Spatial Pattern of Agriculture Development in Tonk District, Rajasthan

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Abstract

Agriculture forms the backbone of Indian economy and more than two percent of working population of country depended on this primary sector of economy for their livelihood at the time of independence of the country in 1947. Agricultural development through increased production and productivity is not only the means to improve the conditions of the people living in rural area of the country by providing them the food as well as the many other products like vegetable, dairy and poultry products raising their income, but it is also a major source in providing the industries at home with their agro-based raw materials like cotton, jute, sugarcane, rubber, tea, coffee etc. and in exporting a range of agricultural products to foreign countries. Hence there is no denial that for economic planning of the country towards its development in an integrated way there has to be agricultural development which can reduce the inter-regional variances in both the level and growth of agricultural output and this itself can lead the country towards its economic development. The geo-economic factors that affect agricultural bring the differential character in the types of crops grown, the methods of farming and the yield factor of production from area to area. For a vast country like India with its sub-continental character in term of its marked regional diversities in agro-climate environment, natural resource endowment, habitat character and density of population, the methods of cultivation or farming may be grouped under their broad heading. These are the: (I) Physical factors (ii) infrastructural factor and (iii) Social factor.

Keywords: Tonk District Block Wise Comparative Study. Agricultural Crops, Irrigation Use Of Chemical Fertilizer. Rural Literacy Education Etc.

Introduction

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 gats expression in the level of education. Healthcare, 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 Agricultural (1928). Which provides an authentic report on many problems that were responsible for agricultural backwardness in India? Suggestion for improvement of agricultural situation has also been given. Kanwar (1970) has focused attention on the modernization of Indian agriculture. According to him productivity of agriculture is based on the use of HYV seeds. Chemical fertilizers, scientific water management and other practices. They all have tried to understand the pattern and process of the curtail problem of agricultural development as it is a multidimensional concept.

Although in Tonk district agriculture is a prominent sector of economy involving about 59% of the population, it has been languishing for a long period of time. Therefore an attempt has been made to identify the spatial pattern of agricultural development in seven blocks of Tonk district.

Tonk district of Dundadi region lies in central eastern part of Rajasthan. Total reporting area for land utilization purpose is 717960 hectares. Net cultivated area of the district is 397385 hectares. Which is 55.35% whereas total cultivated area is 467395 hectares which 65.10% the total geographical area of tonk district. In the district 26048 hectares for forest, 73425 hectares for non agricultural use, 89825 hectares cultivable land and 131277 hectares Padas land (follow land) is available.

Canals, wells and tube wells are the main source of irrigation in the district. The total area irrigated in district is 322778 hectares out of which 140584 hectares is irrigated by wells and tube wells. Kharif and Rabi crops are the main crops in the district. The important crops in the district in

order of production are mustard, wheat, Barley, Bajra, Jowar, Gram, and Maize, pulses total cultivated area of the district under karif crops is 245373 hectares and under Rabi crops is 415426 hectares as per (land record Tonk district 2013-14).

Bisalpur Dem is one of the major projects in Rajasthan. Has been constructed on Banas River by irrigation department Govt. of Rajasthan. For water supply domestic and irrigation present time as per project the total catchment area will be 27726 sq.km with gross storage capacity of 1095 mcm. About 240 mcm. Water will be utilized for drinking purposes and about 425 mcm (Tentative) for irrigation use.

Presently the production of pulses and oilseeds has diminished leading to the changed living condition and other socio economic conditions. For the estimation of this spatial pattern of agriculture development of Tonk district. This study has been undertaken. In the present paper on attempt has been made of study the spatial pattern of agricultural land use in the Tonk district for centuries the people of semi arid ecosystem have been depended on rain to carry out their agricultural practices. Evan those years of deficient rains were frequent they. Still some hour managed to cope with it as their agricultural practices and lifestyles were adopted with these condition. But population explosion in the 20th century led to decrease the size of land holding.

Study Area

Tonk, one of the erstwhile princely states of Rajasthan is located in its north eastern part between East longitudes 75^0 7'00" to 76^0 19'00" North latitudes 25^0 41'00" to 26^0 34'00" North latitudes and is covered in the survey of India degree sheets 45N, 45-0, 54B and 54C, the total geographical area of the Tonk district is 7194 sq kms. Area figures according to 2011 census, which accounts for 2.1% of the total area of the state. The area lies state with normal annual rainfall of 668.3 MM (2010-11) the district tonk is situated on national highway no. 12 and distance of about 82 km. from jaipur, the capital of Rajasthan; it is bounded on the North by jaipur district and the west by the Ajmer district in the south Bhilwara and Bundi district. The district comprises of 7 sub division a Tonk, Niwai, Deoli, Uniara, Malpura, Todaraysing and Pipllu. It has at tehsil viz. Tonk, Niwai, Deoli, Uniara, Malpura, Todaraysing Pipllu and Dooni there are six panchayat samities viz tonk, niwai, deoli, uniara, malpura and todaraysing total number of village in the district 1214 (2011 census). Rural and urban population of the district is 1103653 and 317723 respectivly and 1421326 census 2011 areas is decennial growth of population in the district is 17.3% since 2001 or 24.27% since 1991.

Geogrophical Profile of the Study Area

Objectives of the Study

The objectives of the research paper are following.

1. To study blocks wise of Tonk district for agricultural development.
2. To study the relationship between socio-economic conditions blocks wise.
3. To study of production facilities and infrastucture dure development.
4. To suggest to be better land use planning and rational cropping pattern for safety and conservation.

Review of Literature

Dr.K Narayen Gowda (2012), Dr.K Narayen Gowda examined that the land use pattern in any region mainly depends on its physical characteristic beside the intitutional and other resources endowment like labour capital available. In general land use pattern at given point of time mainly reflects degree of economic development. The increase in population dependent on agricultural has resulted in bring in large area of marginal land under cultivation on the other hand demand for firewood. Timber and fodder live stock has resulted in excessive pressure of forest and pasture land which have progressively affected the grass and tree over resulting in accelerated land degration leding to ecological imbalnce and environment problems.

Dr. Hement Pednekar and Prof. B.B Rahone (2012), They mentioned that, the agricultural practices and topology are best represented by crops in any region. The principle crops tended to concentrate according to there requirement of physical environment in this study an attempt has been made to analysis the agricultural land use pattern at micro level in Thane district. This study his based on secondary data collected from village revenue records.

Dr. S.A. Bufala and Dr. Mulimani (2012), According to above author's that, the predicitive model of archaeological projects location have great potential as tools for archaeologists working in cultural resources management and the ability to modal archaeological sensitivity has become increasing practial with the development of GIS technology and the availabillty of digtal environmental data.

M.P Sharma, Manoj Yadav, R. Prawasi, Pavan Kumar and R.S. Hooda (2011), According to them, The agricultural sustainability has the highest priority in all countries, whether developed or developing. Cropping system analysis is essential for studing the sustainablity of agriculture. Crop rotation is stated as growing one crop after another on the same piece of land in different timeing (seasons) without impairing the soil fertility. A cropping system can be defined as the cropping patterns and their management to derive maximum benefits from a given resource base under speafic environment to conditions. Multiplicity of cropping system has one of

the main features of Indian agriculture and is attributed to rained agriculture and prevalling socio-economic situations of estimated that more than 250 double cropping systems are followed through out the country. 30 important cropping systems have been identified based on rationale spreed of crops in each district in the country.

All the information upto my knowledge is written in this paper.

Methodology

1. Perecentage area under commercial crops to Gross cropped area. (2015-2016)
2. Percentage of net irrigated area to net sown area. (2013-2014)
3. Percentage of net irrigated area to Gross irrigated area. (2013-2014)
4. Use of chemical fertilizers (NPK) in matric tom. (2015-2016)
5. Precentage of net sown area to gross cropped area. (2015-2016)
6. Rural literacy rate. 2011
7. Number of primary schools to per lakh of population. (2015-2016)
8. Number of upper primary school to per lakh of population (2015-16)
9. Number of Secondary or Higher Secondary school to per la kh of population. 2015-2016
10. Percentage of literate persons to total population. (2011)
11. Percentage of electrified villages to total village. (2015-2016)

For measuring the relative score of various attributes of agricutural development in Tonk District. Standard score technique has been applied (Z-Score).

$$Z_i = \frac{x_i \times \bar{x}}{s}$$

Where-

z_i = Standard score of the ith observation

x_i = Original value of the observation

$\bar{x}$ = Mean for all the values of x

s = standard deviation of x

Futher, the result 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 regional differences in or composite standard score (CSS) so that the regional differences in the levels of development of various blocks may be obtained or a uniform scale. the positive values relating to the blocks score show high level of agriculture development and negative value the low level of development. In order to classify the blocks according to the magnitud of development. The composite scores are divded into the following three classes;

Class	Range of composite score.
High	> + 0.099
Medium	+ 0.099 to 0.099
Low	< -0.099

Table 1:1

Composite scores of spatial pattern of Agriculture development in Tonk District selected variables of Agricultural development in Tonk District

Block	Tonk	Newai	Uniara	Deoli	Malpura	Todarasingh	Peeplu	Duni
I	0.809	0.091	0.489	-0.233	-2.43	-0.159	0.516	0.922
II	-0.550	1.82	-1.142	-0.682	0.082	-1.046	1.18	0.336
III	-0.554	1.824	-1.128	-0.690	0.078	-0.905	1.19	0.321
IV	0.249	-0.224	-0.247	0.386	1.767	-0.048	-1.88	---
V	0.101	-0.697	0.125	-0.907	1.40	0.723	0.118	1.037
VI	0.744	1.925	-0.410	0.051	-1.24	-0.038	-1.051	---
VII	-0.339	-0.696	2.109	0.680	-0.645	0.272	---	---
VIII	1.224	-2.201	0.553	0.007	0.323	-0.082	---	---
IX	0.499	-2.137	0.674	0.674	-0.203	0.499	---	---
X	-0.124	1.282	-0.875	0.114	-0.263	-0.124	-1.564	---
XI	1.764	0.555	-0.525	0.276	-0.767	-1.286	---	---
CSS	0.347	0.156	-0.034	-0.029	-0.171	-0.199	-0.206	0.654

Source:- District statistic office Govt. of Raj. and calculated by auther.

Spatial Pattern

Agricultural development is a multidimensional process. it is a key element of rural development. Beside, agriculture can make a net contribution to capital formation requried for overhead investment and expansion of secondary industry in a region. Development of this sector provides cheaps food, cheap and abundant raw materials for agro based industries and also provide a vast market to the industrial sector.

Expansion of agricultural exports is likely to be one of the most promising mean of augmenting foreign exchange earning in a country accelerating its development efforts. There is a legitimate aspiration of the people in rural areas to improve their standard of living and to share the fruits of development. The primary objective of agricultural development to increase growth of agricultural output. Agriculture is the main stay of almost all the blocks, never thereless the extent of utlization of agricultural potential and the levels of development attained very from block to block.

High Developed Area (> to 0.099)

Block viz. Tonk block have largest positive (0.347) position. This block recording high level position of agricultural development has attained their status due to a variety of reasons. This is area near about district head quarter so infrastructural development. Banas river main irrigatation facilites provided high literacy rate, Production of vegetable (commercial) crops high yielding varieties, (HYV) some area have double cropping system. and improvement in resource management system especially soil and water. More they use chemical fertilizers and other agricultural technology and better road facilities. Better ground water.

Moderately Developed Area (+0.99 to 0.099)

The moderately developed region includes only one block i.e Newai (0.156). This block is located in the north-eastern part of Tonk district. Lack of educational facilities the area under commercial crop and the irrigation facilities are the main reasons for this. But the soil are fertile, use of fertilizers, literacy rate and cropping intensity are moderate so agricultural development is moderate order in this region.

Low developed Area (< -0.099)

There are five blocks come under this category namely uniara (-0.034) Deoli (-0.029), Malpura (-0.171), Todaraisingh (-0.99), Peeploo (-0.206).These block are located in the extreme west, south and north west of the district. in these blocks irrigation facilities are very poor (means unequally distributed),. There is also lack of production of commercial crops, Lack of cropping intensity, To sumup. The strategy for agricultural development in Tonk district should be evoled with the main emphasis on raising the total production and productivity. In such process the problem and constraints like improved agricultural technologics good quality seed, agricultural marketing, irrigation facilities, proper education to the farmar etc. Need to be studied and to be removed to the extent possible. All the efforts to increase agricultural production will have no impect unless the farmar are effectively involved in the programme. Together with other extension services knowledge of farmar management is to be imparted to the farmar. Establishment of growth centres may help the farmers in different aspects of agriculture input supply agro services etc. For adoption of new technology role of institutional rural credit is imperative for agricural development in Tonk district. Lack of educational facilities and lack of infrastructural facilities. Long distance of district head quarter.

Conclusion

From the proceeding discussions it may be concluded that the pattern of agricultural development is not uniform in all the blocks of Tonk district. The Tonk block have high agricultural development due to modernization of agriculture and subsequent urbanization which diffuses innovation to the surrounding countryside. In Newai block which has medium level of agricutural development the present plan strategies need to be slightly modified likewise depletion of micro nutrients farmar are unaware to technological possibilites and feasibilities. The district headquarter to sout-east (Uniara), north west (Malpura) south west (Todaraisingh), south (deoli) blocks having low level of agricultural development.

Suggestions

1. Assess problems relevant to physical social economic needs of the people and block wise. Monitering should be in built since inception and

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should include indicators for important assessment of ecologically socially and economically.

2. Build local capacity at the farmar level and local level institution for strong community action involving Panchayati Raj institutions through empowering them and active involvement of credit institution for facilitating adoption of new technologies. Also develop a team of "Farmar-Jankars".

3. Introduce high-tech water use technique (drip irrigation) to economize use of water for high value agriculture as a valuable strategy.

There are some serious problems that face farmars trying to grow crops today. These include:

1. Erosion
2. Disease
3. Pests
4. Weeds
5. Drought
6. Rainfall
7. Many non-arable lands.

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