CHAPTER ONE

RESEARCH BACKDROP

1.1 LAND UTILISATION :

"Land Resources form the most important natural wealth of the country and their proper utilisation is a matter of utmost (important) concern to its people"[1]. The utilisation of land according to its capacity ensures the best possible advantages. "Land-use is the surface utilisation of all developed and vacant land on a specific point, at a given time and space"[2]. "The land use is also related to conversion of land from one major use to another general use"[3].

Man, according to his needs, changes the use of land. Stamp has classified the needs of man into six major categories, viz. the need of work, home, food, transportation, communication, defence and recreation[4].

One of the most important features of land-use in India is the large proportion of land suitable for agriculture is already brought under cultivation. Out of the total geographical area nearly 93.6 per cent of land is under use and 52.8 per cent area is under crops and fallow.

A reclassification of land-use was adopted in India from March, 1950, which is as under:

1) Forests.
2) Barren and unculturable lands.
3) Land put to non-agricultural uses.
4) Culturable wastes.
5) Permanent pastures and other grazing land
6) Miscellaneous tree crops and groves not included in the net area sown.
7) Current fallows.
8) Other fallows.
9) Net area sown.

1.2 SIGNIFICANCE OF CROPPING PATTERN :

'Crop pattern' means the proportion of area under different crops at a particular period of time.[6] When there is a change in the proportion of area under different crops, the cropping pattern is said to have undergone a change.

The cropping pattern is of greater importance for the following reasons :

(1) The cropping pattern indicates how the available land is distributed for the production of different crops.

(2) The productivity and production of land also depends upon the type of cropping pattern.

(3) The cropping pattern reflects the fact as to whether farming is subsistence or commercial.

(4) The cropping pattern represents the topography quality and quantity of land.

(5) The cropping pattern determines the economic conditions of the farmers.

(6) The cropping pattern reveals, the use of available land.

(7) The cropping pattern represents the progress of agriculture and the position of agriculture in the country's economy.

1.3 FACTORS INFLUENCING THE CROPPING PATTERN :

Cropping pattern in agriculture is governed by the farmers cropping choices in individual farms.[7] It is mainly influenced by the following important factors :

(1) physical features.
(2) Social and personal factors.
(3) Economic factors.
(4) Government policy.
(5) Technological factors.

The influence of these factors can be briefly stated as below.

(1) Physical features : The natural conditions of a country/ region are the most important factor determining the cropping pattern. They consist of soil, climate, rainfall, surface, features of land etc. Certain kinds of soil and climate are suitable for particular crops. For example, the soil and climatic conditions in Gujrat are suitable for

production of bids tobacco. In the areas of scanty rainfall, jowar and bajra are grown.

(2) Social and personal factors : Social factors such as density of population customs, traditions, attitudes towards material things, willingness and capacity for change etc. have an important bearing on the types of crops grown and the area devoted to different crops[8]. Change in social attitude, new knowledge, new facilities, publicity of new techniques and new seeds lead to change in crop pattern.

The personal factors relating to cultivators also influence the cropping pattern. They include requirements of family consumption, meeting cash requirements, fodder needs, seed requirements, maintaining soil fertility propaganda by concerned agencies etc.

(3) Economic factors : Economic factors consist of prices, income, size of land-holding, availability of agricultural resources, land-tenure system etc.

The farmers will prefer the crops which will assure him large income. So they decide the crops to be grown on large scale and small scale. Availability of agricultural inputs like water supply, fertilizers seeds also influence crop pattern. Further, land tenure system and rent pattern too have their influence on the crop pattern.

(4) Government Policy : Government policies have much bearing on pattern of the country. Policies relating to prienties given to various crops, exports, taxes, supply of credits, development of backward regions etc. determine the nature of crops and area under them[9].

(5) Technological factors : Technological factors also influence the cropping pattern. New technology brings about a change in the cropping pattern[10]. For example, irrigation facilities, mechanisation introduction of new methods of cultivation and harvesting etc. have considerable influence on cropping pattern.

1. MICRO-ANALYSIS OF CHANGES IN CROPPING PATTERN : OBJECTIVES OF THE STUDY :

Changes in cropping pattern in any region anywhere is a continuous process and is affected by all the factors outlined above. Technological changes play a vital part in this connection. Besides, economic and governmental policies too influence farmers' decisions regarding crop combination. All such factors have combined effect on the cropping pattern of any region. Hence, periodical studies of the nature and extent of changes in the cropping pattern at the national as well as regional level are useful in policy decisions. Actually, a wealth of statistical information is given out by governmental agencies through their annual and other publications. But often it is simply listed and not analysed. Researchers shoulder this responsibility.

Present study is a step on this line. It is a micro-level study of a district. It purports to review the cropping pattern of Kolhapur district of Maharashtra State over a period of 27 years. Since early sixties, cropping pattern of the district has been highly influenced by the upsurge of the cooperative sugar factory movement. Therefore, it was worthwhile to examine the statistical data on major crops of the district to see as to how far this important phenomenon has brought about changes in the crop profile of the district. With this intention in mind the present study has been undertaken. The investigation had the following specific objectives.

(1) To find out the significance of major crops of the district in the district's gross cropped area (GCA).

(2) To explore the relative positions of the talukas in producing specific crops with reference to (a) the district area of the crop and (b) the GCA of the taluka itself.

(3) To focus attention on the long-term behaviour of the principal crops of the district through considerations of the range of variation of the area, fitting of trend lines and estimating the values of coefficients of variation for each taluka.

(4) To juxtapose the results obtained from individual crops in order to establish meaningful conclusions regarding changes in cropping pattern in Kolhapur district over a long span of 27 years.

2. METHODOLOGY :

Methodological framework for the present study is given below.

Universe of Study :

The investigation is a micro-level study of the cropping pattern of Kolhapur district, which is one of the 30 administrative units of Maharashtra State. Choice of the region is purposive, and is related to an important fact that 9 new cooperative sugar factories came up in the region during a period of two decades since early nineteen sixties.

Period of Study :

The data collected for the purpose of this study is for a period of 27 years falling between 1960 and 1987. The beginning year chosen was due to two reasons. One, it is the year in which the present Maharashtra State was constituted through recorganisation, and hence systematic official data is available from this year. Secondly, sixties and seventies saw the e establishment of 9 sugar factories in the district causing considerable influence on the cropping pattern of the district. The end year was the one upto which official records were available from all the local sources possible.

Choice of crops :

The analysis is developed with reference to the two principal sub-groups of the main grouping of food-crops, viz. cereals and pulses as also the principal group non-food crops. Thereafter, first two major crops within each category were chosen for in-depth study. Accordingly, paddy and jowar (cereals), tur and gram (pulses) and sugarcane and groundnut

(non-food crops) were selected. It involves stratified sampling method.

Foundation of the study :

It is rather a partial analysis based on only one variable, viz. area of land under each crop. The reason is that farmers' decisions of crop combination on all counts are ultimately manifest in the allocation of their cultivable land among various crops.

Hypothesis :

The study was piloted with broad understanding that establishment of cooperative sugar factories in Kolhapur district since early sixties has brought about conspicuous changes in the cropping pattern of Kolhapur district. This hypothesis is tested in the following pages by scanning the available official data.

Sources of data :

Entire work is based on the secondary data collected d from official documents. Details are gleaned from official publications, particularly the

(1) District census Reports of 1961, 1971 and 1981.
(2) Socio-Economic Review and District Statistical Abstracts of the years from 1960-61 to 1989-90.

These reports alone gave talukawise details on area under different crops. The information thus procured is knit together to bring out fully changes in cropping pattern of Kolhapur district since 1960. The final outcome is analysed in the concluding chapter.

Statistical techniques of data analysis :

(1) To begin with annual data from 196061 to 1986-87 was collected for the crop groups and selected crops, The annual data of 27 years in question were then converted into 9 triennial averages.

(2) The triennial time series data of area under principal groups of crops as also individual crops was considered in the following manner.

(a) Changes were noted with reference to both the absolute area and its percentage are collected.

(b) Firstly, the district total area under particular crop group or/crop in absolute terms and its percentage share in gross cropped area of the district was looked into.

(c) Then talukawise absolute area and percentage shares were taken into accounts. This part has two dimensions. Consideration of the taluka area as percentage of (i) the district area under the crop group or crop and (ii) as percentage of the GCA of the respective talukas.

(3) The data sheets were compiled to include the triennial averages of the gross cropped area (GCA) of the district, total area of the crop group/crop in the district and its percentage to the district's GCA, talukawise triennial average areas and their percentage shares in the district area of the crop group/crop as also percentage shares in the GCA of the respective talukas.

(4) Analysis of the data sheet for each crop group/crops pertaining to the talukas was done from three anagles :

(a) Average share for the entire period and the range of variation.

(b) Trend of percentage area.

(c) Coefficient of variation by using kar/pearsons' method.[11]

(5) Graphical Presentation of crop group and crop trends talukawise was done by adopting the simple method of fitting the trend line, viz. the method of averages of sub-periods. For the purpose nine triennium periods were divided into two subgroups five trienniums as follows : (i) 1960-63 to 1972-75 and (ii) 1972-75 to 1984-87. Average percentage figures for the two sub-groups provided two points on the graph. They were joined to get the trend line.

3. PLAN OF THE STUDY :

This study runs over six chapters. First chapter is in the nature of the framework of the study. All the outset it very briefly introduces the concept of cropping pattern, factors determining cropping pattern and significance of cropping pattern. The latter part outlines the methodological details.

Chapter 2 acquaints the readers with agro-climatic conditions of Kolhapur district.

Chapter 3 is devoted to the analysis of area under cereals in general and paddy and jowar in particular.

Fourth chapter covers pulses in aggregates and tur and gram in particular.

Fifth chapter pertains to non-food crops. Individual crops chosen here are sugarcane and groundnut

Last chapter is concluding one. It consolidates the results of third, fourth and fifth chapters in order to draw meaningful conclusions about changes in cropping pattern in Kolhapur district.

NOTES AND REFERENCES :

1. Mamoria, C.B., Agricultural Problems of India, P.70

2. Jainendra Kumar, Land use Analysis (A case study of Nalanda District in Bihar), Inter-India Publications, New Delhi, 1986, P.1.

3. Nanavati, M.B.(Ed.), Readings in Land Utilisation,(Foreward), The Indian Society of Agricultural Economics, Bombay, 1957, P.2.

4. Ibid

5. Mamoria, C.B., op.cit., P.71.

6. Ibid, P.82.

7. Ibid, P.82.

8. Agarwal, B.M., Indian Economy = Problems of Development And Planning, Wiley Eastern Itd., New Delhi, 1986, P.246

9. Ibid, P.247.

10. Mamoria, C.B., op-cit., P.84.

11. The following is the Karl Pearson's method for estimating coefficient of variation.

Arithmetic Mean = $\bar{X} = \frac{\Sigma X}{N}$

Variance = $\sigma^2 = \frac{1}{N} [\Sigma X^2 - (\Sigma X)^2/N]$

Standard Deviation = $\sigma = \sqrt{\sigma^2}$

Coefficient of variation (%) = $\frac{\sigma}{\bar{X}} \times 100$