

C O N C L U S I O N

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The transitional location of Kolhapur district between Konkan coastal lowland to the west and Deccan plateau to the east presents a variety in the geographical environment. The district is not uniformly endowed with the natural resources. Relatively unfavourable topography for agriculture exists in the western part of the district whereas extensive areas of level land situated in the eastern part of the region provides large scope for intensifying the agriculture. The valleys of Warana Panchaganga and their tributaries have developed the flood plains which are most important for cultivation. The climate of the region is wet tropical. Western part of the tahsil gets maximum rainfall (over 6000 mm) which decreases towards east (500 mm). The heavy rainfall in the western part have resulted in high rate of erosion and poor quality of soil. The soils in the river valleys are deep and highly fertile. The density of population decreases from east to west with changing topography and soil. In general the availability of agricultural land in relation to population is very low. The central and eastern parts of the region are fully electrified. The transportation facilities not developed in the western part due to hilly region.

The proportion of cultivated land is relatively low in the western part of the region than that of the eastern part. In the overall land-use pattern, cultivated area comprises only half (52%) of the total geographical area of the district, whereas non-agricultural land comprising forests and area not available for cultivation ranks second. About 70% of the land holders are

either marginal or small farmers. The region is well known for the lift irrigation schemes in Maharashtra. The development of irrigation enabled the farmers to accept the modern innovations; and techniques of farming. The predominance of food grains in the cropping pattern is notable in the region. Rice is a leading cereal crop and its share is relatively higher in the western part than the eastern part. Most of the crops are grown in Kharif season. Jowar comes from the eastern parts. The sugarcane is the major cash crops of the region and has a concentration along river banks and around sugar factories. Other important cash crop of the region is ground nut which is largely confined to southern parts of the region. Whereas Fodder crops are dominant in the western part of the region. The district ranks first in the state for the adoption of tractors for agricultural purposes. The availability of tractors per 1000 hect. of cultivated area is high in the central and north eastern part of the district. It is mainly because of the wider spread of lift irrigation along the river banks, moderate and deep fertile soils in river valleys and development of sugar factories. On the contrary the traditional implements particularly wooden ploughs are highly practiced in the western hilly region. In short central and eastern part of the region is relatively more developed than the western and southern hilly parts.

The diffusion is a process by which an innovation spreads. Expansion and relocation are the two types of diffusion. There are six essential elements in spatial diffusion namely area, time

the item, the node of origin, the node of destination, and the path of movement. Diffusion of an innovation is a function of communication. The adoption process is grouped into five stages like awareness, attention, evaluation, trial and complete adoption. The adopters can be categorised like innovators, early adopters, inausitive, followers, sceptical followers, and laggards. The adoptin process is influenced by variety of physical, social and economic factors which are termed as a carriers and barriers in the process. In this respect Hagerstrand developed a Stochastic model using the well known Monte-Carlo technique.

The process of adoption of tractor started in the region in the year 1957. At the begining the rate of adoption was very slow. But with the passage of time it was broken down and the rate of adoption of tractor increased in the central and north eastern tahsils of the district. The trend of diffusion of adoption of tractor is highest in Karveer tahsil, followed by Hatkangale, Shirol and Panhala. The rate of diffusion increased rapidly after the year 1969. The alluvial soils, development of irrigation facilities, and growth of co-operative sugar factories, have played prominent role in diffusing the tractors in these tahsils. In the western parts of the region the rate of adoption of tractors is relatively slow. There seems to be less possibility of increasing the rate of adoption in this part due to rugged topography, shallow coarse soils, which are unsuitable for cash crops like sugarcane. The diffusion process more or less follows the trend of second degree curve in all the tahsils of the district

In the process of agricultural innovation and its diffusion, different socio-economic characteristics of farmers played very important role. In the biographical set the middle age farmer adopt the innovation earlier than younger and older group of farmers. The high adoption score is observed among the farmers who had middle education score and small size of family. The other parameters of biographical set like formal social participation, agricultural knowledge, income have proved statistically significant and positive correlation with adoption score of tractor. The resources set i.e. irrigated area, area under sugarcane and size of the farm also exhibits the positive trend in diffusing the agricultural innovation like tractor. Whereas the communications set which includes cosmopolitaness, information seeking through agricultural training, participation, observation, and mass media gave high response to the adoption of innovation. While, lack of agricultural knowledge, less social participation, inadequate and non assured irrigation facilities, absence of cash crops (sugarcane) low income, small size of farm, dry farming, difficulties in getting loan, less contacts with surrounding area are some of the factors responsible for non adoption of tractors in Karveer tahsil. Finally it may be concluded that what is true about the adoption of tractor is most likely to be true for other innovations such as improved seeds, pesticides and fungicides, and irrigation facilities.

Karveer tahsil selected for case study is located in the central part of the district, which is agriculturally progressive

in the region. It is drained by river Panchganga and her tributaries, so alluvial soils have been deposited along the rivers. Development of lift irrigation, growth of sugar factories have caused an increase in area under sugarcane. The sugarcane ranks first in about 40 villages located along the river banks. About 90% irrigation facilities are shared by only cane crop. For the model formation Karveer tahsil is the contact field. The Realistic and simulated model based on Monte Carlo technique, which is used to study the distribution patterns over space through 5 years of time intervals reveal that in both the models i) diffusion of tractors is more in the central part of the region where neighbourhood effect in the process of diffusion is observed. ii) there are no tractors diffused at the northern and western margin of the region and iii) in Realistic model there are certain growth poles, where the diffusion of tractors is more. These growth points are the locations of sugar factories, which have deviated the realistic model from Simulated model. As the region under study is in the developing stage, the process of diffusion will continue in future also.

However, due to time limit, a single aspect and small unit was selected for the investigation, but there seems to be vast scope for such studies dealing with different aspects like use of fertilizers, improved varieties of seed, pesticides and fungicides, improved irrigation facilities, new agricultural implements, and contour bunding for the conservation of moisture and soil in different regions. Only the development of a new technique is not

enough, it must be demonstrated whether it suits in the existing conditions. Our researchers must focus attention on research that would be useful for removing obstacles in production and adoption of techniques.