the fact that it enables us to understand the impact of physical and socio-economic conditions on the agriculture. Moreover, it helps us in knowing the contemporary competition among crop for area, for rotation and effect on double cropping, total production and per hectare productivity. Crop diversification has attracted the attention of geographers from very beginning of the discipline as an independent branch of agricultural geography. Its measurement in quantitative sense is of a recent origin. Crop diversification patterns Have great relevance like that of crop concentration, in agricultural land use studies. Crop diversity is an important component of cropping pattern of a region. It refers to crop variety.

Larger the number crops grown in an area during the year with each crop occupying equal proportion of crop land, the higher is crop diversification, specialization is reverse of diversification. Specialization indicates cultivation of a few number of crops. Where as crop diversification implies raising the variety of crops from the soil. "The keener the competition, the higher the magnitude of the diversification and lesser the competition the greater will the trend toward specialization or monoculture farming where emphasis is on one or two crops" (Jasbir Singh 1976). In fact it is that the greater the number of crops in combination the greater will be the degree of diversification. An attempt is made here to analysis the nature of crop diversification and its spatio-temporal variations in micro region i.e. Ahmednagar district. With the help of Jasbir Singhs techniques for 1980-85 and 1995-2000. Jasbir Singh (1976) in his study modified the technique of Bhatiya. His modified technique he has been used to show the magnitude of crop diversification in the study region. The higher

the value of the index, the lower will be the degree of crop diversification and vise-versa. The value can not be less than 5 percent are not considered to calculate the index of crop diversification. The modified formula developed by Jasbir Singh is as below:

$$\text{Index of Diversification} = \frac{\text{Percentage of total harvested Area under 'n' drops}}{\text{Number of 'N' crop}}$$

The 'N' crops are those crops which occupy individually 5 percent or more of the harvested area of taluka. The same technique is applied for present investigation. At present crop diversification is very high in tropical and subtropical countries of the world and Ahmednagar district is not a exception for this. It has been increasing day by day due to various man made factors, irrigation is one out of them. It has special impact on diversification so more emphasis have been given on the improvement in the irrigation facilities all over the world. Irrigation makes possible to take the production of variety of crops two or three times in a year and ultimately leads to more diversification.

OBJECTIVES :- 1. To identify the degree of crop diversification in different talukas. 2. To examine the impact of irrigation on crop diversification.

STUDY AREA :- The district of Ahmednagar is located between 18 2' to 19 9' north latitudes and 73 9' to 75 5' east longitude is situated partly in upper Godawari basin and partly in Bhima basin, the interfluves in between farming the extensive Ahmednagar plateau. The district is very irregular in shape, some what resembling a slanting cross with length of 200 Kms and breath of 210 Kms the region covers an area of 17035 Sq. Kms. Which is about 5.66 percent of the total area of Maharashtra State. It has total population 4088077 persons according to 2001 cesus, which is about 4.33 percent rural population. Agriculture is the main occupation of the people in this region. This district having 66.40 percent arable land which was under cultivation. Both Kharif and Rabbi crops have an important in this district.

METHODOLOGY :- The present study is based on secondary data. Population about the area under different crops in a study region is taken from socio-economic abstract of Ahmednagar district 1980-19985 and 1995-2000. Jasbir Singh's method of crop

* Head, Dept. of Geography, M. J. College, Jalgaon

diversification is employed for measuring diversifications indices. The variation in spatial pattern of indices are examined for year 1980-1985 and 1995-2000 for studying the variation in indices four diversification levels are registered namely i) area of high diversification below 20, ii) area of moderate diversification 20 to 25, iii) area of low diversification 25 to 30 and, iv) area of very low diversification above 30. The crop diversification is inversely related i.e. lower the index more the diversification of crops and higher the index more the specializations, under agriculturally favorable condition such as suitable weather, fertile soil, mechanization availability of irrigation facilities the crop diversification is more while crop diversification decrease in the region unfavorable condition.

ii) High Diversification : Area's of high diversification was observed in Ahmednagar, Shevgaon, Pathrdi, and Jamkhed taluka during 1985-85. Area's of high diversification was found in Rahuri, Pathrdi, Karjat, Parner, Akole, Sangamner, and Kopergaon talukas except Pathrdi and Karjat all above talukas having fertile black soil, irrigation facilities have been developed well and canal irrigation is prominent in this region. Mula and Bhandara projects are provide

irrigation facilities for above talukas.

ii) Moderate Diversification :- Moderate diversification was associated with Karjat, Shrigonda, Parner, Akole, Sangamner and Kopergaon talukas during 1980-85. Where as in 1995-2000 Ahmednagar, Newasa, Shevgaon, and Shrigonda talukas experienced moderate diversification.

iii) Low diversification : Low diversification was found in rahuri, Shrirampur and Newas talukas during 1980-85.

vi) Very low diversification : Very low diversification was recorded only in Jamkhed taluka during 1995-2000.

Conclusion : It indicate that low and very low diversification of crop in these talukas because there are limited irrigation facilities, so also these areas receive very scanty rainfall and have rugged topography and poor soil. Therefore mainly food grains are grown in these talukas. Northern part of the district observed high diversification is mostly due to high extension of canal irrigation so cultivators of these talukas have changed their attention from food grain to cash crops sugarcane, oil seeds, fruits and vegetables have increase their percentage in these talukas.

Table No. 1
Crop Diversification in Ahmednagar district

Sr. No.	Name Of Taluka	1980-85		1995-2000	
		No. of Crop	Index of Diversification	No. of Crop	Index of Diversification
01	Ahmednagar	5	16	3	21
02	Rahuri	3	28	4	19
03	Shrirampur	3	26	3	24
04	Newasa	3	26	4	22
05	Shevgaon	5	16	3	23
06	Pathardi	4	17	5	15
07	Jamkhed	6	14	2	34
08	Karjat	3	23	4	18
09	Shrigonda	4	20	3	25
10	Parner	4	21	5	14
11	Akole	3	25	3	13
12	Sangamner	4	17	4	17
13	Kopergaon	4	21	5	13
	Dist. Avarage	3	24	4	18

Source : Compiled by Author from Socio-economic Abstract 1980-85 & 1995-2000

Table No. 3
Ahmednagar district overall irrigation intensity
(Net irrigated area as percentage to Net sown area)

Sr. No.	Name Of Taluka	1980-85	1995-2000
01	Ahmednagar	15.40	17.70
02	Rahuri	49.33	62.99
03	Shrirampur	36.01	71.28
04	Newasa	27.55	44.07
05	Shevgaon	12.71	15.24
06	Pathardi	11.01	08.10
07	Jamkhed	08.69	11.86
08	Karjat	4.71	15.48
09	Shrigonda	17.75	43.93
10	Parner	07.42	04.93
11	Akole	03.36	12.37
12	Sangamner	16.72	23.78
13	Kopergaon	52.41	46.33
	District Total	20.64	26.51

Source : Compiled by Author from Socio-economic Abstract 1980-85 & 1995-2000.

Table No. 2
Degree of crop diversification in Ahmednagar district 1980-85 & 1995-2000

Degree of crop diversification	1980-80 Name Of Taluka	No. Of Taluka	1995-2000 Name Of Taluka	No. Of Taluka
< 20 High	Shevgaon Pathardi Jamkhed Ahmednagar	4	Pathardi Karjat Parner Rahuri Akole Sangamner Kopergaon	7
20 to 25 Moderate	Karjat Shrigonda Parner Akole Sangamner Kopergaon	6	Shrirampur Newasa Shevgaon Ahmednagar Shrigonda	5
25 to 30	Rahuri Shrirampur Newasa	3	Nil	
30 > very low	Nil	-	Jamkhed	1

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