CHAPTER I

INTRODUCTION

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Construction of dam has long before history. Number of dams of small, medium and large size have been constructed throughout the world for various purposes e.g. irrigation, industries and generation of hydro-electricity, to reduce the intensity of floods, for recreation, forming new waterways etc. however, dam construction on the river is closely associated with the green revolution in India. In the post independence period there was need of increasing food supply that can sustain our geometrical growth of population. It is therefore to increase land under agriculture and to increase production and yield it was inevitable to generate the new source of water for irrigation. The green revolution and irrigation development are simultaneous processes gone hand in hand in India.

Present research work is an attempt to study the socio-economic changes occurred in a Tulshi River basin due to the construction of Tulshi dam. The dam therefore, is called as the 'land mark' in the process of regional development and planning. However, the construction of dam has positive as well as negative impact on geography, ecology, agriculture and human life in the area. Considering the above aspects present study aims to find out the impact of Tulshi dam on socio-economic aspects of the people resides in the Tulshi River basin. The Tulshi irrigation project has occupied a large area of Radhanagari and Karvir tahsils of Kolhapur district and brought this area under irrigation that has become one of the largest areas under irrigation in the state.

1.2 OBJECTIVES

In view of the above the following specific objectives are selected.

1. To study the geographical set up of the study region.
2. To look into the socio-economic status of the people in the Tulshi river basin since the construction of dam.
3. To study the utility of dam for the irrigation and other purposes in the Tulshi river basin.

4. To find out specific problems created in a Tulshi river basin due to the construction of Tulshi dam, and to suggest solutions.

1.3 DATA BASE AND METHODOLOGY

The present work is based on primary as well as secondary data. The primary data has been collected through field work for which interviews, discussion and questionnaires have employed.

The secondary data has retrieved from published records of the Government departments, like Socio-Economic review and District Statistical Abstracts, District census handbooks and Gazetteers of the district, the records maintained by local governance like Zillah Parishad and Panchayat Samities, Irrigation Department etc.

Methodology

The methodology adopted for the research is stratified random sampling techniques to choose the representative sample and following the techniques of collecting primary data by conduct of socio-economic survey with the help of all inclusive questionnaires. The stratified random sampling technique is used to choose the representative sample from the whole population. Generally 10 per cent sample from total villages and population thereof. Stratification of villages in the command area have duly determined on the basis of location of villages etc. it is therefore categorized as head reach of command area, middle reach of command area and tail reach of command area. Therefore the villages from above three groups selected with proportional allocation of population. The household from all these sample villages have duly been classified further in the following groups:

1) Marginal farmers (land holding < 1.0 ha)
2) Small farmers (1.0 ha to 2.0 ha)
3) Medium farmers (2.0 ha to 4.0 ha)
4) Large farmers (4.0 ha & above)
5) Land less labourers

According to the above classification the sample size from village fixed again at about 10 per cent to the households with a considerable number of households engaged in agriculture are selected with random sampling techniques. For this research diligent field observations are also made. Thus the enormous data retrieved is duly analyzed and proce4ssed by employing appropriate statistical methods. The results thereafter presented by applying suitable cartographical techniques.

1.4 SIGNIFICANCE OF RESEARCH

The role of present irrigation project is the "land mark" in the socio-economic development of society, which are resides in the project's command area. It affects agricultural practices i.e. cropping pattern, cropping intensity, crop production and yield etc. Irrigation allows the farmer to use high yielding variety (HYV) seeds along with various types of chemical and organic fertilizers that resultantly out-come of good production of crops. It also raises the standard of living of the farmers in the society. Thus the study of impact of such projects is an essential to evaluate the significance of minor and major projects in all respects.

Significant aspects of research such as impact of irritability, evaluation of irrigation system, changes in agricultural production level due to application of irrigation water, comparison of productivity and pre and post project changes in the socio-economic status of the farmers. Study of the socio-economic status of people displaced due to project construction is also need of research. The socio-economic surveys are useful to suggest some policy change so as to improve the performance of irrigation system.

1.5 STUDY AREA

The Tulshi basin, occupying part of Karvir and Radhanagari tahsils of Kolhapur district, extents from 16° 27' to 16° 39' North Latitude and 73° 57' to 74° 08' East Longitude and has an area of about 165 km^2. It is one of the fertile and well-watered parts of south Maharashtra (fig.1.1).

The main Sahyadri range forms the western border of the region. The offshoots, which extent about 23Km to the east separate the basin of various

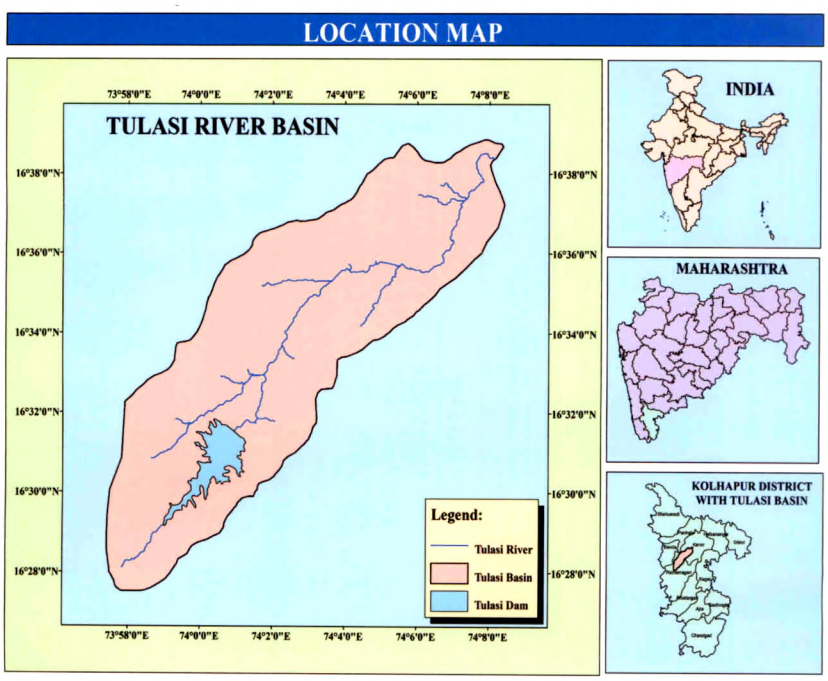

Figure: 1.1 Location Map of Tulashi Basin.

rivers e.g. Kumbhi, Dhamni, Tulshi and Bhogawati. The Tulshi rises about the five miles east of the Kumbhi River and flows parallel to the north east and affects a junction with Bhogawati at historical village Bid. Its lower reach is marked by a wide stretch of alluvium. The source water of Tulshi has been impounded to form the Tulshi dam for the purpose of irrigation.

Although, the general slope of the region is from south-west to north-east direction, three distinct physiographic divisions are evident. The high altitudinal area (800m and above) is confined to the western part of basin covering some north-west and central off-shoots (fig.1.2). This area comprising about 20% of basin tract and is less suitable for agricultural. The moderately elevated area (600m to 800m) lies at the central transition zone sharing about 20% of basin area. The summit level of off-shoots lies in this zone. Owing to the moderate stream frequency and slope between 4° to 8°, this part is moderately suitable for cultivation. The remaining area lies below the height of 600m. Where the slope is less than 4° and consequently both the drainage density and stream frequency are also low, this area is confined to the river banks and is mostly suitable for cultivation of crops.

1.6 REVIEW OF LITERATURE

The selected topic is multidisciplinary and there are several scholars from different branches of sciences e.g. Economics, Agriculture, Regional planning sector have been contributed in the researches of the said study. From the amass of study and research work done selected work has been characteristically noted below:

Fukuda, Hotoshi (1976) in his book "Irrigation in the world: Comparative Development" has done comparative research on irrigation and drainage at the world level. He has explored the characteristics of irrigation and drainage in both arid and humid regions of the world and made comparison between the causes and effects of the various types of irrigation. This book is based mainly on field studies & authors travel. According to him, 'Agriculture varies in nature from locality to locality and so do irrigation & drainage, so that

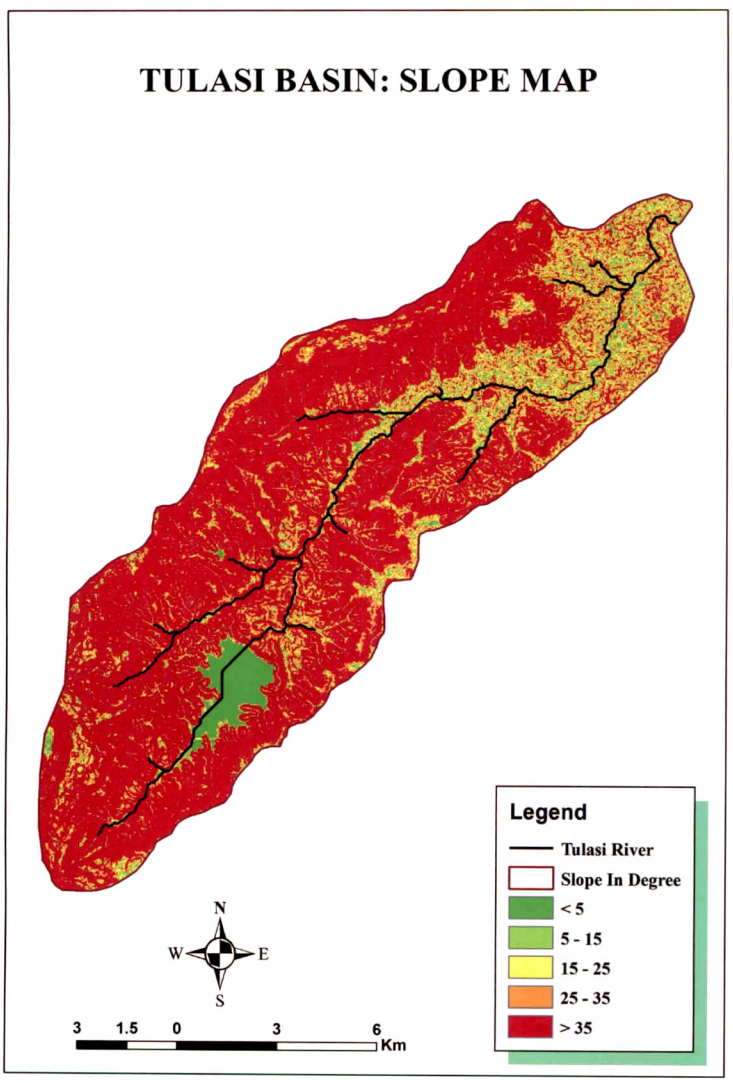

Figure:1.2 Tulashi Basin Slope Map.

great variety of comparisons can be made of their principles as well as their technical, economic & social aspects'.

Author exclusively focused on the problems of irrigation & drainage in the world. In the view of author, "in the arid region of the world, the problems of water logging & salinity caused by improper irrigation can be solved by the combination of drainage & irrigation". In the second part of this book, author devoted attention to enumerate the comparative study of irrigation & drainage systems around the world in terms of their localities & interrelationships. This has been studied from the technical & agronomical stand points.

Poddar, B.N., (1987) in his book "Development of irrigation and Indian agriculture" has described the impact of population growth on agriculture. Author tried to assess the changes occurred in the land tenure system with the pace of population growth. In the seventh chapter of this book, author has studied the lift irrigation schemes in north Bihar and focused on the minor and major irrigation schemes in north Bihar. As far as irrigation projects are concerned, The Kosi river project and The Gandak river project, their utility for protection from flood, provision of irrigation and generation of hydroelectricity all such kind of aspect have been analyzed.

Gurjar, Ram Kumar, (1987) highlighted the importance of irrigation in arid region, in the book entitled as "Irrigation for agricultural modernization". Author has selected the 'Indira Gandhi canal command area as a study area and studied the development of irrigation potential in Rajasthan. Author has intensively focused on the impact of irrigation on various aspects of agriculture in the Indira Gandhi canal command area.

Rao, R. Ram Mohan and Simhadri, S. (1989) wrote book entitled as "Development dynamics in command areas of major irrigation projects". In this book, authors have studied the 'Sriramsagar irrigation project*, built across the river Godavari. This project has brought nearly seven lakh hectares of land under irrigation. The command area of this river project encompasses the districts of Adilabad, Karimnagar, Nizamabad, Warangal and Khamam. The authours have deeply studied the socio-economic transformation that has taken

place in the command area of Sriramsagar irrigation project. The socio-economic transformation observed in the changing land use and cropping pattern, in demographic aspects, in the pattern of distribution of settlements and in levels of development.

Gurjar, R.K.(1994) edited one book regarding to the "Irrigation facilities & agriculture". In this book several research papers concerned to the availability of irrigation, types of irrigation & regional development have been published. Randhawa, N.S. (1994) - the then Director General, ICAR (Indian Council of Agricultural Research) has worked on 'Problems and prospects of irrigated agriculture' & state that 'irrigated agriculture in our country provided by government categorically able to improve the quality of rural life & ensure development of agrarian economy'. He has also traced on irrigation development & food grain production in our country as well as past progress & anomaly occurred in agricultural growth. Agarwal, M.P. (1994) The former Deputy Director (Economics), Central Water Commission, New Delhi has highlighted the important topic "Employment Generation Potential of Irrigation Projects". In author's view self–sufficiency in the production of food grains & generation of employment opportunities are the two major objectives of our economic planning & in this regard medium & major irrigation projects played crucial role in our country. He also focused on the types of employment generated by major & medium irrigation projects e.g. direct on-site employment for construction, operation & maintenance. Indirect off - site employment through irrigated agriculture as a result of increase in cropping intensity & increased use of inputs like pesticides & fertilizers etc. He also gave importance to the non–agricultural.activities accelerated and triggered by irrigation projects such as road construction, bridges etc. facilitating transport of commodities, the provision of education, medical & other facilities to the inhabitants resides in command area of project, etc.

Kachru R.P. (1994) a former scientist, S-2 Central Institute of Agricultural Engineering Nabi Bagh, Bhopal & Shrivaster P.K.–Post harvest Division, CIAE, Nabi-Bagh, Bhopal, both have focused on diversification of

agro–based activities for rural development. According to them, rural development through agro–based industries is part of a larger process of development a national society development, growth, employment of our country. They also have mentioned types of agro–based industries such as Agro–processing activities, Gur & khandsari manufacture, Bee – keeping etc.

Chattergee, Nandini (1995), in her book entitled as 'Irrigated Agriculture: A Case study of West Bengal' focused on the impact of irrigation in land use as well as necessity of irrigation in an agro–climatic approach. Author has assessed the impact of irrigation on gross agricultural area, cultivable waste lands, Net sown area as well as cropping intensity in west Bengal. According to author agricultural efficiency generally connotes the reaping of maximum returns from land under the prevailing physical and cultural milieu. It is the function of several physical, socio-economic and technological variables & in the present context agricultural efficiency is the role of irrigation. The New Agricultural strategy (NAS) of 1966 envisaged the application of HYV (High Yielding Variety) seeds, fertilizers etc. along with irrigation. In the concluding part of this book author mentioned that Irrigation has conferred its benefit upon net sown area, cropping intensity and crop yields in West Bengal. Efficiency of irrigation may be enhanced gradually through realization of its relationship to the other environmental variables through the consorted use of traditional and modern irrigation systems. This requires comprehensive planning with equal emphasis being given to surface and ground water resources.

Rangachari, R. et al (2000) throws light on various aspects of the dam and its related factors in the report 'Large Dams India's Experience', prepared for the World Commission on Dams (WCD). In said report the systematic review has duly been taken in respect of the historical backdrop of the dams in India. The environmental and socio-economical impact has also been verified in the case studies of various large dams in India.

Gramin, Vikas Seva Sanstha, (2004): Looks in to the several problems raised during the various water schemes under the name Impact of Minor Irrigation Projects

on Economic Development in Selected Six Tribal Majority Districts of Jharkhand, Orissa and West Bengal.

1.7 SCHEME OF CHAPTERS

Present research is systematically arranged in the following chapters:

1) The first chapter introduction deals with the review of literature, objectives, study area, data base, methodology and scheme of chapters. The chapter also incorporated the geographical set up of the study region.
2) The second chapter physiography and general profile of Tulashi dam and its command area devoted to the physiographic salient features of an area and characteristics of project.
3) The third chapter impact of Tulshi dam on agriculture land describes the influence of irrigation development on the total agricultural land in the study area.
4) The fourth chapter talks about the impact of Tulashi dam on crop production and total yield of the same.
5) The fifth chapter socio-economic impact of Tulashi dam on study region evaluated the influence of the project on population in its command area.
6) The study concluded with the chapter findings, conclusion and suggestions.

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