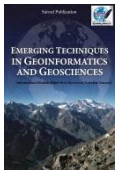
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Agricultural Development in Ahilyanagar (Ahilyanagar) District, M.S, India

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Author's contribution: The sole author designed, analysed, interpreted and prepared the manuscript

Original Research Article

ABSTRACT:

This research paper is based on secondary data sources, this statistical date taken from Statistical Bulletin of Ahilyanagar district. Thirteen factors have been considered for making Agriculture Development Tehsil Wise of Ahilyanagar District. The using Kendall's ranking co-efficient index with the composite score. On the basis of Composite Score, developments of blocks have been categorized into three categories i.e. high, medium and low. Geographical, socio-economic, political and technological factors affect the development of agriculture, which prevents the full development of agriculture in a geographical region or in an entire geographical region.

KEY WORDS: Cropping intensity, Kendall's ranking co-efficient index, Composite Score, Agricultural development.

INTRODUCTION:

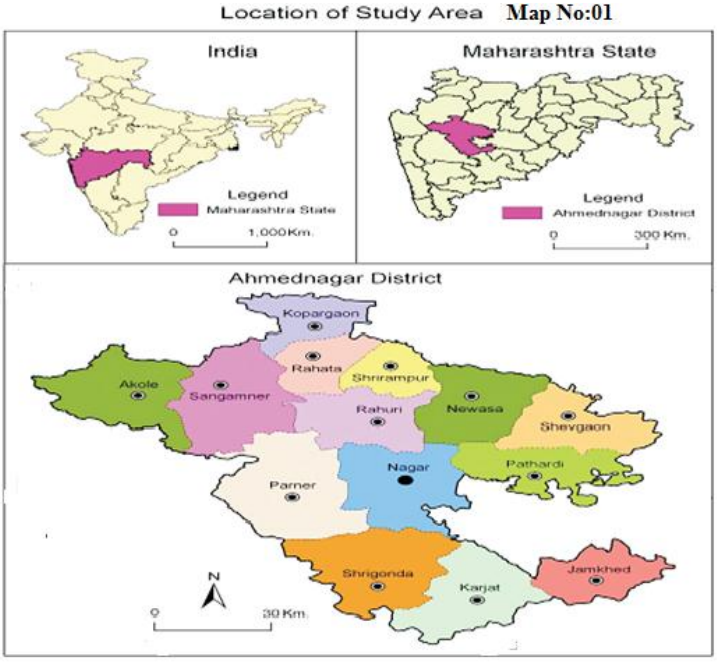
Socio-economic and political factors affect the development of agriculture as well as geography is considered an important factor as in countries like India agriculture is known as gambling. This is because if the weather is the right factor, then the agricultural production and farming are done properly, and if the weather is not right, or if the geographical factors give so not supported to agriculture, then agriculture cannot develop. The more inputs we give to agriculture, the more we get output, but even though these inputs and outputs are important, weather is a factor. Maharashtra is basically agricultural state. Indian economy is center on agriculture. About 58.2 percentages of Indian population is directly or indirectly dependent on agricultural. Agriculture and allied sectors contribution nearly 14.4 percentage of Gross Domestic Product of India (2012). A healthy and advanced agriculture creates demand for several industrial products like tractors, harvesters, threshers, chemical fertilizer, pesticides etc (khular 651). Agricultural development improves social and cultural development due to an increase in per capita income (Kazma khan & Lubna Khalil 2003) In addition to the geographical factors for agricultural development, economic factors, technology, social and political factors are also required. It is necessary to provide input to all

the factors such as various facilities mainly for agriculture, irrigation, fertilizer center, labour supply various machinery. Human Resources is considered to be an important factor for the development of agriculture as it consists mainly of literacy skills and knowledge. At the same time, the chemicals used in agriculture contribute to the pollution, which mainly includes soil pollution and water pollution, and these pollutants have adverse effects on the environment and human health. Therefore, it has been decided to conduct research paper on agriculture development in Ahilyanagar district. For this, the factors have been considered. Agriculture development in Ahilyanagar district depends on these factors.

STUDY AREA:

The present study Ahilyanagar district has been selected as a study area. It extends between 18° 20′ and 19° 59′ north latitudes and 73° 40′ to 75° 43′ east longitudes (Map.1) located in part in the upper Godavari basin. The district is very dense in shape and length of 200 km. a width of 210 km. This study region is divided into there are three physical divisions namely, first Sahyadri moutons ranges i.e. Kalsubai, Adula, Baleshwar and Harishchandragad, second Plateau third plains area. The Godavari, Bhima River is the main rivers in this district with the major tributaries are Paravara, Mula, Sina, Dhora, Kukdi ect. And the recharge (water available) of rivers is mainly depending on rainfall in western ghat. Ahilyanagar district occupies 17,048 square km geographical area. The administratively there are divided into 14 tahsils. The average annual rainfalls is 578.8 mm. (22.79") and mean daily maximum temperatures is 39°C and mean daily minimum temperature is 11.7° C. In study region 71.10 percent area under cultivation area out of them 32.40 percent is irrigated and 67.60 percent rain fed or rain shadow area. Its Population is 45, 43,083 (Census 2011) in which male and female are 2,348,802 and 2,194,281 correspondingly. The density of population was 266 persons per square kilometers. The economy of the district is chiefly depends on agriculture activities. The variations in climate, soil, drainage, irrigation facility have a predominant influence on agricultural in study area. The cropping pattern is different each irrigated and rain fed areas (Map no 01).

Location of Study Area **Map No:01**



OBJECTIVE:

The main objectives of the present researches are as fallows.

1. To analyze and find out the agricultural development in the study area.

2. To analyze the availability of agricultural infrastructure for agricultural development in study area.

DATABASE AND METHODOLOGY:

The research paper is based on secondary data which has obtained from the Socio-economic abstract, government publication Ahemdnagar district. All data were suitably converted into tables draw for analysis the agricultural development of the study area. The used Kendall's ranking co-efficient index method (1939) is used to determine the level of agricultural development in the study area. In the firstly he calculated the percentage of all variables second match the highest to lowest value remark the numbers and lastly sum the rank of all variables finally calculated the co-efficient index, match the level of agricultural development in tahsil wise. The level of agricultural development has been determined on the basic of 10 variables they are as follow. X1=Percentage of Cross cropped area; X2=Percentage Irrigated area; X3 =Percentage of Number of Tractors; X4=Percentage of Literacy; X5=Percentage of Iron Plough; X6= Use of electricity for agricultural in Percentage; X7= Number of agricultural credit society in Percentage; X8= Use of fertilizers for agriculture in Percentage; X9 = Number of Electrical Pump used for irrigation in Percentage; X10= Percentage of Major cash crops(Grapes, Sugarcane, Onion ,& other Vegetables) By using data about above 10 variables the co-efficient index is calculated for each tahsil of the study area by using the

Kendall's co-efficient index method. The co-efficient index is inversely related to development i.e lower the index more development and higher the index low the development. For the calculation of Co-efficient index, following formula of Kendall's is used. Kendall's Co-efficient Index=(∑R)/N Where, ∑R=Sum of rank , N= Numbers of variable.

RESULTS & DISCUSSION:

The variable for agricultural development in the variable are selected to determine the level of agricultural development in the study area. These entire variables are showing in the table no 01, 02 and 03. There are ten variables in agricultural sector he calculated by first percentage second rank of variables in percentage wise and lastly calculated the Co-efficient index.

Table No.01: Spatial Distribution of Agricultural Development in %

Tehsil%	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
Akole	8.1	1.9	3.768	6.85037	13.7	6.55	3.846	5	1.853	2.83
Jamkhed	6.4	2	1.955	6.68419	4.49	2.66	3.846	0.03	1.994	2.25
Karjat	8.7	1.8	4.277	6.81966	5.09	3.47	1.362	4.41	8.45	1.99
Kopargaon	5.3	4.7	20.89	7.34168	1.94	42.9	9.215	7.79	3.153	9.06
Nagar	10	21	2.661	7.92692	2.74	9.19	8.814	5.79	11.25	0.49
Nevasa	11	6.1	9.714	7.19627	9.78	4.31	10.66	15.1	14.31	21.7
Parner	1.3	5.8	5.383	6.9452	19.5	4.32	8.413	4.5	6.305	6.35
Pathardi	8.2	4.2	3.367	6.84404	7.32	2.52	6.731	4.24	6.994	3.67
Rahata	4.9	8.1	9.015	7.54669	3.86	3.25	6.01	7.03	6.621	6.94
Rahuri	5.8	6.4	4.059	7.27846	3.71	2.9	8.734	9.51	10.78	16.6
Sangamner	9.5	4.9	20.88	7.28478	3.34	5.18	10.82	10.8	10.03	17.4
Shevgaon	7.5	20	10.02	6.79708	16.9	6.12	5.849	7.92	3.217	1.35
Shrigonda	9.6	5.2	0.889	6.95242	5.87	2.6	10.18	7.73	7.528	5.51
Shrirampur	3.9	7.8	3.116	7.53224	1.8	4.03	5.529	7.54	7.515	3.85

Source: Compiled by Author

LEVEL OF AGRICULTURAL DEVELOPMENT:

The calculated level of agricultural development ten variables has been taken into account measuring. use data about above 10 indictors the co-efficient index is calculated for each tahsil which are shown in the table no.02 on the basic of co-efficient index, the agricultural development have been classify into three categories High, Medium, Low table no.03 and map no.02 indicates the classes about of agricultural development in each tahsil of the study area.

1. HIGH LEVEL DEVELOPMENT: Only one of the tahsil approached under this category in Nevasa. A lot of variables are dominated in this tahsil. These tahsil achieved high agricultural development due to well development agricultural infrastructure. It includes cross cropped area (X1),Use of fertilizers for agriculture in Percentage(X8), number of electrical pump used for irrigation (X9), major cash crops(Grapes, Sugarcane, Onion ,& other Vegetables X10), these facilities are first position on available in nevasa tahsil. And second position number of agricultural credit society(X7). Agricultural infrastructure well development in this tahsil because share 5 variables out of 10 variables, due to high level development of agricultural. These cash crops gives good come back to farmers.

Table No02: Ranking Co-efficient Index

Name of the Tahsil	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	€Rank	Co-Efficient Index
Akole	7	13	9	10	3	3	12	10	14	10	91	9.1
Jamkhed	9	12	13	14	8	12	13	14	13	11	119	11.9
Karjat	5	14	7	12	7	9	14	12	5	12	97	9.7
Kopargaon	11	10	1	4	13	1	4	5	12	4	65	6.5
Nagar	2	1	12	1	12	2	5	9	2	14	60	6
Nevasa	1	6	4	7	4	7	2	1	1	1	34	3.4
Parner	14	7	6	9	1	6	7	11	10	6	77	7.7
Pathardi	6	11	10	11	5	14	8	13	8	9	95	9.5
Rahata	12	3	5	2	9	10	9	8	9	5	72	7.2
Rahuri	10	5	8	6	10	11	6	3	3	3	65	6.5
Sangamner	4	9	2	5	11	5	1	2	4	2	45	4.5
Shevgaon	8	2	3	13	2	4	10	4	11	13	70	7
Shrigonda	3	8	14	8	6	13	3	6	6	7	74	7.4
Shrirampur	13	4	11	3	14	8	11	7	7	8	86	8.6

Source: Compiled by Author

2. MEDIUM LEVEL DEVELOPMENT: The medium level categories includes in 8 tahsils Shrirgonda,Shevgaon, Sangamner, Rahata, Rahuri, Kopargaon, Nagar, Parnar. These tahsil achieved medium agricultural development due to dominance of three to five variables of agricultural development. Main factors for medium agricultural development in these areas are increasing the area under cash crops and developing agricultural infrastructure.

3. LOW LEVEL DEVELOPMENT: This category consists of five tahsil i.e shrirampur, pathardi, karjat, Jamkhed and akole tahsil. Each tahsil is different variables position e.g

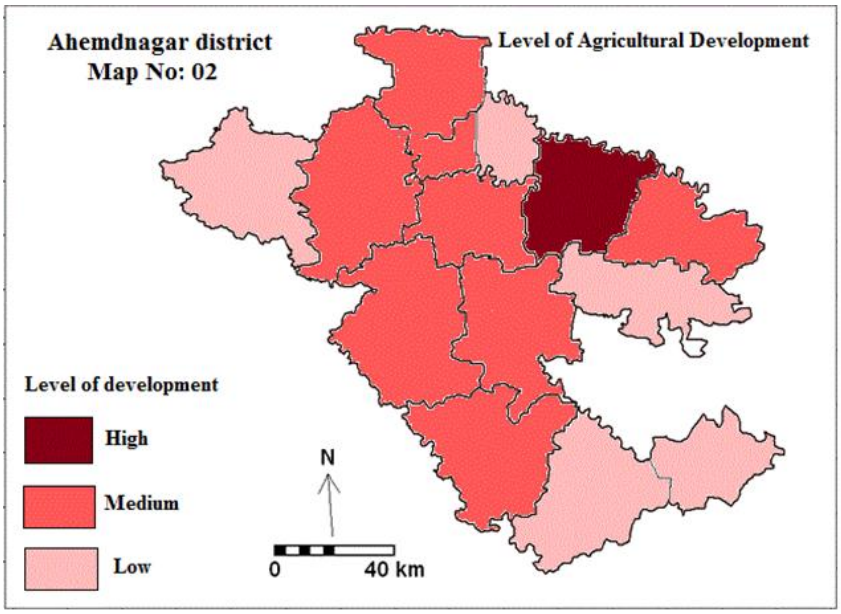
shrirampur thasil irrigated area X2 second position but other variables not good positional developed. Because of pravara lift canal effects on agricultural irrigation but other agricultural elements are not good development. In the Pathardi, Karjat and Jamkhed tahsil all agricultural variables are not a good position because of these all area located in drought prone area on ahemdnagar district and akole tahsil is hilly with tribal area. This whole area has been characterized by adverse conditions like hilly, poor soils, less accessibility and low income of farmers with very less development of irrecation facilities. This all conduction effects on agricultural development.

Table No03: Level of Agricultural Development

Co-efficient Index	Level of development	Name of Tahsils	Number of Tahsils
0-4	High	Nevasa	01
4-8	Medium	Shrirgonda,Shevgaon, Sangamner Rahata,Rahuri,Kopargaon,Nagar,Parnar	08
Above 8	Low	Shrirampur,Pathardi,Karjat,Jamkhed,Akloe	05

Source: Compiled by Author

Map No 02: Level of Agricultural Development



CONCLUSION:

The development process in any region is the function of the interplay of five basic factors first Physical resources second degree of technology advancement third Social structure fourth Economic setups and lastly Polity. The present study reveals that agricultural development is not well distributed in the region. The majority of the tahsils come under

medium agricultural development. It is laying in the central, eastern and south part of the study area. Where physical and environmental is unfavorable and agricultural infrastructure is less development. The Nevasa is the highly developed tahsil due to enjoying the many agricultural infrastructural facilities. Low development agricultural area where making situation on agricultural e.g irrigation, agro-based industries, agro- Tourism etc. akole area good surrounding of tourism development thus large amount tourism fundamental facilities produced. It will help to increase cropping intensity of the region. Sufficient attention is necessary for market incentives especially in the medium development region. Less development region so some allied occupation of agricultural e.g animal husbandry and developed irrigation facilities. Post-harvest management and marketing linkages also important for overall development of agricultural region. For this purpose crating awareness in the farmer is very vital role of government is very important in less developed. Government should promote an irrigation facilities and other agricultural infrastructure for balanced developed of agricultural of the region.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

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