CHAPTER - V

C O N C L U S I O N

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The present discussion deals with the summerisation of previous analysis in which the spatio-temporal pattern of agricultural landscape has been highlighted in the context of drought conditions in Solapur district of South Maharashtra. The major emphasis were given on the regional variations in agriculture and determination of geographic relationships in agricultural phenomena in drought prone region or how the drought prone conditions have shaped the nature and extent of agricultural landscape over the space and time.

The report of Fact Finding Committee (1960 and 1973) appointed by the Govérnment of Maharashtra identified the drought prone regions in the state and Solapur district was considered as drought affected regions. The drought conditions of this district, therefore, have been highlighted in the first chapter which provides backdrop against which the entire picture of agriculture is displayed. The region faces various problems and the high frequency of drought is alarming problem resulting in shortage of water. The water balance parametres have been computed by employing Thornthwaite's 'Bugget Technique Procedure'. The aridity indices have been also calculated which indicate that the region has inadequate water resources to develop the agriculture. Based on the aridity indices the region has been sub-divided into three drought intensity zones (Fig.1.3 C). The first zone is confined to Karmala, Malsiras, Pandharpur, Sangola and Mangalwedha

tahsils. This zone has high intensity of drought conditions which further aggravated scarcity conditions. The second zone comprises the area of Madha, Mohol, North and South Solapur and Akkalkot tahsils having relatively moderate drought conditions. The third zone includes Barshi tahsil where the intensity of drought is less. The soil moisture storage is favourable for the production of rabi jowar and pulses in this tahsil.

The last twenty years (1960-1981) have witnessed more frequency of droughts and the year 1972 has recorded disastrous drought conditions during which entire agricultural economy was adversly affected. Thus the intensity of drought varies in space and time within the limits of the district. The human responces to drought conditions are important as the farmer adjust their practices and methods of cultivation and overall cropping pattern with existing drought conditions. The drought resistant varieties of crops like jowar, bajara, pulses have been introduced in the region indicate that the crops requiring minimum moisture and which can withstand to scarcity conditions, are grown by the farmers.

The study of physical determinants is of fundamental importance in the context of drought conditions. The second chapter, therefore, examine physical-socio-economic and organisational aspects of agriculture and their spatial organisation in the region under investigation. The district is the part of Deccan Trap having the soils ranging from deep

black to coarse gray-red. The rainfall and temperature conditions have effectively determined the magnitude and the nature of water regime of the district. Both surface and underground water resources are inadequate and distributed unevenly in the district. This has led to the spatial variations in the intensity of irrigation and consequently intensity of cropping.

The region has inadequate irrigation facilities and well irrigation (80%) is dominant in the region. The high intensity of irrigation is confined to Malsiras tahsil (38.06) where canal and well irrigation has been developed during the last thirty years. Pandharpur, Sangola and Madha have also moderate intensity of irrigation resulted from the availability of water from canals and wells.

The proportion of the use of traditional implements and drought animals for agricultural purpose is high in the region. However, in the irrigated parts the use of improved implements has increased considerably (Table 2.1). The scarcity conditions and lack of irrigation facilities have restricted the development of fertilizer consumption. The irrigated tahsils however, have recorded substantial consumption of fertilizers as the water responds to the application of fertilizers. The spatial variations in different inputs have resulted into the areal differences in crop productivity.

The agricultural framework consisting of landuse and cropping pattern and regionalisation based on crop combination,

diversification, is the subject matter of third chapter. The landuse pattern of the district is invariably determined by physico-socio-economic setup. More than 70 percent land is under cultivation and the proportion of fallow land is 12.72 percent indicating typical nature of agriculture in scarcity conditions. Jowar is main rabi crop occupying 67 percent of the cultivated area. It has been associated with bajara, a second ranking crop. The pulses have attained third rank. These are the drought resistant crops mainly grown by the farmers. The intensity of cropping has been also influenced by drought conditions. The central tahsils, for example, have low intensity of cropping due to more dependance on rainfall which is inadequate and uncertain. In connection with crop combination regions jowar has attained important place associated with bajara, pulses, groundnut etc. The combination of crops in the region corresponds with the scarcity conditions. The degree of diversification of crop has increased in the irrigated parts only and elsewhere the region has less degree of crop diversification due to the restrictions imposed by drought conditions.

The levels of agricultural production is not uniformly distributed within the limits of the region. The tahsils of Malsiras, Madha, Mohol, N. and S.Solapur have relatively high level of production due to irrigation and soil moisture conditions. The south-western parts have low level of agricultural production due to poor soils, inadequate water supply and high

frequency of droughts. The level of agricultural production in the region has been controlled by climatic conditions i.e. rainfall distribution.

There are remarkable changes in the levels of agricultural production during the last twenty years. The yields per hectare of different crops are related with the water balance parametres. The correlation analysis (Table 4.2) shows that potential evapotranspiration has got negative correlationship with all selected crops. Actual evapotranspiration is, however, positively related to the yields of jowar, pulses and groundnut. There is negative correlationship exists between water deficit and the yields of these crops. The soil moisture storage has positive relationship with jowar, pulses and groundnut. Jowar and bajara are important crops offering substantial yields even under drought conditions. The sample study of selected villages indicate that the yields of selected crops have decreased considerably when the water balance parametres show negative trend. The year, 1972, has recorded the negative trend of water balance parametres causing considerable decline in the crop productivity.

The agriculture in Solapur district is influenced dominantly by the drought conditions for which the measures like the development of irrigation, improved high yielding varieties which can withstand to drought conditions, suitable dry farming techniques and proper application of inputs is the

urgent need. The proper planning strategy is essential to transform the present traditional subsistance nature in the context of existing physico-socio-economic and organisational setup. The intensity of drought may be minimised if proper strategy is adopted at grassroot level and utilise indigenous resources efficiently.