ISSN: 2278-4632
Vol-10 Issue-5 No. 2 May 2020

Agriculture Development in Satara District (2011): A Geographical Study

** Mr. Sudhakar Koli: - Assistant Professor, Chhatrapati Shivaji College, Satara*
Email- sudhakarkoli8911@gmail.com
*** Dr. V. R. Veer: - Associate Professor, Kisanveer Mahavidyalaya, Wai*
Email: - vinodrveer@gmail.com

Abstract:-

Agriculture development refers to the process of transformation through which the shift takes place from the stage of traditional agriculture to the stage of modern agriculture. The process of agriculture development includes the use of high yielding varieties (HYV), irrigation, use of modern agricultural equipment's etc. for increasing production. In this paper an attempt has been made to study the agriculture development in Satara district. The present study is based on secondary data. For this study tehsil wise data has been collected. This data has been collected from Socio-economic abstract of Satara district. For calculation of agricultural development, the data of all variables/indicators have transformed into a Z-score technique there are three tehsils namely Satara, Phaltan and Karad belongs to the highly developed category of agricultural development. Mahabaleshwar and Man tahsils comprise in low development category.

Introduction:-

Agriculture has immense importance in the economy of developing country like India. Agriculture plays a key role in food security and economic development. Most of the population in rural areas depends directly or indirectly on agriculture for their livelihoods. Agriculture not only provides food for the nation but it also provides employment to the people. According to 2011 census, more than 54 percent working population of India engaged in agriculture. It also contributes to the market for industrial goods and earns foreign exchange. Agriculture is the main source of income in India. Agriculture and activities based on agriculture contributes more than 50 percent of the national income of India.

Agriculture development refers to the process of transformation through which the shift takes place from the stage of traditional agriculture to the stage of modern agriculture. The process of agriculture development includes the use of high yielding varieties (HYV), irrigation, use of modern agricultural equipment's etc. for increasing production. Agriculture development denotes the equality of the agricultural system of the region. It is a multidimensional concept which mainly includes development in real strength of cropped area, farming system, irrigated area and high yielding varieties of seeds (Mohmmad, 1986).

ISSN: 2278-4632
Vol-10 Issue-5 No. 2 May 2020

Study Area:-

Satara district located at southern part of Maharashtra and western limit of the Deccan plateau. The latitudinal and longitudinal extent of Satara district is 17^0 $5'$ to 18^0 $11'$ North and 73^0 $33'$ to 74^0 $54'$ East **(Map No.-1)**. Satara district is surrounded by Pune in North, Solapur in the east, Sangli to the south and Ratnagiri to the west.

Satara district consists of eleven tehsils namely; Mahabaleshwar, Wai, Khandala, Phaltan, Koregaon, Khatav, Man, Satara, Jaoli, Patan, and Karad. The district has 10480 Sq. km. area; it covers 3.40 Percent area of the state. It has 15^{th} rank in term of the area in Maharashtra. It has a very compact shape. The average south-north distance is 120 km and east-west is about 144 km. According to 2011 census, there are 1719 inhabited villages in the district.

Database and Methodology:-

The present study is based on secondary data. For this study tehsil, wise data has been collected. This data has been collected from Socio-economic abstract of Satara district, District statistical handbook etc.

To study the agriculture development of Satara district, tehsil wise data of different variables have been collected. The collected data have been tabulated in proper format and apply suitable statistical methods for obtaining good results.

For calculation of agricultural development, the data of all variables/indicators have transformed into a Z-score technique. The formula for Z-score is as follows.

$$CSS = \frac{\sum Zij}{N}$$

Where,

Zi= Z-score for 'I' observation

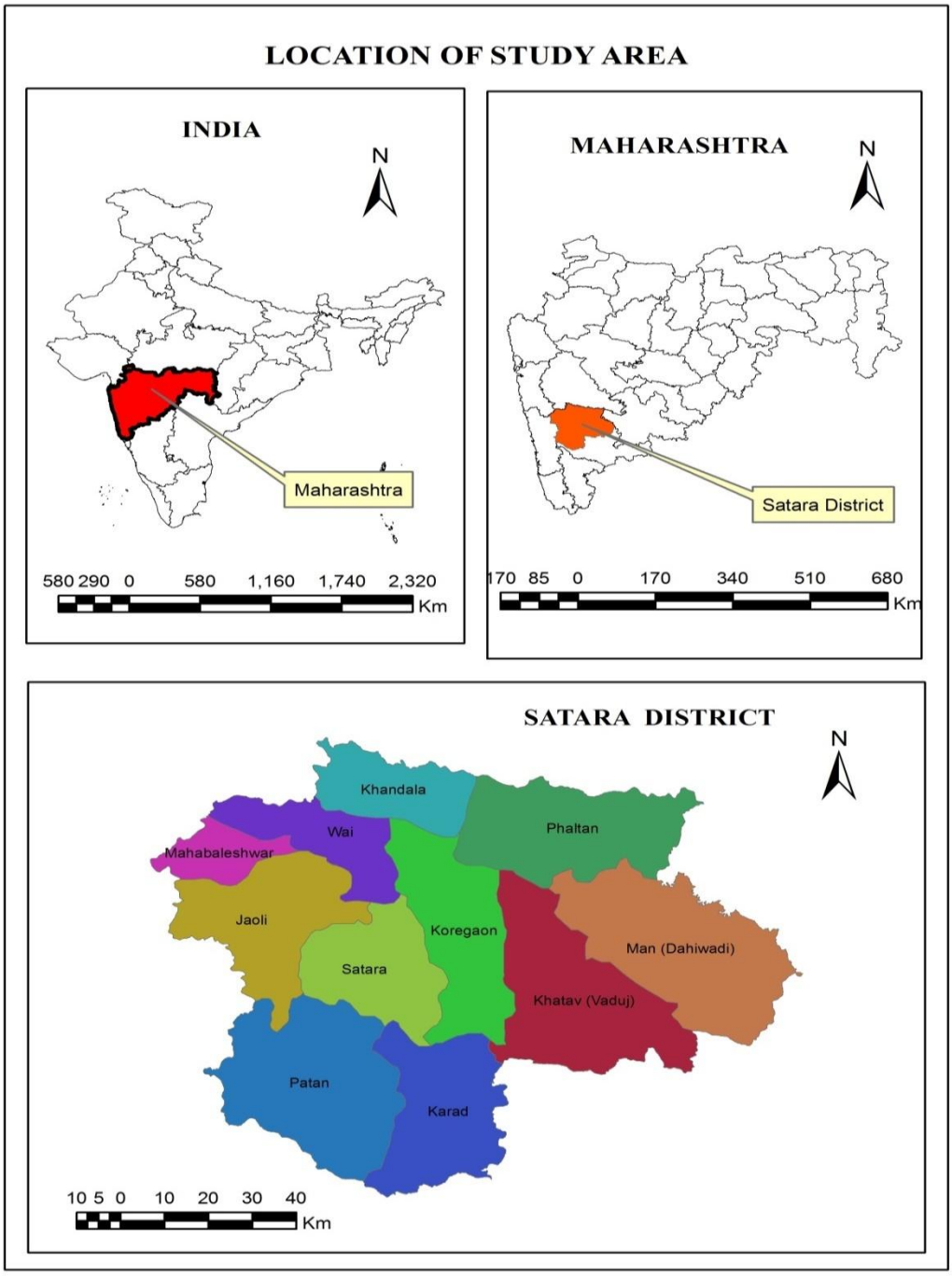
Xi= Original Value of i^{th} observation

$\bar{X}$= Mean of 'X' variable

S.D. = Standard Deviation of 'X' variable

In order to classify tehsils according to their development, the composite Z-score have been grouped into high, medium and low.

ISSN: 2278-4632
Vol-10 Issue-5 No. 2 May 2020



Map No. 1 Location Map of Study Area

ISSN: 2278-4632
Vol-10 Issue-5 No. 2 May 2020

The final result of Z-score obtained for different indicators was aggregated by Composite Standard Score (CSS) to bring development on a common scale. The composite standard score expressed as follows.

$$CSS = \frac{\sum Zij}{N}$$

Where,

CSS= Composite Standard Score

Zij= Score of an indicator 'j' in tehsil 'i'

N= Total number of Indicators

In order to classify the tehsil according to the development, the composite scores were divided into three classes i.e. high, medium and low.

List of selected indicators/variables

The list of indicators/variables used for the analysis the agricultural development in Satara district is as follows.

1. Percentage of net sown area to total geographical area (Xi)
2. Percentage of net irrigated area to net sown area (Xii)
3. Percentage of agricultural worker to the total workers (Xiii)
4. Total number of tractors to gross cropped area (Xiv)
5. Total number of iron plough to the gross cropped area (Xv)
6. Total number of electric pump to the gross cropped area (Xvi)
7. Total consumption of chemical fertilizer to the gross cropped area (Xvii)
8. Total number of Primary Agriculture Credit Society (PACS) (Xviii)
9. Agricultural productivity index of major crops (Xix)
    a) Rice (Xix-A)
    b) Rabbi Jowar (Xix-B)
    c) Kharif Jowar (Xix-C)
    d) Wheat (Xix-D)
    e) Sugarcane (Xix-E)
    f) Groundnut (Xix-F)
    g) Gram (Xix-G)

ISSN: 2278-4632
Vol-10 Issue-5 No. 2 May 2020

Interpretation:

To study the spatial pattern of overall agricultural development of the district Z-score values of all indicators have been aggregated. The average of Z-score value of all indicators considered as the composite standard score. **(Table No-1)**

The composite standard score ranges from 1.02 to -1.14. According to the composite standard score, tehsils have been categorized into three categories of development. To categorize tehsil into three category quartile technique has been implemented.

1. High Developed
2. Moderately developed
3. Low developed

The highest composite index is of Karad tehsil (1.02) this indicates that Karad is highly developed tehsil in the district.Karad tehsil has an abundant water supply throughout the year, black soil; use of modern tools in agriculture, good agriculture productivity tends to the highly developed category of the agriculture development.

Table No.-2 show the spatial pattern of the level of agricultural development of the Satara district in 2011. In 2011, there are three tehsils namely Satara, Phaltan and Karad belongs to the highly developed category of agricultural development. (Map No.-2)

Phaltan, Koregaon, Patan, Khandala, Khatav and Wai tehsils of the district comes under the moderately developed category. (Map No.-2)

Mahabaleshwar and Man tehsils comprise in low development category. Mahabaleshwar tehsil located extremely west to the district which has a hilly tract, undulating topography, steep slope, less net sown area, forest cover, as result there is low development in agriculture.Whereas Man tehsil belongs to the drought-prone area, scarcity of rainfall, use of traditional methods of agriculture led to low development of agriculture. (Map No.-2)

ISSN: 2278-4632
Vol-10 Issue-5 No. 2 May 2020

Table No. 1

Satara District

Standard (Z) Score of indicator/variables for Agriculture Development (2011)

										Xix							Composite Index
Sr. No.	**Tehsil**	**Xi**	**Xii**	**Xiii**	**Xiv**	**Xv**	**Xvi**	**Xvii**	**Xviii**	Xix-A	Xix-B	Xix-C	Xix-D	Xix-E	Xix-F	Xix-G	
1	Mahabaleshwar	-1.08	1.54	-1.48	-0.94	-1.77	-1.29	-1.18	-1.81	-0.80	-0.37	-0.83	-1.59	-2.81	-2.17	-0.51	**-1.14**
2	Wai	0.33	0.82	-0.06	-0.19	-0.22	0.51	-0.45	-0.64	0.63	0.95	0.52	0.41	0.34	0.10	0.08	**0.21**
3	Khandala	-0.76	0.74	-0.21	-0.49	-1.52	-0.98	-0.59	-0.83	-0.30	-1.38	2.15	-0.68	0.50	0.10	-0.23	**-0.30**
4	Phaltan	-0.49	0.41	0.33	0.37	0.31	0.74	1.30	0.98	-0.90	-0.15	0.95	1.92	0.18	-0.23	-0.56	**0.34**
5	Man	-1.05	-0.98	1.20	-0.42	0.39	0.12	-0.37	-0.33	-0.91	-1.52	-1.37	0.16	-0.14	-0.25	-1.2	**-0.44**
6	Khatav	1.28	-2.02	0.90	-0.07	1.04	0.94	0.13	0.39	-1.23	-0.60	-1.01	-0.42	-0.11	-0.74	-0.55	**-0.14**
7	Koregaon	0.41	-0.20	0.35	-0.13	-0.16	0.41	-0.01	0.10	0.05	0.28	-0.66	0.37	-0.11	0.25	0.86	**0.12**
8	Satara	0.49	0.04	-1.93	0.07	0.71	-0.06	-0.10	1.39	0.14	0.41	0.11	-0.24	0.59	0.06	2.56	**0.28**
9	Jaoli	-0.7	0.69	0.47	-0.70	-0.77	-1.15	-0.90	-0.88	0.43	0.22	-0.09	-1.31	1.07	0.92	-0.17	**-0.19**
10	Patan	-0.45	-0.26	1	-0.32	1.12	-1.02	-0.16	0.41	0.64	0.16	0.41	0.46	0.08	1.93	-0.51	**0.23**
11	Karad	2.02	-0.79	-0.59	2.81	0.88	1.77	2.32	1.22	2.26	2.01	-0.17	0.92	0.40	0.03	0.23	**1.02**

Source: compiled by researcher

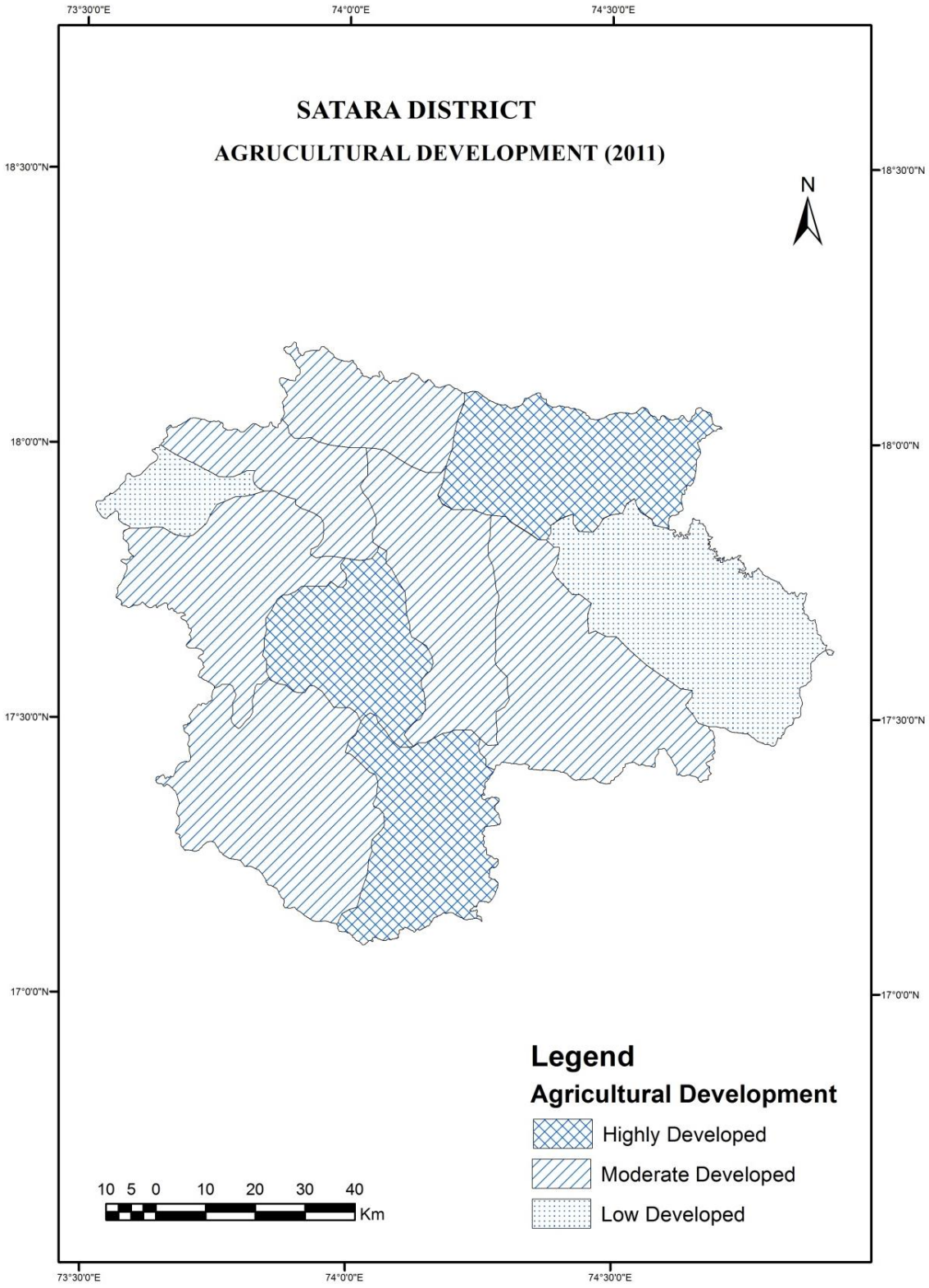
ISSN: 2278-4632
Vol-10 Issue-5 No. 2 May 2020

Table No-2
Satara District
Level of Agricultural Development (2011)

Sr. No.	Level of Development	No. of Tehsils	Name of Tehsil
1	High	03	Satara, Phaltan, and Karad
2	Moderate	06	Koregaon, Patan, Wai Jaoli, Khatav, and Khandala
3	Low	02	Mahabaleshwar, Man,

Source: Compiled by Researcher

ISSN: 2278-4632
Vol-10 Issue-5 No. 2 May 2020



Map No. 2- Agriculture Development in Satara District

ISSN: 2278-4632
Vol-10 Issue-5 No. 2 May 2020

Conclusion:-

Agriculture has immense importance in the economy of developing country like India. Agriculture plays a key role in food security and economic development. Most of the population in rural areas depends directly or indirectly on agriculture for their livelihoods. There are three tehsils namely Satara, Phaltan and Karad belongs to the highly developed category of agricultural development. Karad tehsil has an abundant water supply throughout the year, black soil; use of modern tools in agriculture, good agriculture productivity tends to the highly developed category of the development.Phaltan, Koregaon, Patan, Khandala, Khatav and Wai tehsils of the district comes under the moderately developed category. **(Map No.-2)**

During 2011, Mahabaleshwar and Man tehsils comprise in low development category. Mahabaleshwar tehsil located extremely west to the district which has a hilly tract, undulating topography, steep slope, less net sown area, forest cover, as result there is low development in agriculture.Whereas Man tehsil belongs to the drought-prone area, scarcity of rainfall, use of traditional methods of agriculture led to low development of agriculture.

References:-

- Ajagekar, B.A. and Masal N.S. (2011): “Regional disparities in the levels of Agricultural Development in Kolhapur District of South Maharashtra” Indian Streams Research Journal, Vol. 1, Issue 2, Pp.139-144
- Ali Mohammad (1978): “Studies in Agriculture Geography”, Rajesh Publication, New Delhi.
- District Census Handbook of Satara 2011.
- Dr. Rathod S. B. (2016): "Regional Disparities in Levels of Agricultural Resource Development in Satara District”, Research front journal. Vol. IV, Issue I
- Husain M.(1996): “Systematic Agricultural Geography”, Rawat Publications, Jaipur.
- Masal N.S. (2012): “Regional Imbalances in Rural Development in Kolhapur District of South Maharashtra: A Geographical Analysis” Ph. D. thesis of Shivaji University, Kolhapur.
- S.D. Shinde & S. G. Chavare (2012) “Integrated Approach of Remote Sensing and GIS for Analysis of Agricultural Land Suitability in WR-6 Watershed” , in “Agriculture and Rural Development” (ISBN:978-93-5087-020-4)
- Subhash Chavare (2015), “Application of Remote Sensing and GIS in Land Use and

ISSN: 2278-4632
Vol-10 Issue-5 No. 2 May 2020

Land Cover Mapping of Sub-watershed of Wardha River Basin", Proceedings of National Conference on Development & Planning For Drought Prone Areas",ISBN- 978-93-5174-933-2

- Subhash Chavare Prasadsinh Dalavi, and R. Jegankumar, (2014), "Agricultural Land Suitability Analysis of Swetha River Basin" Proceedings of National Conference on "Geoinformatics in Rural, Urban & Climatic Studies", on organized by Center of Studies in Resource Engineering, Indian Institute of Technology, Mumbai