

CHAPTER NO.1

INTRODUCTION TO WARANA AREA

1.1 Introduction

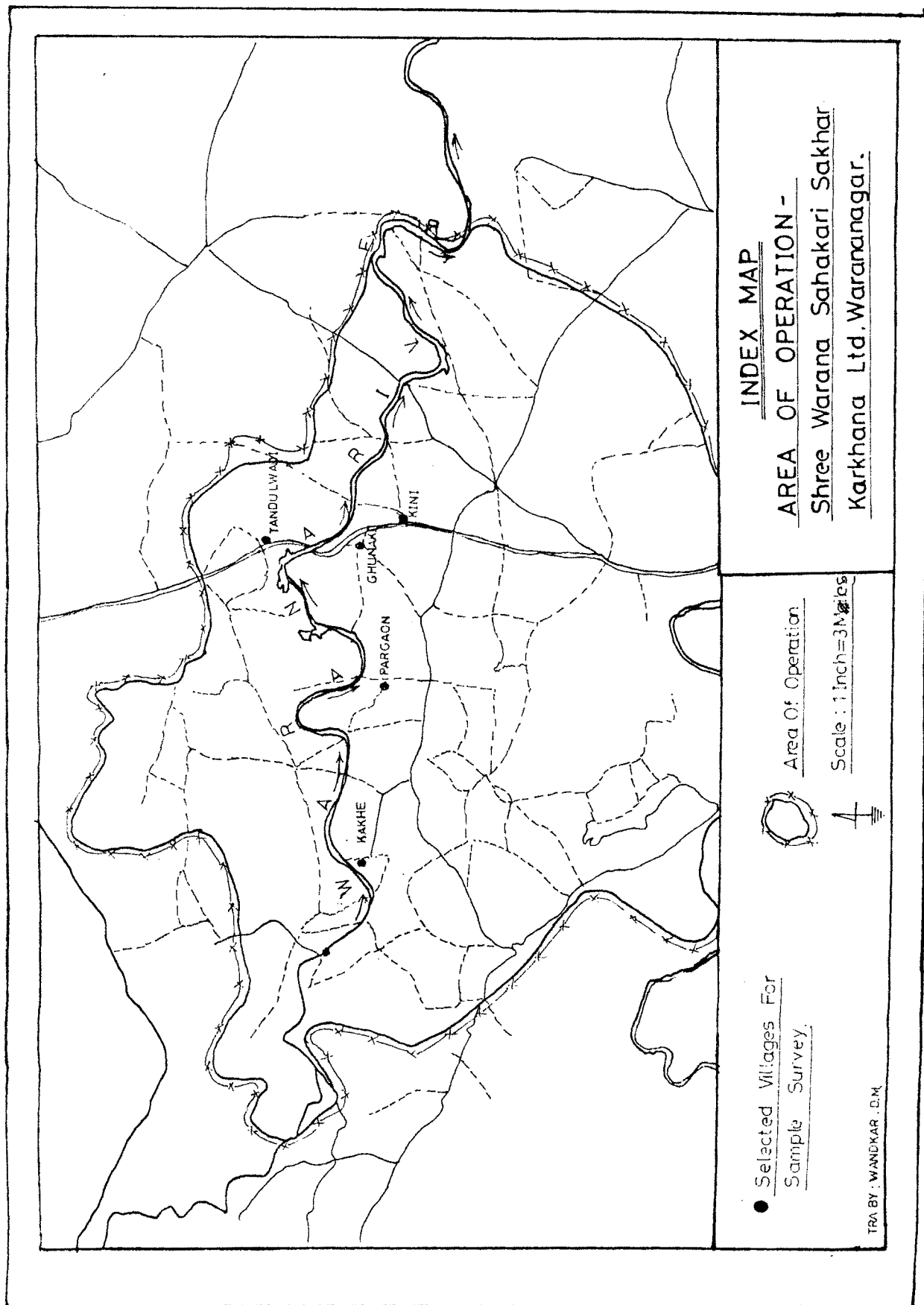
In this Chapter we briefly put forth the general geo-climatic and socio-economic picture of the Warana area which is our study area.

1.2 Geographic Location¹

By Warana area we mean the villages coming under the officially declared operational area of Shree Warana Sahakari Sakhar Karkhana, Warananagar. There are 66 villages in the operational area of Warana factory. Out of these, 42 villages belong to Kolhapur district that is, Hatkanangale (20), Panhala (18), and Karveer (4) and the remaining 24 villages belong to Sangli district, that is, Walwa (18) and Shirala (6). The list of these villages is given in Appendix No. 1 to this Chapter. The Warana area thus defined lies between $16^{\circ}50'$ to $17^{\circ}16'$ North and $73^{\circ}33'$ to $74^{\circ}41'$ east. Out of these 66 villages, 62 villages benefit from Warana river and only 4 villages benefit from Panchaganga river.

1.3 Geo-climatic Condition

The Deccan trap influences the landscape of the basin.



The average height above sea level is 1800 metres.

- 1) The north-west region of the Warana basin has the maximum altitude i.e., 1,200 metres.
- 2) The average altitude of the two ranges in the basin i.e., Panhala and Ashta range varies between 900 and 1,200 metres.
- 3) The lower course of basin has an altitude varying between 450 and 600 metres.

The Hill-ranges in the Warana Basin

The important hill-ranges of the Warana basin can be described as follows:

Sahyadri-Bhairavgad-Kandur Hills

These ranges are nothing but the spurs of Sahyadri. This region has the highest altitude. Prachitgad and Tiwara passes fall in this region. The said ranges run from Sahyadri in South-east direction. Shirala is situated on the southern slopes of these ranges. This main range again runs towards south-east, east and north-east direction in different branches. Morana, Karamala and Kasegaon sub-basins are divided by these ranges. The ranges in Walwa taluka are dissected by river and nalas. At the end of the range, Mallikarjun hill and Santoshgiri hill are located.

Sahyadri ranges rise to about 100 to 1,500 metres above valley floor. A long period of erosion, on the horizontally laid lava layers explains their appearance. Water action has carved out river valley and their tributary valleys leaving the harder material as residual hill ranges. From a fairly broad base these hills rise in a series of terraces which are not unlike a flight of steps culminating in a summit level that is noted for its remarkably flat table-lands separated by low saddles.

Geology: The only geological formation in the Warana basin

is the deccan traps. The deccan lava flows are found usually in the form of horizontally bedded sheets. The flows usually form flat-topped hills. The traps belong to the type called 'Plateau basalt'. They are more or less uniform in composition corresponding to dolerite or basalt. These are dark gray or greenish gray in colour. These traps are distinguished into the vesicular or non-vesicular varieties. The non-vesicular types are hard, though compact and medium to fine-grained. The vesicular types are comparatively soft and feeble and break more easily. All the types though varying in quality are fertile on the whole. The black soil contains high alumina and carbonates of calcium and magnesium with variable amount of potash, low nitrogen and phosphorus. The soil of reddish brown colour is found on the hills. There is no mineral of economic importance. The deccan traps serve as good building materials. They

can also be used as road metal and railway ballasts.

In Walwa and Shirala talukas the main acquifers are either the inter-trappean beds or the discomposed zones in the traps. The depth of the water table is variable, generally, being more than 6 metres. In general, the deccan traps are unreliable sources of ground water because of the sporadic distribution of inter-trappean beds. Supplies are often exhausted owing to the limited storage area and by leakage through natural springs. Shallow wells located on the banks of streams usually provide water for household purpose. The quality of ground water is good for all purposes, excepting where contamination results through the introduction of waste matter or by infiltration.

RAINFALL

The Warana basin is located eastward of the high Sahyadri range. So, rainfall becomes less towards the east. Ashta and Panhala ranges are also the cause of the concentration of rainfall in the western range only. Because of the high rainfall, the small ranges are eroded on the rain side. Therefore, the drainage density as well as frequency are changed. The isohyetal map of Warana basin shows that the western part receives the rainfall between 100" and 250", e.g., Shahuwadi and Shirala talukas. The talukas like Shirol, Hatkanangale, Walwa receive rainfall ranging from 25" to 40".

Skies are generally clear or lightly clouded during the months of November to March. Cloudiness begins to increase progressively from April onwards and afternoons are more clouded than the mornings.

Soil: Almost the whole of the western half of the basin is covered by the basaltic Sahyadri ranges. The land gradually slopes towards the east into the deccan plateau. Due to this topographical feature, the soil in the basin varies from tract to tract. The soils are derived from trap, except in the forest-covered mountainous area in the west where they are of lateritic origin. The traprock is covered by the laterite soil. Consequently, in the western area the hill tops and ridges are covered with lateritic soil while in the valley, the soils are of mixed character varying in colour from brownish to reddish. Due to the undulating nature deeper soils are formed in low lying parts, while the ridges are covered by shallow soils more or less partially eroded.

The Warana basin can be divided into three broad soil zones:

- A) Laterite soils (Tambadmati)
- B) Brown soil (Halki-Kali Mati)
- C) Medium and deep black soils (Madhyam or Barik Kali Mati).

1.4 Socio-Economic Profile of Warana Area

1.4.1 Population: We discuss in this paragraph the distribution of population of the villages coming in the Warana area, parts of Shirala taluka of Sangli district, Walwa taluka of Sangli district, and Karveer, Hatkanangale and Panhala talukas of Kolhapur district. The related information is given in Table No. 1.1.

TABLE NO. 1.1

Total number of villages	Taluka	District	Total population		
			Male	Female	Total
6	Shirala	Sangli	9,660	9,290	18,950
18	Walwa	ditto	27,509	26,608	54,117
4	Karveer	Kolhapur	6,664 6,930	13,574 6,644	13,574
20	Hatkanangale	ditto	38,907	36,141	75,048
16	Panhala	ditto	25,555	23,827	49,382
Total: 64			1,08,561	1,02,510	2,11,071

Note: Data in respect of two villages, viz., Porle and Kekhale of Panhala taluka are not given in the source.

Source: Census of India, 1981, District Sangli, Census Handbook District Kolhapur and District Kolhapur Census Handbook.

In short, the total population of the Warana area in the villages included in it, was 2,11,071. According to 1981 census, the sex ratio turned out to be 944.26 females per thousand male population.

The literacy ratio for the male population is 60.64 per cent and for the female population that is 32.30 per cent. Information regarding literacy is given in Table No. 1.2.

TABLE NO. 1.2

No. of villages	Taluka	District	Total literates		
			Male	Female	Total
6	Shirala	Sangli	5,733	3,005	8,738
4	Karveer	Kolhapur	4,106	1,875	5,981
20	Hatkanangale	ditto	23,675	11,500	35,175
16	Panhala	ditto	15,143	7,770	22,913
18	Walwa	Sangli	17,179	8,967	26,146
Total 64 villages			65,836	33,117	98,953

Note Data in respect of two villages, namely, Porle and Kekhale of Panhala taluka are not given in the source.

Source: Census of India - 1981, District Sangli and Kolhapur. District Census Handbooks.

The talukawise distribution of number of households is given in Table No. 1.3.

TABLE NO. 1.3

Distribution of households in Warana area.

Karveer	Hatkanangale	Panhala	Kolha- pur <i>district</i>	Shirala	Walwa	Sangli Dist- rict	Warana strs <i>Area</i>
1	2	3	1+2+3	4	5	4+5	6
2152	13235	8465	23852	3323	9392	12715	36567

The average population of the villages in the Warana area is 3,198. The average number of households in the villages is 554.

1.4.2 In this paragraph we discuss comparatively the population profile of the villages selected for this study. The total population of the villages selected is 22,704 with a sex ratio 949.34 and the average literacy of 49.12 per cent. The literacy rate among male population in the selected villages is 65.40 per cent and among female population 34.60 per cent. The total number of households in the five villages is 4,042 giving an average of 808. The average population of these villages turns out to be 4,540. In Table No. 1.4, we have given the relevant data.

TABLE NO. 1.4

Sr.No.	Name of village	Taluka	District	Total population			Total literates		
				Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7	8	9	10
1	Pargaon	Hatkanangale	Kolhapur	3,541 (30.40)	3,199 (28.93)	6,740 (29.69)	2,218 (30.41)	1,093 (28.32)	3,311 (29.69)
2	Ghunaki	ditto	ditto	3,091 (26.54)	2,907 (26.29)	5,998 (26.42)	1,833 (25.13)	881 (22.83)	2,714 (24.34)
3	Kini	ditto	ditto	2,658 (22.82)	2,589 (23.42)	5,247 (23.11)	1,810 (24.82)	1,116 (28.92)	2,926 (26.24)
4	Kake	Panhala	ditto	1,147 (9.85)	1,054 (9.53)	2,201 (9.69)	620 (8.50)	274 (7.10)	894 (8.02)
5	Tandulwadi	Walwa	Sangli	1,210 (10.39)	1,308 (11.83)	2,518 (11.09)	812 (11.13)	495 (12.83)	1,307 (11.72)
Total				11,647 (100)	11,057 (100)	22,704 (100)	7,293 (100)	3,859 (100)	11,152 (100)

Note: Figures in parentheses indicate percentage.

Source: Same as for Table No. 1.1.

1.4.3 Area: In Warana area as pointed out earlier the total number of villages is 66. The talukawise and the districtwise distribution of this has been already given. The total area of the villages is 1,27,143.31 acres of which the forest area is 3,117.74 acres. So the ratio of area under forest comes to 2.45 per cent. The total culturable waste is 16,214.77 acres which as a ratio is 12.75 per cent whereas the area not available for cultivation is 12,536.7 acres, which as a proportion comes to 9.86 per cent. It thus can be said that the total area under cultivation in Warana area is 95,274.1 acres. In other words the per village cultivable area is 1,488.66 acres. Talukawise information in this respect is given in Table No. 1.5 on the next page.

1.4.4 Comparative Position of Selected Villages - Area

The total area of the sample villages is 11,959.88 acres, of which a meagre 96.37 acres are under forest giving a ratio of only 0.80 per cent. The proportion of culturable waste of the selected villages is 11.17 per cent and the proportion of area not available for cultivation is 4.13 per cent. In other words the total area under cultivation turns out to be 10,031.85 acres giving a per village availability of 2,006.37 acres. The villagewise information in this regard is given in Table No. 1.6 on page 12.

1.4.5 Cropping Pattern

First we discuss the secondary data regarding cropping pattern in the Warana basin. In this regard we have to take notice of some limit-

TABLE NO. 1.5

Sr. No.	No. of Villages	Taluka	District	Total Area of the Villages (acres)	Forest (acres)	Culturable Waste (acres)	Not Available for cultivation (acres)	Available for cultivation (acres)
1	2	3	4	5	6	7	8	9
1	6	Shirala	Sangli	12,780.53	237.23	528.47	558.47	11,456.01
2	18	Walwa	ditto	32,223.69	553.53	3,298.43	3,898.48	24,473.25
3	20	Hatkanangale	Kolhapur	46,340.54	699.32	7,250.21	4,099.55	34,291.46
4	16	Panhala	ditto	29,262.57	924.78	4,250.29	3,104.84	20,982.76
5	4	Karveer	ditto	6,535.98	702.88	887.12	875.36	4,070.62
	Total 64	-	-	127,143.31 (100)	31,177.74 (2.45)	16,214.77 (12.75)	12,536.70 (9.86)	95,274.10 (74.93)

TABLE NO. 1.5. Information about villages Porle and Kekhale not available.

Note: 1. Information about villages Porle and Kekhale not available.

2. Figures in parentheses indicate percentage.

Source: Same as for Table No. 1.1.

TABLE NO. 1.6

Sr. No.	Name of village	Taluka	District	Total area of village (acres)	Forest (acres)	Culturable waste (acres)	Not available for cultivation (acres)	Area available for cultivation (acres)
1	2	3	4	5	6	7	8	9
1	Pargaon	Hatkanangale	Kolhapur	4,156.39	96.37	753.69	239.70	3,066.63
2	Ghunaki	ditto	ditto	2,950.49	-	185.91	12.36	2,802.22
3	Kini	ditto	ditto	2,537.82	-	180.39	-	2,357.43
4	Kakhe	Panhala	ditto	1,045.28	-	94.00	166.00	785.28
5	Tandulwadi	Walwa	Sangli	1,269.90	-	172.98	76.63	1,020.29
Total		-	-	11,959.88 (100)	96.37 (0.80)	1,336.97 (11.17)	494.69 (4.14)	10,031.85 (83.88)

Note: Figures in parentheses indicate percentage.

Source: Same as for Table No. 1.1.

ations regarding the data we have collected from Form No. 20 of the tluka level revenue records kept by the government revenue officers. It as, however, not possible to get records for the same years in respect of the two disdtricts and the different talukas which constitute the total area of the Warana basin.

Cropping Pattern in Warana Basin for Kharif Season

We first discuss changes in the cropping pattern for the Khariff season. It is seen that, there is a clear division of talukas as between Jowar growing and rice growing areas. Panhala taluka has been and has remained predominantly rice growing area and Hatkanangale taluka has been Jowar growing area has remained so predominantly. However, so far as sugarcane is concerned, it is seen that in all the talukas of sugar factory jurisdiction, the area under sugarcane shows an increasing trend. It is also to be noted that groundnut cultivation constitutes a major part of cropping pattern in all the talukas coming under sugar factory area. So far as pulses are concerned the area under cultiation of suchd crops has remained constant. The same is true in case of Chawali. However, area under Hulaga seems to have increased significantly during 1971-72 to 1981-82. This increase in area under hulaga may be attributed to increased number of cattle, the establishment of sugar factory which together led to an increasing demand for cattle feed. In short, the

talukas coming under Warana sugar factory jurisdiction have in respect of their area in Warana basin cropping pattern broadly of the following type:

- 1 Jowar or paddy,
- 2 Groundnut,
- 3 Sugarcane
- 4 Nachani (mainly in respect of hilly areas)
- 5 Pulses.

In the changing cropping pattern sugarcane and groundnut seem to be the main crops for which area under cultivation shows a definite increasing trend; it can be observed that the changes in the area under cultivation of Jowar and rice are caused mainly by the changes in the area under cultivation of sugarcane and groundnut.

Firstly it is seen that Shirala is mainly a rice growing area, whereas Walwa taluka is predominantly jowar growing area. It is, however, to be noted that the proportion of area under jowar in case of Walwa taluka shows significant decrease. This decrease in the case of Walwa taluka is very large. Another important change in the cropping pattern is related to the increasing trend of area under cultivation of hybrid jowar. It can also be said that Shirala taluka of Sangli district has more or less the same cropping pattern

as talukas of Kolhapur district. In the case of the two talukas of Sangli district, are under sugarcane and groundnut accounts for significantly large proportions of total cropped area. Moreover, this is one more area in which all the talukas of both the districts seem to have more or less similar proportions of total cropped area under sugarcane and groundnut. So far as the other crops are concerned (mainly pulses), the picture in respect of both Kolhapur and Sangli districts areas is broadly similar. The general cropping pattern for Sangli district seems to be -

- 1 Jowar and rice,
- 2 Groundnut,
- 3 Sugarcane,
- 4 Tobacco,
- 5 Hybrid Jowar,
- 6 Pulses

Here again it is seen that decreasing area under sugarcane, Jowar and rice is mainly explained by increasing area under sugarcane and groundnut. On the whole, the cropping pattern for the Warana basin for Khariff season shows change of the following type.

Cropping Pattern in Warana Basin for Rabbi Season

It is seen that rabbi jowar, wheat and gram are the

major rabbi crops grown in all the talukas of both the districts. In the case of the area under jowar (rabbi) in Hatkanangale, it shows an increasing trend. Similarly, in the case of wheat, an increasing trend is seen in Walwa taluka, whereas in other talukas there is a decreasing trend. So far as area under gram is concerned there is generally a decreasing trend.

NOTES AND REFERENCES

- 1 Thesis submitted on "Agricultural Change in Warana Basin - (1961 to 1981) by Prof. N.K. Patil, to Shivaji University, Kolhapur in July, 1988. Page Nos. 119, 122, 125, 128.