CHAPTER - I

I N T R O D U C T I O N

1. Need and importance of study
2. Study Area
3. Objectives of the study
4. Sources of data and methodology
5. The review of the work
6. The arrangement of chapters

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1. NEED AND IMPORTANCE OF STUDY :

Land is a basic resource of the nation. It provides space to all other resources and the human activities. The basic needs of human beings are dependent on this resource but many times it is misused and deteriorated. Therefore, this national resource should be used rationally. The land capability and landuse studies are important in this direction.

Land use is the use of partial land for the general purposes and crops, and land capability is the inherant capacity of land. The land capability classification is a scientific appraisal of the physical characterstics of land (Singh & Dhillon, 1984). The evaluation of land is done on the basis of soil characteristics and slope. As soil and slope are more important factors influencing the use of land. Hence a detailed analysis of soil and slope is strongly required for rational use and conservation of land.

Such type of study is important because of food shortage and increasing population pressure. By this inventory the uncultivated land can be brought into production and cultivated soils can be made to produce more than what they do at present.

It is in this context that the land capability and landuse study of Karveer taluka in Kolhapur district is under taken.

2. STUDY AREA :

The Karveer taluka is located between 16°29' to 16°48' north latitude and 74°1' to 74°21' east longitude in Kolhapur district of South Maharashtra (Fig.1.1). It is bound by Hatakangle taluka in the east and the north, by Gaganbavada in the west and by Radhanagri and Kagal taluka in the south. The total geographical area of Karveer taluka is 671.1 sq.kms. The total population according to 1981 census is 605,931. The density of population is 903 per sq.km. Topographically it is hilly and plain. The rugged hilly topography is found in south-western part of the study area with height of about 675 mts. The height of Hanabarwadi is 735 mts. which is located in western part of Karveer taluka. The hilly topography is also found in northern part of the taluka. In southern part near Nandaval, Jaital, Wadawadi, Kaneri and Kogeel villages the hilly landforms are observed. The Panchaganga river is flowing from west to east through the taluka (Fig.1.2). It is the main source of water to the region. The Bhogavati, Tulshi, Kumbi and Kasari are the main tributaries of the Panchaganga. Another important river is the Dudhaganga which is flowing in south forming the southern boundary of the taluka.

The climate of taluka is tropical mansoon. The maximum and minimum temperatures are 37°C and 15°C respectively. The annual range of temperature is 22°C. The annual average rain-fall is 800 mm. in the year 1981.

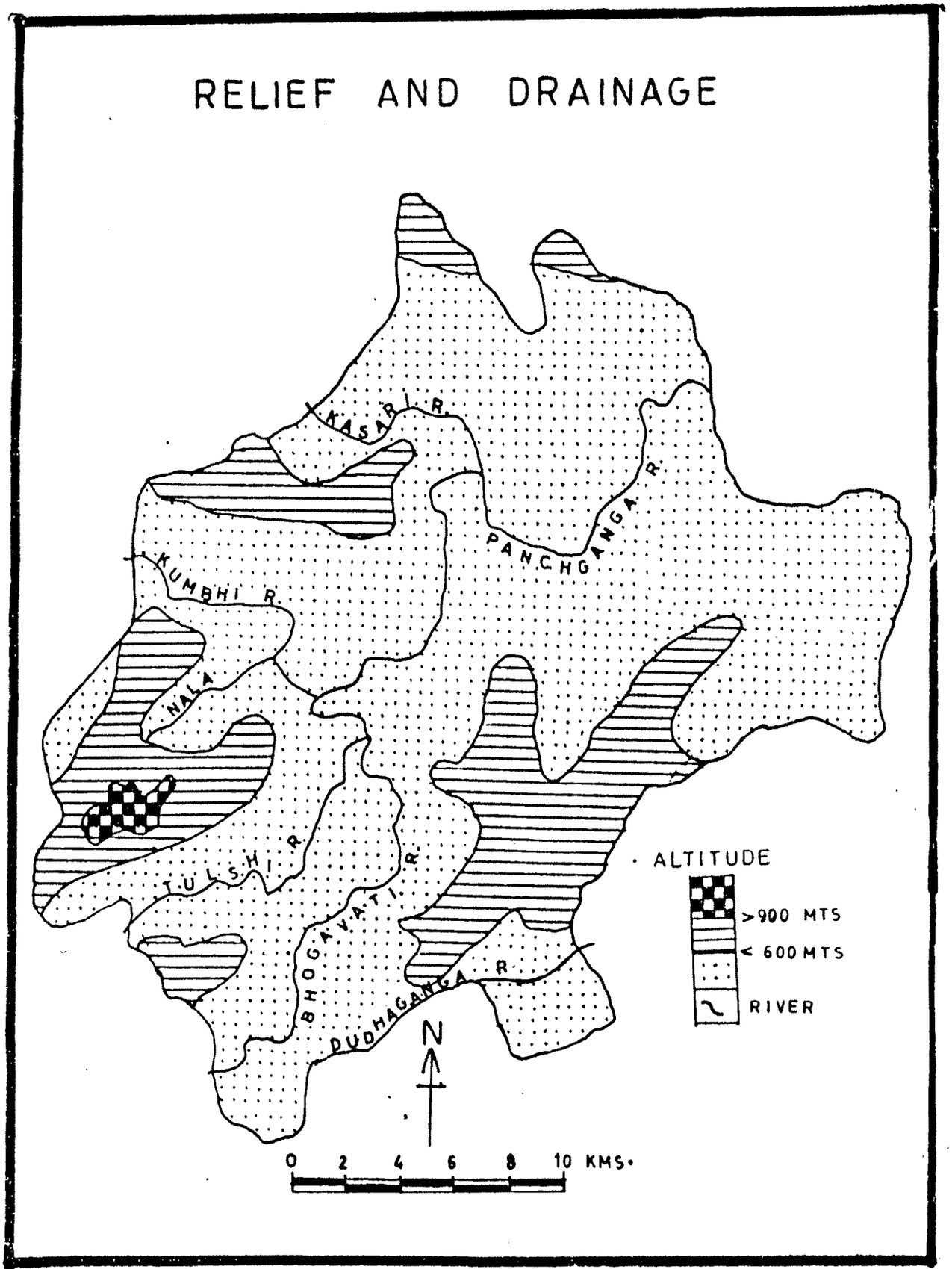

RELIEF AND DRAINAGE
KASARI R.
PANCHGANGA R.
KUMBHI R.
NALA
TULSHI R.
BHOGAVATI R.
DUDHAGANGA R.
ALTITUDE
>900 MTS
< 600 MTS
RIVER
N
0 2 4 6 8 10 KMS.

FIG. 1.2

The soil of Karveer taluka is generally laterite. The vast laterite soil covers the lowlying plateaus and residual hill of Ratnagiri and Kolhapur (Arunachalam,1969). The fertile soil is mainly found in the Panchaganga basin. The detailed investigation of soil is made in Chapter II.

3. OBJECTIVES OF THE STUDY :

Land capability classification is an important tool of landuse planning, therefore the following are the specific objectives of the present work -

i) To assess the physical properties of soil of the study region.

ii) To delimit the land capability classes of the study area.

iii) To study the existing landuse pattern of the region.

iv) To corelate the land capability to general landuse pattern of the region.

v) To analyse the cropping pattern and crop and soil suitability of the study area.

4. SOURCE OF DATA AND METHODOLOGY :

The land capability study is entirely based on the physical properties of soil (Appendix I). The required information and data are collected through the fieldwork and also from Soil Survey Unit Office of Kolhapur district. The large scale village cadestral maps and taluka map with village boundaries are used for recording the field data.

The various methods have been employed for the land capability classification in different parts of the world. They are Morgon's method (1939), based on the degree of adaption of land types to various crops, Storie's method (1933) of land rating, Bennett's (1939) method based on crop yield, Stamp's (1954) P.P.U. method, Unit area method and U.S.D.A's method. In India 'The All India Soil and Landuse Survey Organization' (IARI) has modified the U.S.D.A's method and this modified U.S.D.A's method is used in the present study. It has recognised eight land capability classes as follows.

Land suitable for cultivation

Class I : This is very good land that can be cultivated safely with ordinary good farming methods. It is nearly level land (slope less than one percent). It has deep, easily worked soils and is subject to only slight erosion. It is well drained and is suited for intensive cultivation.

Class II : It is good cultivable land but has some limitations of gentle slope, moderate erosion, moderate depth, etc. And each of these limitations requires special protection.

Class III : This land is moderately good. This kind of land is characterised by i) moderate steep slope ii) high susceptibility to erosion iii) shallow depth iv) sandy or gravelly with low moisture capacity.

Class IV : It is fairly good land suited for limited cultivation. It is shallow or moderately deep, moderately or strongly sloping and low in fertility. Thus, its cropping use is restricted by unfavourable soil characteristics.

Land not suitable for cultivation

Class V : This land is not suited for cultivation, but it is suited for grazing. Cultivation is not feasible because of wetness, stoniness or some other limitations. The land is nearly level and is subject to slight erosion. It occurs in many swampy areas that cannot be drained easily.

Class VI : It is too steep, subject to erosion, shallow, wet or dry. So it is fairy well suited for grazing or forestry but not for arable farming.

Class VII : This land is very steep, eroded, stony, rough, shallow and is recommended for grazing or forestry.

Class VIII : It includes such areas as bad lands, deep gullies, high mountain land and very steep, rough and stony barren land. It is suited only for wild life, recreation or watershed protection uses.

For the land capability classification the soil data is collected by visiting every farm of the village and for this the following procedure is adopted.

i) Soil texture and slope is assessed by talling them with the model (Fig.1.3-A & B) during the field observation.

ii) Soil depth is identified by observing the river, nala and well banks and in some cases digging pits.

iii) Soil erosion is estimated by considering the drainage density, slope and soil texture.

iv) Soil drainage is determined by assessing the slope & texture and soil gravelness by the amount and size of gravels.

v) The colour of the top soil is assessed by a careful observation in the field.

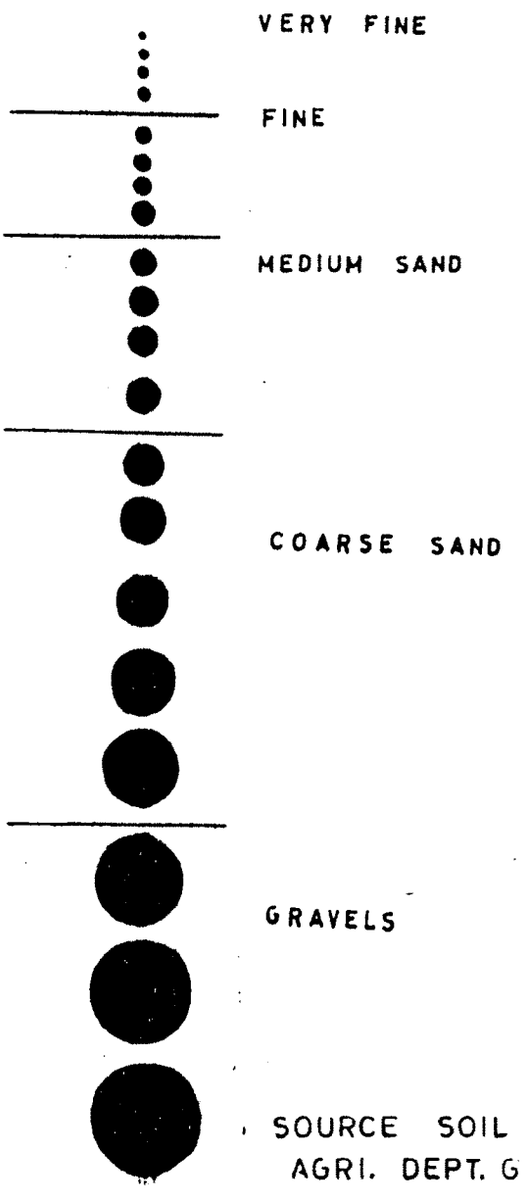
The collected data and information is represented on the map by using the Choropleth technique and the final map of land capability classification is prepared.

The landuse data is collected from the Tahasildar's office, District census handbook of Kolhapur, 1971 and the Socio-Economic-Review and District Statistical Abstract of Kolhapur district, 1981-82 and also from village Talathi records. The data are processed and the landuse maps are prepared.

5. THE REVIEW OF THE WORK DONE :

The work on land capability classification and landuse has been done by various scholars in the world. In India, many

(A) SOIL TEXTURE DIAGRAM



SOURCE SOIL SURVEY MANUAL
AGRI. DEPT. GOVT. OF MAHARASHTRA

(B) SLOPE DIAGRAM

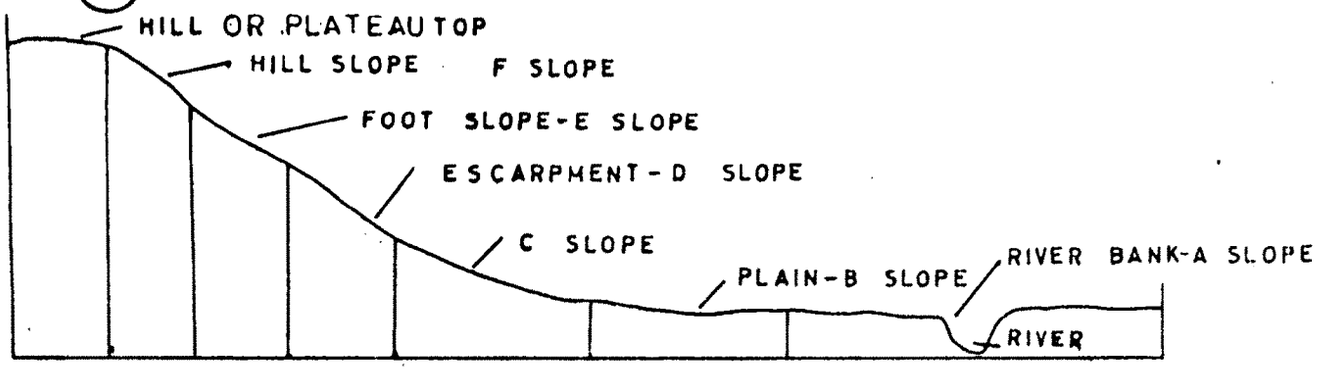


FIG. 1.3

Geographers have done work in this field. The pioneering work is done by Prof.M.Shafi. He has written an article on the landuse planning, land classification and land capability methods and techniques (1969). Shri Chandrabhan has worked on the land capability classification of Agra District - An Ecological Assessment in 1973. Pannalal Das and R.Bhattachary have studied the land capability classification. A case study : Kaliaghai river basin in West Bengal (1978). Sharma,S.C. & Sharma R. have worked on 'The land capability classification and landuse planning of Block Padrouna, Dist. Deoria - A case study in 1980'. Das K.K.L. and Das K.N. have studied the land capability classification of north plain west of the river Kosi - A study in methodology in 1981. Nageshwar Rao & R.Vaidyanadhan have attempted to study the landuse and land capability from Aerial photo interpretation - A case study from Krishna delta in 1981. Last but not the least Jasbir Singh & Dhillon S.S. have made a detailed soil apprisal study of Kheri village in Haryana. All the work, on land capability done in India is qualitative based on the empirical approach. The work done in India is subjective in nature and is not well suited for measuring capability in quantitative terms (Das,1981).

6. THE ARRANGEMENT OF CHAPTERS :

The present study of land capability and landuse in Karveer taluka is divided into six chapters. The organization of the text follows from the introduction. In this first

chapter, the need and importance of study , the region, objectives of the study, sources of data and methodology and outline of work is presented. Chapter II, describes in more detail the physical properties of soils, Chapter III, analyses the land capability classification. The discussion on the land capability and landuse pattern of the taluka is made in Chapter IV. The more detailed analysis of land capability and landuse pattern of five villages is presented in Chapter V. The general conclusions have been given in Chapter VI.

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