International Indexed & Refferred Research Journal, ISSN-2250-2599; Vol. I* ISSUE -1 Oct., 2012

Research Paper - Geography

Irrigation and Agricultural Productivity in Yavatmal District of Maharashtra

*** Dr. H. N. Rede**

A B S T R A C T

The development of irrigation facilities, mechanization etc. leads to variations in agricultural efficiency per unit of time and space. Productivity pattern demonstrates the dominance of a particular set of crops and their contribution in the overall agricultural productivity. Here only seven crops, namely Rice, Wheat, Gram, Sugarcane and Cotton have been considered. The results are mapped and correlated with irrigation facilities, to examine the role of irrigation.

Key words: Agricultural Productivity, Irrigation,

Inroduction:

Irrigation constitutes one of the most effective technical means of the raising agricultural production in the developing countries. Where irrigation by gravity is possible, much work of installing facilities can be carried out by manual labour, through there is an obvious economic advantages, even in countries with very low wage level, in using technical aids in the constructional and earth moving works. Where the necessary water cannot be brought to the land to be irrigated slowly by the force of gravity, it is necessary use pumping installation.

The improvement in agricultural productivity is the generally the result of more efficient use of the factors of production viz, environment, arable land, labour, capital etc. The development of irrigation facilities, mechanization etc. leads to variations in agricultural efficiency per unit of time and space.

Objective:- The main objective of the study is to map and examine the relationship between irrigation and other variables i.e. agricultural productivity.

Data base and Methodology:- Basically the entire research paper is based on secondary sources of data. The secondary data obtained from official statistical abstract, Gazetteer, Irrigation Department, Season and Crop Reports published by the agriculture Department, some unpublished records. The collected data through different sources were processed and represented by statistical and cartographic technique. In order to assess agricultural productivity, Jasbir Singh's method (1972) of crop concentration indicates ranking co-efficient have been employed.

Study Area:- Yavatmal district is situated in Vidarbha region, in the eastern part of Maharashtra state. The district is lying between 19°26' and 20°42' north latitudes and 77°18'and 79°9'east longitude, is situated in western part of the Waradha Penganga - Wainganga to the north, Chandrapur district to the east, Adilabad district of Andhra Pradesh state and Nanded district to the south and Hingoli and Washim district to the west. The district has an area of 13,582 sq.km. (4.41% of the state) and population is 153 persons per sq.km. which is less than 257 persons per sq.km. for the state as a whole as per 2001 census. Administratively the district is divided in to 14 tahsils.Irrigation and Agricultural Productivity in **Yavatmal District:**

In order of asses agricultural productivity, Jasbir Singh's method (1972) of crop yield and crop concentration indices ranking co-efficient has been employed. This method leads to identify the crops of good level of productivity. As such the ranking co-efficient for individual crops are derived and further arranged in ascending order.

The ranks are divided into five categories having approximately the same number of tahsils. These categories can be called as productivity unit of very high, high medium, low and very low value. Productivity pattern demonstrates the dominance of a particular set of crops and their contribution in the over all agricultural productivity. Here only seven crops, namely Rice, Wheat, Gram, Sugarcane and Cotton have been considered. The results are mapped and correlated with irrigation facilities, to examine the role of irrigation. Temporal changes in selected crops - Temporal changes in rice, wheat, gram, cotton and sugarcane productivity.

Despite the spatial changes, the study region experiences the temporal disparities in per hectare yield of crops. Table No.1 reveals that there is 62.29% increase in gross irrigated area from 1984-85 to 2004-05. Though the area under rice declined in this period, but the yield per hectare is increased by 403 kg. from 1984-85 to 2004-05. The irrigated area under wheat is decreased by 4.34% in 2004-05 whereas, per hectare yield of wheat increased by 185 kg. The total cultivated area under gram is increased from 454 hectares (1984-85) to 4004 hectares (2004-05) in Yavatmal district, while per hectare yield is increased by 771 kg. during the period of investigation. Cotton yield has declined in the last twenty years. It is declined by 2358 kg. per hectare in

Table No.1: Irrigated Area and Production of Crops (1984-85 and 2004-05)

S. No.	Crops		Year 1984-85	Year 2004-05
1	Rice	Area (Hect.)	50	22
		Yield/Hect(Kg.)	97	500
2	Wheat	Area (Hect.)	11521	16768
		Yield/Hect(Kg.)	952	1137
3	Gram	Area (Hect.)	454	4004
		Yield/Hect(Kg.)	54	825
4	Cotton	Area (Hect.)	1281	1097
		Yield/Hect(Kg.)	4378	2020
5	Sugarcane	Area (Hect.)	2682	5636
		Yield/Hect(Kg.)	3068	65100
	Total irrigated area	(In Hectares)	24788	39793

Source: District Statistical Abstract,of Yavatmal District 1984-85 and 2004-05

the period under study. The area under sugarcane is comparatively more in 2004-05; the yield per hectare is increased by 62032 kg. from 1984-85 to 2004-05, whereas, per hectare yield of all crops increased due to high frequency of irrigation, which again has facilitate the use of fertilizer and good quality of seeds. The economic assistance is provided to the farmers through financial institution in the form of loan or subsidy.

Overall productivity-

For the investigation of overall productivity of food crops in Yavatmal district. The ranking correlation coefficients of yield index ranking and concentration index ranking of food crops have been considered. It is found that the ranking coefficient of overall productivity ranges from 10.5 at Umarkhed to 69 at Ralegaon tahsil. The regional disparities, there are well shown in the levels of irrigation development.

Very high productivity area- The overall productivity is very high in Umarkhed, Mahagaon and Yavatmal tahsils, because of more irrigation facilities as compared to other tahsils in the study region. These tahsils are agriculturally developed, as it possesses favourable attributes like fertile soil etc.

High productivity region- High productivity is marked in Pusad and Digras tahsils, due to irrigation development, establishment of agro-base industries and familiarities with new techniques etc. Moderate productivity- It consists of Darwha, Kalamb, and Wani tahsils which are endowed with fertile soils and moderate development of irrigation. The ranking coefficients vary from 30-45.

Low productivity zone- The overall productivity is low only in Kelapur tahsil because of scarcity of water. Very low productivity zone- Very low productivity of food crops are marked at Ralegaon, Maregaon, Ghatanji, Ner, and Babhulgaon tahsils in the period of investigation. The index value of all above tahsils is registered above 60. These tahsils have inadequate irrigation facilities. Depth of underground water table is marked very low with shallow soils etc. exhibits very low productivity. The overall productivity is very low to moderate in 69.36% of the total cultivated area. Hence efforts have to be made to increase it by providing adequate irrigation along with modern inputs.

Conclusion:

The district is characterized by various physical features, in which involves masses of hilly country, broken broad valleys and partial surrounded by plain. District is one of the well watered, but irrigationally less developed district of Maharashtra state. The irrigation has positive impact on the agricultural productivity of irrigated crops. The high productivity crops are largely affected by good irrigation facilities. It is noticed that Umarkhed, Mahagaon, Pusad and Yavatmal tahsil etc.

which are located in Pus and Penganga valley and in north Yavatmal tahsils posses high level of productivity. Away from the river course, the productivity reduces correspondingly with the decrease in the intensity of irrigation. Tahsils like Ralegaon, Maregaon, Ghatanji, Ner and Babhulgaon tahsils in the period of investigation. These tahsils have inadequate irrigation facilities. Depth of underground water table is marked very low with shallow soils etc. exhibits very low productivity. The zones of productivity are coinciding with the zone of fertilizer consumption. As the use of chemical fertilizers is directly related to the availability of irrigated water.

Head & Asso.Prof., Deptt. of Geography, S.C.S. College, Omerga Dist. Osmanabad.

REFERENCE

1. Hussain M. 1976 A New Approach to the Agricultural Productivity, Region of Sutlej Ganga Plains of India, Geographical Review of India. Vol.38.No.3 pp.230-236.
2. Mohammad Noor 1980 Measurement of Crop Productivity. A Review in Perspectives in Agricultural Geography, Vol.IV, pp.160-161.
3. Sharma and Coutinho 1976 Aspect of Agricultural Productivity in Karnataka, The Deccan Geographer Vol.XIV No.1 pp.10-22.
4. Shinde B.D., Jadhav M.G. & Pawar C.T. 1978 Agricultural Productivity in Maharashtra Plateau. Geographical Analysis, National Geographer Vol.XIII NO.1, pp.35-41.
5. Thanbad S.S. 1965 Spatial and Temporal variation in Agricultural Productivity in Mysore, Indian Journal of Agricultural Economics, No.4,pp.39-45.
6. Vidyanath V. 1985 Agricultural Productivity in Andhra Pradesh, The National Geographical Journal of India Vol.31, No.3, pp.204-07