

CHAPTER - I

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

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- 1.1 Significance of Irrigation
 - 1.2 Area Under Study
 - 1.3 Objectives
 - 1.4 Hypothesis
 - 1.5 Sources of Data and Methodology
 - 1.6 The Review of the Work
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- References



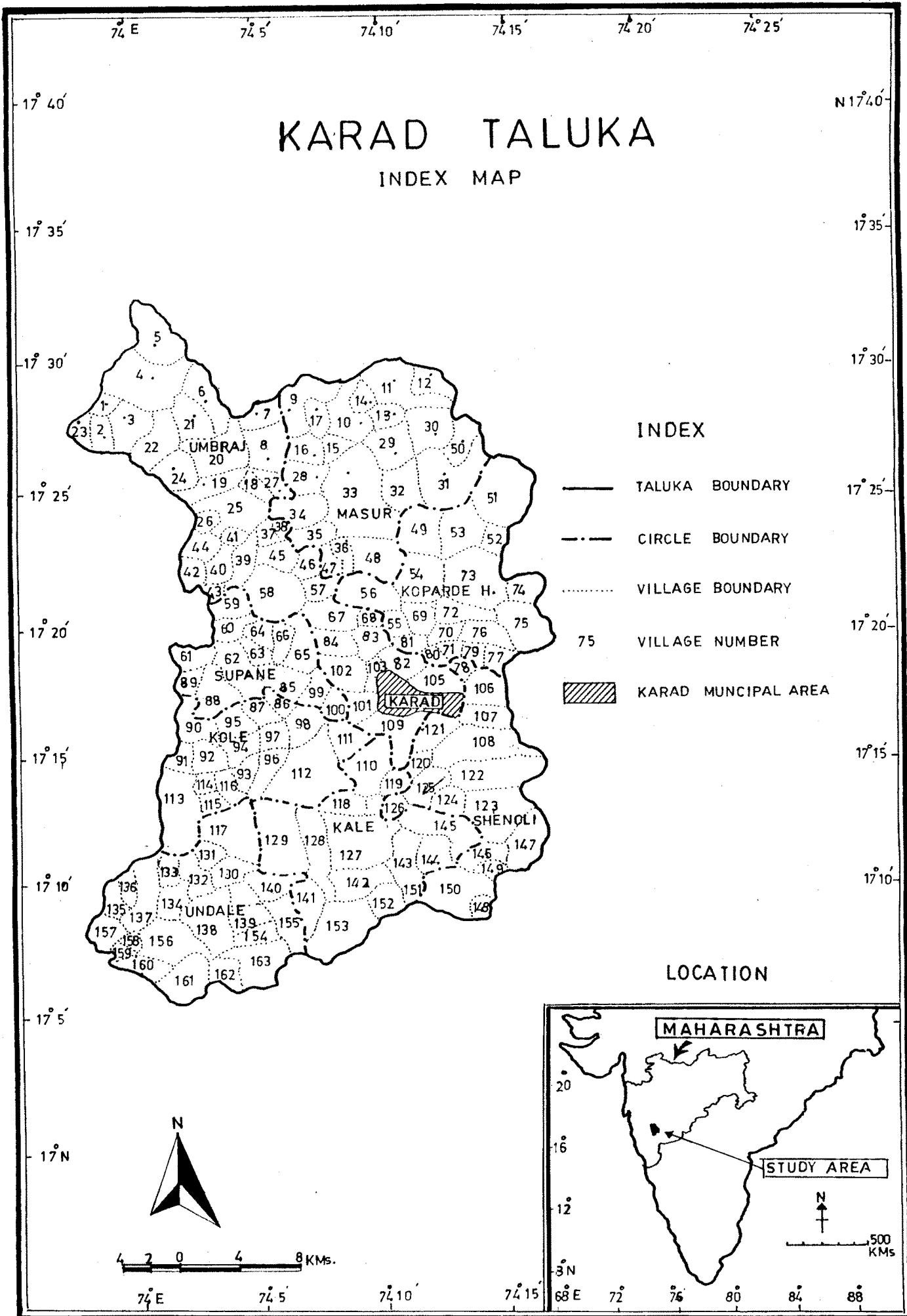


FIG 1.1

LIST OF VILLAGES IN KARAD TALUKA (INDEX MAP)

Location Code No.	Name of village	Location Code No.	Name of village
1	Dhavarwadi	25	Andharwadi
2	Chorajwadi	26	Umbraj
3	Marali	27	Korti
4	Pal	28	Kawathe
5	Farpalwadi	29	Nigadi
6	Shirgaon	30	Gholapwadi
7	Perale	31	Kiwal
8	Bhuyachiwadi	32	Chikhali
9	Kalgaon	33	Masur
10	Helgaon	34	Vadoli Bhikeshwar
11	Padali (Hegaon)	35	Konegaon
12	Gayakwadwadi	36	British Shirwade
13	Gosavewadi	37	Shivade
14	Ranugadewadi	38	Hanumanwadi
15	Kacharewadi	39	Bhavanwadi
16	Kharade	40	Charegaon
17	Belawadi	41	Kalantrewadi
18	Bhosalewadi	42	Shitalwadi
19	Hingnole	43	Bholewadi
20	Indoli	44	Khalkarwadi
21	Vadgaon Umbraj	45	Varade
22	Chore	46	Tasavade
23	Maskarwadi	47	Shiravade
24	Koriwale	48	Shahapur

Conti..

List of Villages conti..

Location Code No.	Name of village	Location Code No.	Name of village
49	Riswad	74	Kamathi
50	Khodjaiwadi	75	Surli
51	Shamgaon	76	Rajmachi
52	Pachund	77	Babarmachi
53	Antavadi	78	Sayapur
54	Vadoli Nileshwar	79	Hajarmachi
55	Koparde Haveli	80	Sadashivgad
56	Nadashi	81	Banavadi
57	Belavade Haveli	82	Saidapur
58	Talbid	83	Khodashi
59	Beladare	84	Vanwasmachi
60	Mphopre	85	Supne
61	Sajur	86	Kirpe
62	Tambve	87	Yenake
63	Sakurdi	88	Arewadi
64	Vasti Sakurdi	89	Gamewadi
65	Abaichiwadi	90	Ambawade
66	Vasantgad	91	Kusur
67	Vahagaon	92	Kolewadi
68	Ghonshi	93	Shinganwadi
69	Parle	94	Kole
70	Viravade	95	Ane
71	Vanwasmachi	96	Gharewadi
72	Karavadi	97	Potale
73	Vagheri	98	Yerawale

Conti..

List of villages conti..

Location Code No.	Name of village	Location Code No.	Name of village
99	Padali (Kose)	123	Shere
100	Kese	124	Dushere
101	Varunji	125	Kodoli
102	Mundhe	126	Narayanwadi
103	Gole	127	Kale
104	Karad (Rural)	128	Nandgaon
105	Govare	129	Ond
106	Tembhu	130	Sawade
107	Koregaon	131	Latkewadi
108	Karve	132	Mhasoli
109	Malakapur	133	Shelkewadi
110	Jakhinwadi	134	Shevalwadi
111	Chachegaon	135	Hanumantwadi
112	Ving	136	Gharalwadi
113	Tarukh	137	Yewati
114	Bamanwadi	138	Ghogaon
115	Vanarwadi	139	Talgaon
116	Havelwadi	140	Undale
117	Tulsan	141	Manu
118	Dhondewadi	142	Kalavade
119	Nandalpur	143	Vathar
120	Kapil	144	Rethare Kh.
121	Goleshwar	145	Atke
122	Vadgaon Haveli	146	Gondi

Conti..

List of Villages conti..

Location Code No.	Name of village
147	Shenoli
148	Khubi
149	Julewadi
150	Rethare Bk.
151	Malkhed
152	Belavade Bk.
153	Kasar Shirambe
154	Maharugadewadi
155	Salshirambe
156	Yelgaon
157	Bhurbhushi
158	Bharewadi
159	Gotewadi
160	Ganeshwadi
161	Yenpe
162	Akaichiwadi
163	Jinti

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1.1 SIGNIFICANCE OF IRRIGATION :

Irrigation is an artificial supply of water to land for growing crops and to increase the per hectare yield. Irrigation is necessary particularly in low and uncertain rainfall areas. It is essentially the artificial application of water to overcome the deficiencies in rainfall for growing crops (Contor, 1967). Irrigation is one of the significant inputs in the process of transformation of agriculture. However, it is recognized as a basic necessity of cultivators in arid and semi arid regions for sustaining high productivity of crops and also to bring more and more land under cultivation. The need of irrigation is greater in the parts where rainfall is seasonal and unassured (More and Mustafa, 1984). Moreover, it is a life giving agent to plants, hence the artificial water supply has become most essential. Other inputs such as fertilizers and plant protection measures are hardly effective without supplemented irrigation to mitigate water stress. Therefore, there is need of the development of water resources. Creation of irrigation facilities is, however, only the means to end, of their effective use for crop production.

Irrigation play a vital role in meeting rising demands of food and fodder, for growing human and livestock population. Moreover, it is an age old practice of ancient civilization, designed to reduce moisture deficiency. Investment in the irrigation leads to multiple benefits, such as it enables farmer to harvest two or three crops a year.

Irrigation is a prerequisite for adopting the new technology in the use of cultivated land. Cultivated land is the area regularly ploughed and includes both tillage (net cropped area) and fallow land (Singh, 1974). Irrigation leads to the better productive use of cultivated land. To be successful and well developed agriculture requires supply of water at regular interval and required quantities (Pawar, 1981). The transformation partly or fully depends upon the nature and mode of irrigation, hence, it is regarded as an integral part of sound infrastructure of agriculture.

It is in this context that the present study of irrigation and its impact on cultivated land in Karad taluka of Satara District is undertaken.

1.2 AREA UNDER STUDY :

Karad taluka is one of the economically and culturally prosperous taluka of Satara district in South Maharashtra. The area lies between 17°6' to 17°32' North latitude and 73°58' to 74°16' East longitude. It has a total geographical area of 405.80 sq.km (3.86% of district) with 163 villages, 9 circles and 1 urban centre (Fig.1.1). It supports population of 382,677 (18.72% of district). The region under study shares 54,364 urban and 32,813 rural population. However, it is most populous taluka in Satara District. The population density of taluka is 358 persons per sq.km. It is bounded by Koregaon, Khatao and Satara

RELIEF AND DRAINAGE OF KARAD TALUKA

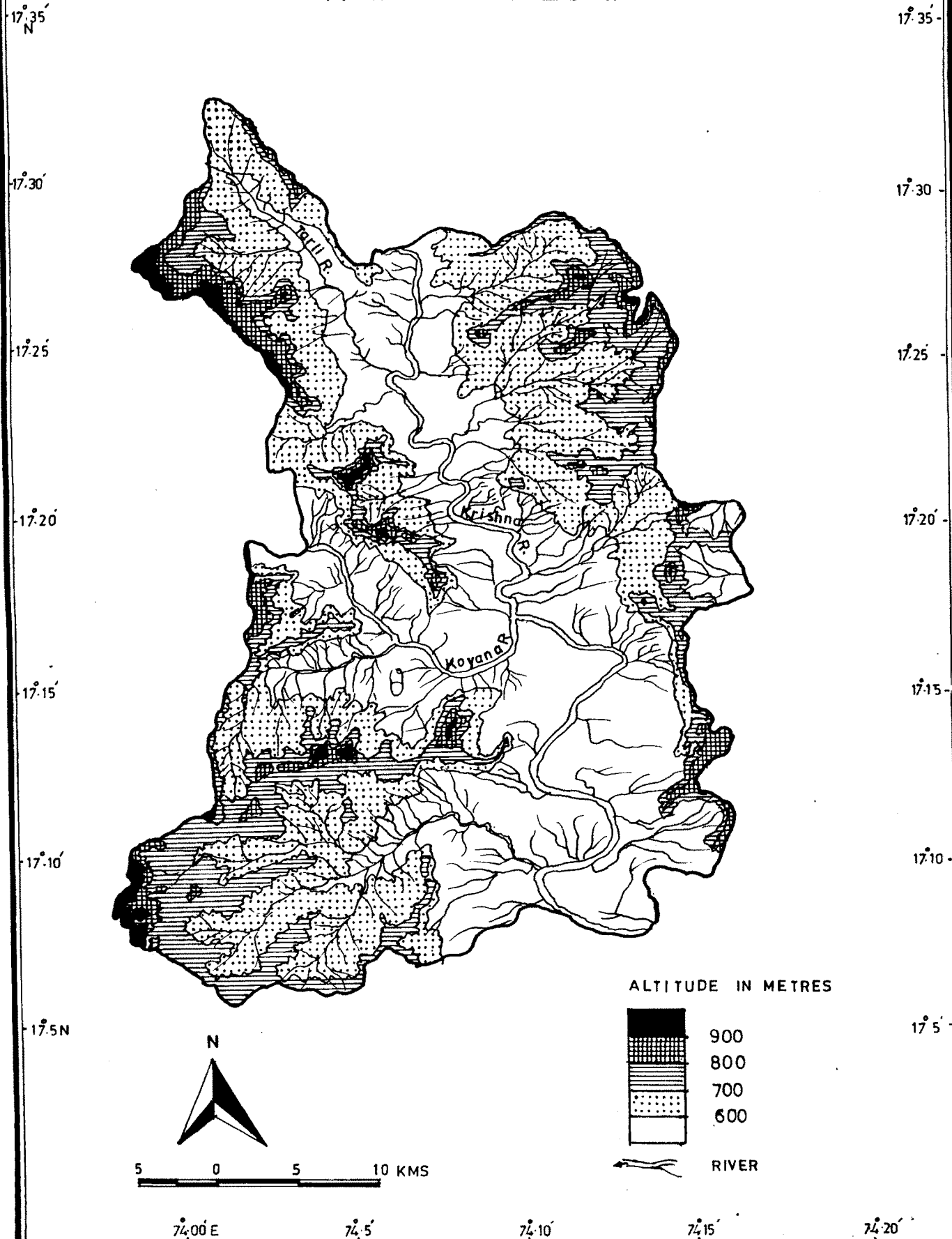


FIG 1.2

taluka to the north, Sangli district to the east and south, Patan taluka to the west.

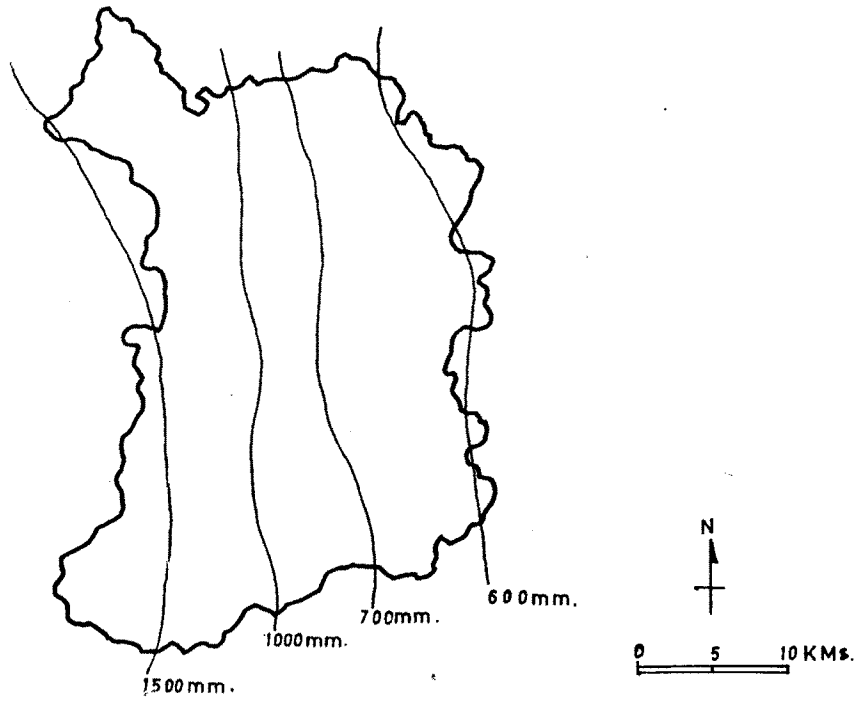
The region under study is a part of basaltic plateau of Maharashtra with an average height of 600 metre above mean sea level. Topographically it is both hilly and plain. The rugged hilly topography is observed in the northwest with height of above 905 mtrs. The hilly topography is also found in south western and north eastern part of the study region with height above 820 mtrs (Fig.1.2). Many flat topped off-shoots terminate in the central part. The plain topography is observed in the central part of the taluka extending from north to south with average height of about 600 mtrs. The river Krishna is the main source of water, flowing from north to south in the taluka. Koyana is a right bank tributary of the Krishna river which enters from west into Karad taluka. The river is harnessed by the construction of dam from which water is regulated in lower source for irrigation purpose. The Tarli, Vang and Man are the other important tributaries of the Krishna river.

Climate is the principal aspect of the physical environment affecting almost every aspect of our life. The climate of Karad taluka is tropical monsoon. The maximum and minimum average temperature recorded are 37.6°C and 19.5°C respectively. The annual range of temperature is 18.1°C. Rainfall is significant climatic element that influences the agricultural economy of the study region. The annual average rainfall is 680 mm and 70 to 90

KARAD TALUKA

ANNUAL AVERAGE RAINFALL

(A)



(B) ANNUAL VARIATION OF RAINFALL FROM NORMAL

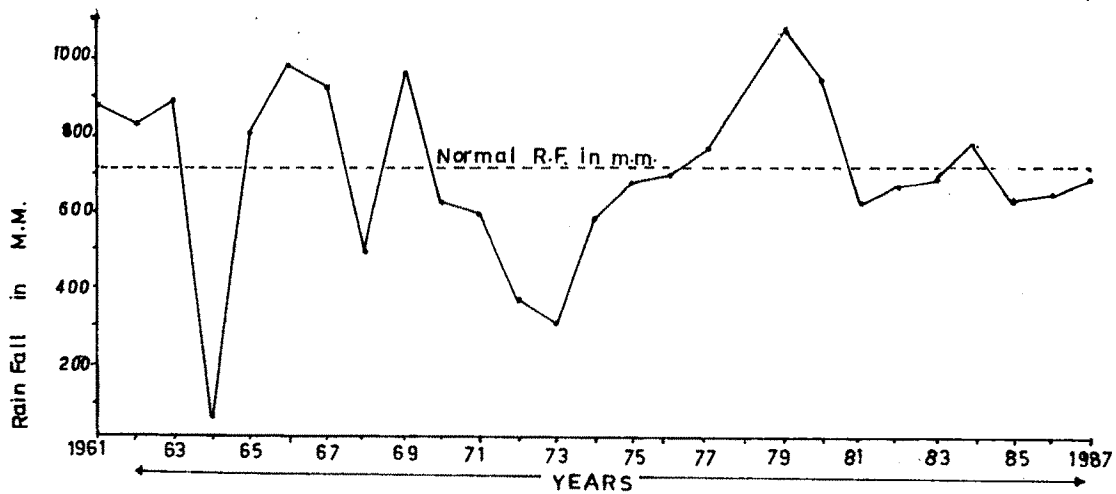


FIG. 1-3

percent of rainfall is received during June to September. In the region it decreases from west to east (Fig.1.3-A).

The characteristics and the distribution of soil in Karad taluka are influenced by geology and climatic conditions. The detailed discussion of soil types is made in Chapter - V.

1.3 OBJECTIVES :

Irrigation is one of the input responsible for agricultural transformation. Hence, the specific objective of the present study are as under :

- i) to know the existing pattern of irrigation and changes therein,
- ii) to analyse the impact of irrigation on cropping pattern,
- iii) to investigate the influence of irrigation on agricultural productivity and
- iv) to identify the negative impacts of irrigation on cultivated land.

1.4 HYPOTHESIS :

To fulfil the above objectives the following hypothesis are formulated.

- i) The development of irrigation compels the farmer to take cash crops and motivate to use inputs like fertilizers, HYS, pesticides and machinery.
- ii) Irrigation along with other inputs has brought about the changes in cropping pattern and has increased the crop productivity.

- iii) Excess use of irrigation and over doses of fertilizers make the cultivated land unproductive or sterile.

1.5 SOURCES OF DATA AND METHODOLOGY :

To investigate the irrigation and its impact on cultivated land at micro level, the main body of the data used in this study were collected from primary and secondary sources. The questionnaire was sent to the farmers, village talathi and tahsil offices for collecting data. In addition to that, personal interviews of experienced farmers were taken to obtain the primary data. The essential secondary data were collected from the published and unpublished reports and abstracts, such as socio-economic review, census handbook, agricultural gazetteers, district statistical abstracts, agricultural bulletins by the Department of Agriculture, Maharashtra State. The periodicals and unpublished documents by Irrigation Department have also provided a lot of information about the present problem.

The collected data and information were analysed by statistical and cartographic techniques. The agricultural productivity was assessed by Bhatia, Sapre and Deshpande and Majid Husain's methods. The details for the same are given in concerned chapters. The extensive field work was undertaken for investigation of irrigation and degradation of soils.

There are many positive and negative impacts of irrigation. In the present study two positive impacts and one negative impact



of soil degradation have been considered. The other negative impacts of irrigation such as social disaster, low farm income, water borne diseases and increased crime rate are omitted.

1.6 THE REVIEW OF THE WORK :

The geographical studies on impact of irrigation are many in India and abroad. It is an interdisciplinary subject being studied by Geographers, Economists, Irrigation Engineers and Agronomist.

Contor (1967) in his book, 'A World Geography of Irrigation' has highlighted history and present condition of irrigated agriculture in the world. Michal (1983) in his book, 'Irrigation Theory and Practice' has covered all areas of irrigation related to agriculture. An attempt has been made by Fukuda (1962), to study the irrigation and drainage of the World. The methods of irrigation and water management are studied by M.Shafi (1987), Atkinan (1979). Indias water wealth, it's problems, facts and basic principles are highlighted by Rao (1975). Impact of irrigation studies of canal, well and tank irrigation in Karanataka is attempted by Economists such as Karni M.V., Mishra G.P. and Vivekananda. Kamble, N.D., Abdul Aziz, C.Charles, Nalson, Nageshwar Rao and Rao V.M., Gadgil (1948) studied the economic effects of irrigation. The regional account of irrigation is studied by Jasbir Singh (1977), Pawar C.T. (1981) and Gurjer R.K. (1987). Some aspects of irrigation have been highlighted by David Friman (1952).

The negative effects of irrigation have also been studied by many scholars such as Chawdry and Reddy (1987), Patil P.B. (1988), Bowonder B. and Ravi C. (1984), Aggarwal R.R. (1957) and Dhawan C.L. (1964).

1.7 THE DESIGN OF THE WORK :

The entire study is condensed into six chapters. In the first chapter, the significance of irrigation, the area under study, objectives, hypothesis, sources of data and methodology, the review and the design of the work is presented. The subject matter of second chapter is pattern of irrigation and the chapter third deals with the impact of irrigation on cropping pattern. The impact of irrigation on crop productivity is attempted in the fourth chapter. The fifth chapter deals with the soil degradation. The summary and conclusions are given in sixth chapter.

The relevant references are given at the end of each chapter and general bibliography is listed in the last.

R E F E R E N C E S

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