GEOGRAPHICAL ANALYSIS

RESEARCH ARTICLE

Spatial Variation in the Level of Agricultural Development in Mandya District

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Abstract

Agricultural development is multidimensional in nature. There are number of elements influencing on the level of agricultural development in a region. Understanding the spatial and temporal differences in the level of agricultural development and to examine measures their relationships with physical and non-physical factors influencing on levels of development is needed. The main objectives of the selected study are, to study the special pattern of Agricultural Development in Mandya district & to analyze the regional disparities of agricultural development. The present study is based on secondary source of published data for the years 1991 and 2017 obtained from the statistical magazine of Mandya district. For measuring the relative score of various attributes of agricultural development in Mandya district. Standard score technique has been applied (Z-Score). New technologies and commercial crops are adopted to develop agro-economy. For these reason emphases on the diffusion of agricultural innovation are stressed. Therefore, an attempt has been made to identify the spatio-temporal pattern of agricultural development in seven development taluks of Mandya district.

Keywords: Agricultural development; Z Score

Introduction

Agricultural development is multidimensional in nature. There are number of elements influencing on the level of agricultural development in a region. Agricultural development largely based on the resources of their immediate natural endowments which can be modified only at a heavy cost. Therefore, understanding the spatial and temporal differences in the level of agricultural development and to examine measures their relationships with physical and non-physical factors influencing on levels of development is needed. It can be used as an effective means for delineating the areas, where even agrarian mechanization could not bring significant changes and modification in crop structure and agricultural production. Hence it may thereby be termed as areas of weakness.

Commercialization of agriculture is another dimension of agricultural development. The percentage of cropped area under cash crops may be used as a measure of commercialization of agriculture. The density of market centres per 1000 sq.km of area

can also provide a clue to the degree of commercial agriculture. The development of agriculture is to be judged also from the degree of equity in farm incomes and nature of agrarian relation. Above all agricultural development should not produce deterioration in ecological condition. It should not lead to defacement of forests, exhaustion of soil nutrients, depletion of underground water and emergence of water logging condition. Conservation of physical resources is an integral part of any agricultural development (Krishan, 1992).The spatial pattern of agricultural development has been measured in terms of technological factors such as chemical fertilizers (NPK), irrigation, HYV of seeds and implements.

Agriculture is the main source of livelihood for millions of people in India. Agricultural development is central to all strategies of planned socio-economic development in India. Spectacular break- through in agricultural research, technology development and dissemination under the umbrella of Green Revolution has been major factors in increasing both agricultural production and productivity. The socio-economic factors, the regional institutional setup and the natural factors varying over geographical area together provide a climate for a particular nature of agricultural development framework. Agricultural development enhances social and cultural development due to an increase in per capita income. There is an overall improvement in the quality of life which gets expression in the level of education, health care, better housing and so on. Cultivators are able to make use of technology and go for the improved method of farming. The first important work on problems and prospects of agricultural development in India is the Report of the Royal Commission on Agriculture in India (1928) which provides an authentic report on many problems that were responsible for agriculture backwardness in India, suggestions for improvement of agricultural situation have also been given. Banerjee (1969) suggested that the future of Indian agriculture depends on the adoption of adequate strategy in agricultural planning based on comprehensive assessment in agricultural resources potentiality in social and economic infrastructure and their possible impact on the country as a whole. Kanwar (1970) has focused attention on the modernization of Indian agriculture. According to him productivity of agriculture is based on the HYV seeds, chemical fertilizers, scientific water management and other practices. These are suitable components of the progress and modernization of Indian agriculture. Pal (1975), in his study has found out that agriculture being the prominent sector of economy, the pace of economic development of the country, has been still continues to be significantly influenced by the pace of its agricultural development. In fact, several eminent scholars have explained the spatio-temporal variations in agricultural development. (Mellor, 1967; Mitra, 1967; Nath, 1969; Sharma, 1971; Alam, 1974; Shenoi, 1975; Mohammad Ali, 1979; Srivastava, 1983). Swaminathan (2009) expressed that agriculture is not just a food providing machine but the backbone of the livelihood of sixty per cent of people of India. According to Datt and Sundharam (2009), agricultural growth has a direct impact on poverty eradication, health, nutrition of rural masses, national security and multiplier effect on entire economy. Peter (1988) argued that the growth in agricultural productivity is central to development. Agriculture is the largest sector of the nation which provides about one-fourth GDP, gives livelihood to more than sixty per cent of population and employs nearly 69 per cent of the total workforce (Ranganathan, 2003). Thus, the development of agriculture sector can serve up as a catalyst for rapid growth of whole economy (Maity and Chatterjee, 2006). They all have tried to understand the pattern and processes of the crucial problem of agricultural development as it is a multidimensional concept. There are concerns regarding the agriculture sector in India as the compound growth rate of total food grains were less than two percent in the last decade i.e. area: 0.29, production: 1.96, yield: 2.94 (Ministry of Finance, 2011); making traditional farming a non viable agricultural activity. Disparities in productivity across regions/districts and even within crops persist with significant increase in small and marginal farm holdings. Agricultural development denotes the quality of agricultural system of a region; it is a multi dimensional concept which mainly includes development in a real strength of cropped land, improvement in farm practices/system, improved farm implements, irrigation system and irrigated area, high yielding improved varieties of seeds, chemical fertilizers, insecticides and pesticides, intensity of cropping and specialization and commercialization of agriculture (Mohammed, 1980). The changing agro-economic scenario drew attention of research workers on diffusion of technological development in agriculture. In India majority of its population depend upon agriculture. So a vast rural mass tries to earn their livelihood from agricultural land. With fast increasing pressure of population on agricultural land, old methods and techniques of production cannot cope with growing demand. As a result, new technologies and commercial crops are adopted to develop agro-economy. For these reason emphases on the diffusion of agricultural innovation are stressed. Therefore, an attempt has been made to identify the spatio-temporal pattern of agricultural development in seven development taluks of Mandya district.

Study Area

Mandya District is part of Mysore plateau in the South Indian Peninsula. The District lies between 76° 19' and 77° 20' East Longitude and 12° 13' and 13° 04' North Latitude. It is bounded on the North by Hassan and Tumkur district, on the east by Tumkur and Bangalore districts, on South by Mysore district and on the West by the Hassan and Mysore District.

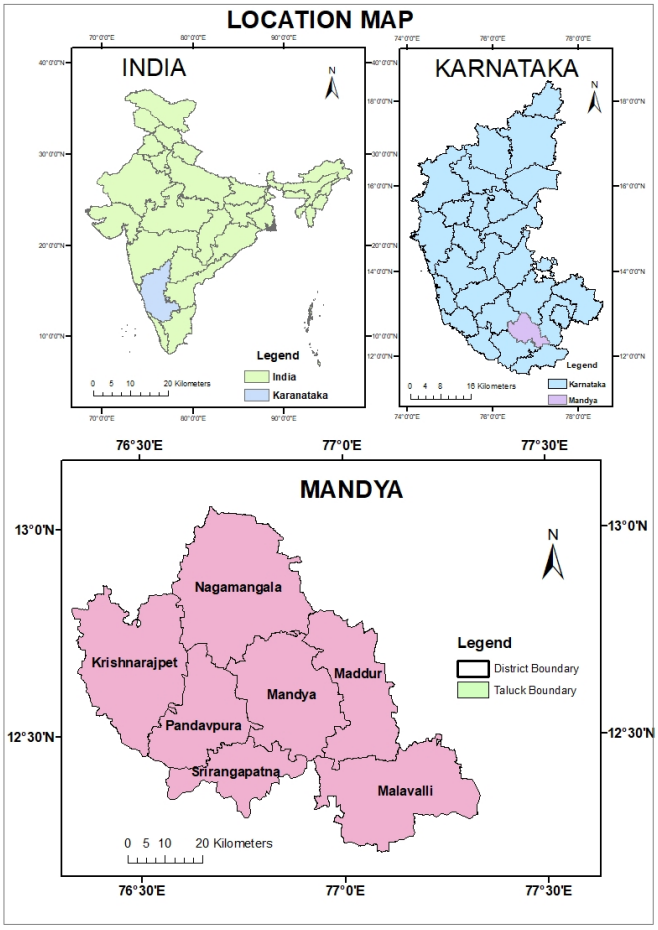

Fig. 1. Study Area

Mandya district has seven taluks namely, Nagamangala, K.R. Pet, Mandya, Malavalli, Maddur, Pandavapura & Srirangapatanna.

Objectives

- To study the special pattern of Agricultural Development in Mandya district.
- To analyze the regional disparities of agricultural development

Methodology

The present study is based on secondary source of published data for the years 1991 and 2017 obtained from the statistical magazine of Mandya district.

$$Z_i = \frac{X_i - \overline{X}}{S.D.}$$

Where

Zi= Standard score for the 1st observation

Xi= Original value of the observation

X= Mean for all the values of X

D=Standard Deviation of X

Further, the results of the standard score obtained for different indicators were aggregated in order to find out the composite index or composite standard score (CSS) so that the regional differences in the levels of development of various blocks may be obtained on a uniform scale.

All the data have been arranged in descending order of composite standard score. The positive values relating to the blocks score how high level of agricultural development and negative value the low level of development.

In order to classify the taluks according to the magnitude of development, the composite scores are divided into three classes viz; very low, low, medium & high level.

The following variables are considered to measure the agricultural development in Mandya district.

1. Percentage area under food-grain to gross cropped area

2. Percentage of canal irrigation to net irrigated area
3. Rural literacy rate
4. Percentage of agricultural workers to the total main workers
5. Percentage of fertilizer consumption /hectare of gross area (in kg

Table 1. 1: Agricultural development on the basis of composite mean Z score in Mandya district in 1991.

Sl. No.	Taluk	V 1	V 2	V 3	V 4	V 5	Average	
1	K.R. Pet	-0.2	-0.2	0.8	0.1	0.1	0.1	Medium
2	Maddur	0.2	2.2	-0.9	0.8	2.4	0.9	High
3	Malavalli	-0.2	0.01	-0.2	-0.2	-0.6	-0.2	Low
4	Mandya	-0.6	0.1	0.4	-0.1	-0.03	-0.04	Very Low
5	Nagamangala	0.6	-0.3	0.7	0.2	0.5	0.4	High
6	Pandavapura	-0.27	-0.07	-1.2	0.6	-0.94	-0.4	Very Low
7	Sriranga Pattana	0.1	0.04	0.3	-0.3	0.2	0.06	Medium
						Total	0.16	

Source: Computed by researcher.

Very Low level of Agricultural Development (below -0.25)

There are two taluks under this category. In 1991 but it reduced to one taluk in 2017. There are Mandya (-0.04), Pandavapura (0.4) in 1991 and in 2017 Mandya (-0.002). Mandya taluk has lowest agricultural development among all taluks.

Low level of agricultural Development (-0.25 to 0.00)

There are only one taluk under this category in 1991 i.e., Malavalli (-0.2), But in 2017 there are two low level taluk one is Malavalli taluk (-0.1) another one is Pandavapura taluk (-0.2) which is promoted from very low category to low category in the year 2017.

Medium Level of Agricultural development (0 to 0.25)

Two taluks are found in this category in 1991. These taluks are K.R. Pet (0.1) & Srirangapattana (0.06). In the year 2017 there is only one taluk under this category i.e. Srirangapatanna taluk (0.2).

High Level of Agricultural Development (Above 0.25)

Two taluks in 1991 and three taluks in 2017 found under this category. In 1991 Maddur (0.9) & Nagamangala taluk (0.4) has high level of agricultural development. But in 2017 it has increased to three taluks. These are K.R. Pet (0.3), Maddur (0.9) & Nagamangala (0.4).

Table 2. Agricultural development on the basis of composite mean Z score in Mandya district in 2017

Sl. No.	Taluk	V 1	V 2	V 3	V 4	V 5	Average	
1	K.R. Pet	-0.1	-0.1	1.3	0.1	0.2	0.3	High
2	Maddur	0.34	3	-0.8	1	3.54	0.9	High
3	Malavalli	-0.19	0.04	-0.2	-0.2	-0.55	-0.1	Low
4	Mandya	-0.71	0.2	0.6	-0.1	-0.01	-0.002	Very Low
5	Nagamangala	0.8	-0.2	0.9	0.2	0.7	0.4	High
6	Pandavapura	-0.27	-0.07	-1.2	0.6	-0.94	-0.2	Low
7	Sriranga Pattana	0.14	0.02	0.3	-0.1	0.36	0.2	Medium
						Total	0.2	

Source: Computed by researcher

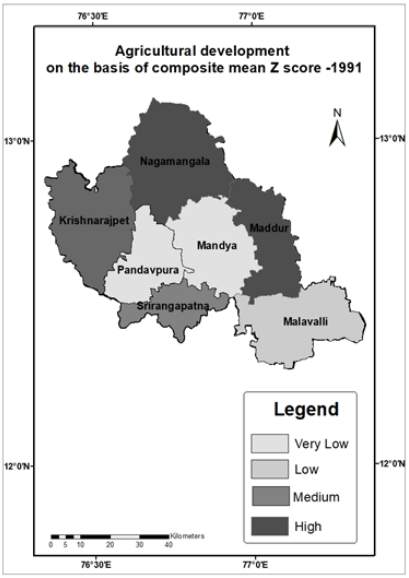

Fig. 2. Agricultural Development on the basis ofcomposite mean Z score-1991

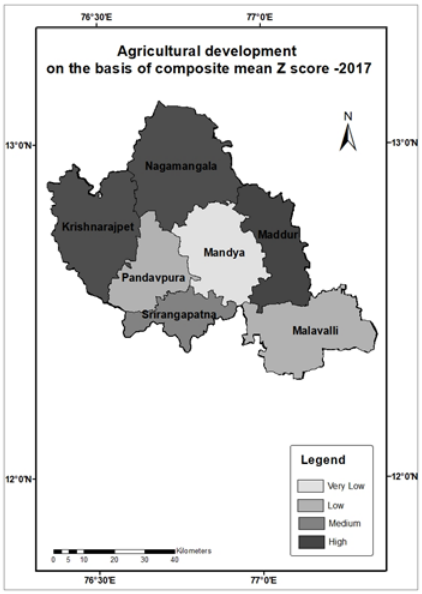

Fig. 3. Agricultural Development on the basis of composite mean Z score-2017

Conclusion

The study concluded that there is a high level of inter district variation in the level of Agricultural development in Mandya district. Geographical conditions, lack of irrigation facilities, lack of modern technologies have been affecting the agricultural development in the district. Overall it has been observed that Maddur & Nagamanagala Taluks are the most agriculturally developed in Mandya district.

Mandya district is adjacent to Bangalore Metropolitan which is also a drought prone with erratic seasonal monsoons, but development of tube wells has helped certain limited number of rich farmers taking up Greenhouse farming in the district.

The urban population and its growth trends have been examined from 1991 to 2017. In the study period urban population increased in the district. The growth of urban population increased demand for agricultural productions from cereals to horticultural crops like fruits, vegetables and flowers. The farmers have started growing horticultural crops under the impact of urbanization and globalization for bigger markets like Bangalore.

References

1) Pagar SD. Spatial analysis of agricultural development in Nashik district:a tehsil level study: Maharashtra's. *Maharashtra's Bhugolshastra Sanshodhan Patrika*. 2015;32(1):37–44.
2) Sharma TCC. Economic and Commercial Geography of India. 1991.
3) Singh G, Ashraf SW. Spatial variation in level of agricultural development in Bulandsahr district of western Uattar Pradesh (India). *International journal of development and sustainability*. 2012;1:47–56.
4) Kannan E. Agrarian Change and Farm Sector Distress: An Exploratory Study. *Agriculture Development and Rural Transformation Centre*. 2013.
5) Srivastava SL. Regional disparities in agricultural development in pm Kharagpur. *Indian Journal of Regional Sciences*. 1983.
6) Yadav A. Level of agricultural development in Haryana:a spatial analysis. *International journal of advanced research and development*. 2018;3(1):246–251.
7) Brown DD. Agricultural Development in India's Districts. Cambridge. Harvard University Press. 1971.
8) Mohammed A. Regional imbalances in levels and growth of agricultural productivity - a case study of Assam. *The Geographer*. 1980;1:35–52.
9) Mohammad A. Dynamics of Agricultural Development of India. New Delhi. Concept Publishing Company. 1979.
10) Khan K, khalil L. Spatio-Temporal Analysis of Agricultural Development A Block-Wise Study of Dehradun District. *International Journal of Geography and Geology*. 2013;2(3):24–35. Available from: https://dx.doi.org/10.18488/journal.10/2013.2.3/10.3.24.35.