CHAPTER – I

INTRODUCTION

1.1 INTRODUCTION:

Water is called as a life. It is most important and essential for human life, agricultural sector as well as various components on the surface of the Earth. The significance of water to provide the irrigation facilities in a region hardly needs explanation. Moreover the sustainable agricultural development depends up on water supply. Thus irrigation is one of the important and valuable components of progressive agriculture. Generally, irrigation mean's artificial application of water to land for growing crops is known by the term "Irrigation". It encourages the farmers to adopt scientific technique and go for more intensive cropping pattern.

Agriculture is the back bone of Indian economy, where irrigation is one of the basic ingredients of agricultural activities, creating new opportunities for agricultural employment. But it depends up on partly or fully on nature and mode of irrigation, which are governed by the physiographic and climatic conditions of the region. Major agricultural part of the country depends upon erratic monsoon, which is confined to 3 to 4 month's of the year. Much of the rain water runs off the sea, a irrevocably lost. So the sustainable source of water is essential for the multiple benefits for agriculture, both at micro and macro levels.

As water is a scarce resource. It has to be utilised economically and efficiently. Investment in irrigation can maximise benefits only when right method of irrigation is practiced at right time. It is, therefore, necessary to make use of scarce resources in the best possible manner. Wherever they are available. In view of this, the present study is undertaken to

analyse the effects of lift irrigation on the landuse in general and the cropping pattern in particular in the study region.

1.2 THE STUDY REGION:

The command area of 'lower reaches of Chikotra irrigation project', has been selected for the present research work. This region is located in south eastern part of Kolhapur district in south Maharashtra. It lies between 16°19'40" North to 16°25'50" North latitude and 74°15'30" East to 74°20'10" East longitudes. The river Chikotra rises in the Western Ghats at the height of 750 metres. It flows eastwards bounded with the hills on the north and south. The total length of the river is 40 km. Out of which a distance of about 20 km fall in the study area.

The study region occupies an area of 6164.09 hectares (6164 sq.km.) and has population of 23746. Lower Chikotra basin covehs 10 villages of Kagal Tahsil (Fig.1.1). The north-south boundary of this basin is well defined by the watersheds of hill ranges and the offshoots of Sahyadri along the both sides of the basin. The moderate slope of the region is from south towards north.

The soil conditions are comparatively rich in lower part. The basin is drained by a number of small nalas and streams. The soil is formed from Deccan trap, which is the predominant rock formation. The soil of this region is mainly black along river side and laterite towards hill sides. The Chikotra basin is drained by many small streams and its water is impounded in a number of Kolhapur type of weirs (K.T.W.). The cultivated area of the basin is 84.72 per cent of the geographical area and

STUDY REGION

COMMAD AREA OF LOWER REACHES OF
CHIKOTRA IRRIGATION PROJECT

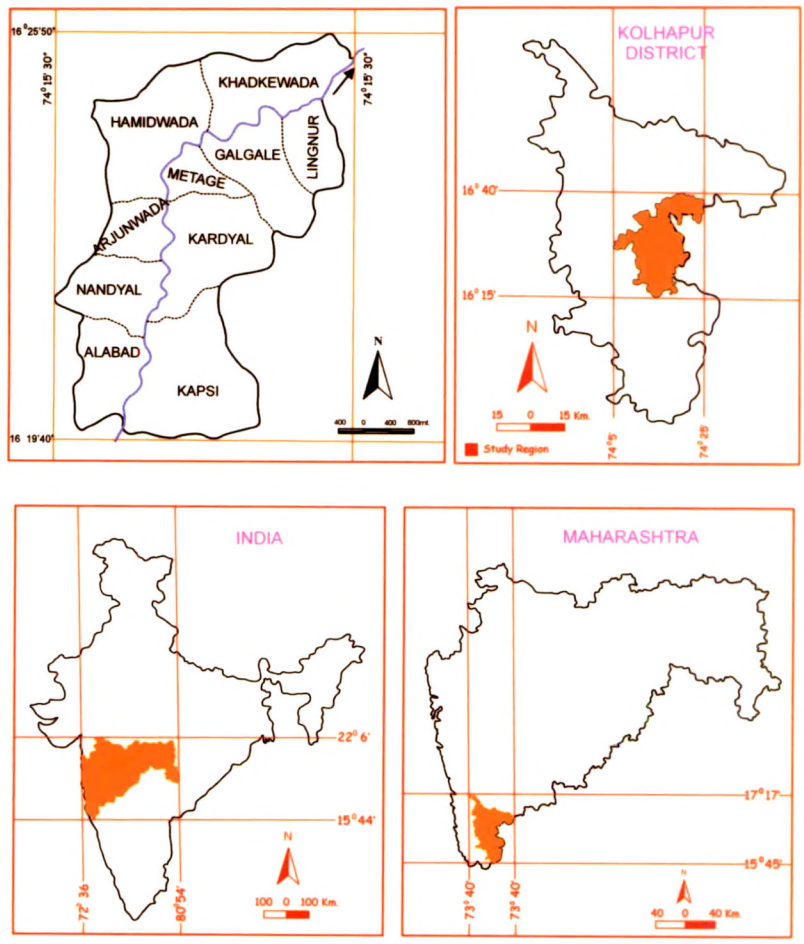

Fig. 1.1

irrigated area is about 33.69 percent (1775.46hectare) of the net area sown.

The command area Of the project covers nearly 27 villages of which 3 villages fall in Ajara tahsil, 7 villages in Bhudargad tahsil and 17 villages in Kagal tahsil. The irrigation capacity of the project is 5630 hectares.Its storage capacity is 1.52 T.M.C. This project is constructed on Chikotra river, near Zulpewadi village of Ajara tahasil in the year 2001.

The selection of the region for study is made by many considerations. First, the Kolhapur district is well known for its irrigated agriculture. The lower Chikotra basin lies in this district, where such type of work has not seen under taken at micro level. The last decades has witnessed considerable change in cropping pattern due to irrigation. Secondly, agriculture is the major occupation of the region, which is influenced by irrigation. The physiographic conditions of the region also vary considerably. Besides, the researcher is familiar with all these facts and the region too since childhood.

1.3 OBJECTIVES:

Irrigation happens to be an important input leading to agriculture transformation. In view of this present study aims:

1. To study the physical setup of the region.
2. To analyse the impact of irrigation on landuse in general and cropping pattern in particular.
3. To examine the association between irrigation and other agro inputs.

4. To study the problems related to lift irrigation and to give appropriate suggestions.

1.4 DATABASE:

The importance of the study lies in the fact that entire study is largely based on empirical facts collected through intensive field work. The primary data is collected by employing interviews, schedule and questionnaire techniques and discussion with experienced farmers and other concerned authorities.

The secondary data is collected from the village Revenue Officer, Tahasildar office and the District Statistical Abstracts, Census Handbooks, District Gazetteers and some unpublished documents of irrigation department.

Village is the areal unit of the present work. The data is not available at village level regarding per hectare yield, fertilizer consumption etc . However with the help of respondent farmers researcher has generated the required information. The region comprises 10 villages, out of which 1 is selected (10%) for the micro level study by employing purposive random sampling method.

For a micro level study plot to plot i.e. block number wise visits were organised to collect required data: Based on this data land use map prepared for which cadastral map has been made available from Inspector, land records, Kolhapur.

1.5 METHODOLOGY:

To assess the impact of irrigation, the period for the present investigation is considered from 1995-96 to 2005-06. The collected data through different sources was processed and represented by statistical and cartographic techniques. The details regarding the verious methods and techniques have been discussed at appropriater places in the text.

The lower Chikotra irrigation command area comprises 10 villages, out of which 1 is selected (10 percent) with the help of purposive random sampling technique. For micro level study includes every plot to plot survey in Metage village. For detailed information farmers, agricultural labourers, village officials were consulted.

1.6 LIMITATIONS:

The village is a unit of study in the present work. The data like irrigated cropping pattern yield per hectare, fertilizer consumption etc. is not available in a published form at village level. The Metage village is selected for the micro level study. Hence, the study is limited with the respondents selected from this village and the majority of the people are illiterate due to which they are unable to provide correct and relevant information. This lacuna is solved by consulting the educated farmers and village officials like Tallthi and Gramsevak.

1.7 REVIEW OF LITERATURE:

The geographical studies, pertaining to irrigation are many in India and abroad. Irrigation has also been studied by the scholars of different disciplines. Such inter-disciplinary approach

has been adopted by Geographers, Economists, Irrigation Engineers and Agronomists also.

Cantor (1967) in his book 'A world Geography of irrigation' has highlighted the history and status of irrigated agriculture in the world. Fukuda (1976) has attempted comparative studies of irrigation and drainage throughout the world. The problems of irrigated agriculture, with special reference to India, are studied by many Agronomists. Chaturvedi and Reddy (1964) attempted a comparative study of the various sources of irrigation to analyse the causes of present backwardness of the area in respect of irrigation. Pawar and Shinde (1979) attempted to map, analyse and interprete the spatial spread and temporal variations of well irrigation in upland districts of south Maharashtra.

Joshi and Dube (1979) devised a suitable index of agricultural development with reference to related factor i.e. irrigated area, cropping pattern etc. The study attempted by Dhillon and Sandhu (1979) focusses on the spatio-temporal development of irrigation, its potentials and limitation in the light of physical, social and economic factors.

The regional aspect of irrigation is studied by Singh (1977), Pawar (1989), Jadhav and Ajagekar (1990 and others. The development of irrigation in Maharashtra has been studied by More and Mustafa (1984). There are different scholars such as Sinha (1954), Chaturvedi (1968), who have studied, the regional account of irrigation, with one or all modes and methods of irrigation, their development and effects. In the seminar 'Role of Irrigation in the Development of India's Agriculture' organized by the Institute for Social and Economic Change' Bangalore

(1974) and published in (1976) includes, 17 papers representing contributions from Economists, Administrators and Engineers. In the seminar on 'Irrigated Farming in India, organized by the Department of Geography, Shivaji University, Kolhapur (1982), many papers were presented by the Geographers, Agronomists ant Engineers, dealing with different aspects of irrigation. The important articles have been edited and published by S.D. Shinde (1988), Salunkhe (1989), and Waghmore (1988). Ajagekar (1988) have submitted their M.Phil. dissertations to the Shivaji University attempting geographical analysis of irrigation of different irrigated tracts of South Maharashtra.

1.8 OUTLINE OF THE DESERTATION WORK:

The entire work has been organised in to six chapters.

Chapter first opens with the introduction, which includes Study region, Objectives, Database Methodology, Review of Literature and Outline of the Research work.

Chapter Second presents profile of the region including geographical setting physiography, climate as well as study of the soil etc.

Chapter third deals with the study of pattern of irrigation dealing with spatio-temporal characteristics of irrigation, sources of irrigation, intensity of irrigation and development of irrigation.

Chapter fourth highlight the impact of irrigation on general landuse and cropping pattern, agricultural productivity, fertilizer consumption, and the level of mechanization.

Chapter fifth deal with the study of irrigation and its impact at micro level.

Chapter sixth is devoted for the conclusion and recommendation followed by bibliography at the end.

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