CHPATER-4

C H A P T E R - IV

"IRRIGATION FACILITIES AND CHANGE IN AREA UNDER SUGARCANE CULTIVATION"

A regular and assured water supply is an important factor in sugarcane farming. Regular and fresh supply of sugarcane is necessary for any sugar factory during the crushing season. So a sugar factory feels it necessary to pay attention to the water supply facility. In the places where a canal water supply facility is not available well water is chiefly used. In a drought year water derived from well is chiefly used but the inadequate water supply from a well during a drought year causes harmful effects on the harvest of sugarcane. Because level of water table depends mainly on the level of rainfall. There is always positive co-association between level of water table and level of rainfall. The irrigational capacity of wells is a crucial problem in the dry region. In a drought year irrigational capacity of well irrigation adversely affects due to lowering down the level of water table while in a good rainfall year, it increases. In such a situation the available water should be properly utilised for irrigation purpose. For this an attempt is made to provide financial help to member to prepare new water supply schemes and implementing them thereby increasing the availability of water.

In Sangli District, where the Shetakari Cooperative Sugar Factory is operating Krishna, Yerla and Warana rivers are important. Naturally Sugarcane was grown in the towns on the river banks and this sugar cane was supplied to the near by sugar factory when the Sangli Shetakari Cooperative Sugar Factory was established. A regular and adequate supply of sugarcane to the factory was essential for this to take place. There was need to increase the area under sugarcane cultivation. The land that is placed away from the rivers was to be brought under cultivation. This,if done, was also going to reduce the dependence of the factory on sugarcane from outside its area of operation keeping both these benefits in mind, the factory initiated and led the way to implement water supply schemes.

THE NATURE OF WATER SUPPLY SCHEMES :

The sugar factory takes initiative in supply of water to the sugar factory. The sugar factory undertakes the survey of its area of operation and on the basis of this they prepare schemes of supply of water. Then probable expenses are estimated. Till the district cooperative bank grants the loan, these expenses are borne by the sugar factory. When the loan is granted amount of money is deposited with the factory. The fulfilment of technical aspects, like the necessary water and electricity licences, is also done by the factory.

Of the total expenses of the scheme, 10% of the amount is raised from the concerned members who participate in the scheme. Any land holder whose land comes under the purity of the scheme can participate in the scheme. The water tax for the scheme also depends upon the financial position of the scheme. Accordingly if the scheme, is free from loans and is running profitably. Then water tax is charged after deducting the establishment civil mechanical and electrical expenses and including the balance in the capital as minor deposits. For sugarcane it is 300 to 700 Ks. per acre. If the scheme is incurring losses, then 2000 Rs. per acre for sugarcane charged as water.[1]

The factory surveyed the banks of Krishna, Yerala, Warana and Kaapurnala from the point of view of its water supply schemes. In the beginning four schemes were operated on experimental basis. The common farmers were benefited by the scheme and sugar production started increasing in the area of operation inspired by this, the factory has operated the water supply schemes separately in its area of operation. It has started 81 schemes by the end of 1987. The factory tried from the beginning and has invested a sum of Rs. 3 crores and 35 lakh to commission 56 irrigation schemes. Similarly, it has purchased 25 crush schemes from the Government from June 1985, for it, the factory has invested Rs. 6 crore 50 lakh rupees. Today, water supply to the 69,325 acres under the 81 irrigation schemes of the factory is being managed by the factory.[2]

All the above mentioned schemes are on the banks of Krishna, Yerla and Warna rivers and 15000 members are benefited by these schemes. The benefit of this scheme is enjoyed by the regions which are 2 to 5 Km. away from the river. It is expected that adequate water will be supplied to the sugarcane in operating area of the factory. These water supply schemes and the change it has brought about in the operating area of the factory, can be thought of details are presented in Table No. 4.1 given below.

TABLE NO.4.1

SHETAKARI SAHAKARI SAKHAR KARKHANA LTD. SANGLI

(Under Agricultural Water Supply Schemes)

Sr. No.	Name of Village	Name of the project	Expanse of project	Date of starting	Amount of loan sanctioned (Rs.)	Command area
1.	Mhaisal	Dhanlaxmi-1	208726	24.2.59	208726	790
2	Mhaisal	Mahavir-2	106594	25.5.63	106594	250
3	Mhaisal	Kedarshing-3	183800	25.5.63	183800	200
4.	Mhaisal	Kanakeshwar-4	182196	25.5.63	182196	270
5	Mhaisal	Saraswati-5	1000000	25.9.64	1000000	1330
6	Ankalkhop	Vasant-1	411401	1.7.63	411401	600
7	Ankalkhop	Javahar-2	385652	16.11.63	289239	750
8	Ankalkhop	Shivaji-4	433498	13.5.66	433498	450
9	Sangli	Water Supply scheme	491297	1.2.63	491297	900
10	Nimani	Shivaji-1	58585	1.7.63	58585	125
11	Nimani	Balabuim-2	75923	20.3.64	75923	175
12	Haripur Sangli	Haripur Sangli	479759	22.8.58	479759	800
13	Padhmale	Padhmavati-1	465156	31.3.61	465156	750
14	Sanglivadi	Vasant -1	85480	17.2.59		220
15	Sanglivadi	Krishnamai-2	319333	15.4.64	23750	600
16	Sanglivadi	Warana-3	77038	28.3.64	77038	125
17	Bhilavadi	Shivaji-2,	338766	25.2.64	254054	600
18	Bhilavadi	Bhuvaneshwar 3	239251	1.3.64	239251	400
19	Copadevadi	Laxmi-4	1452000	1.3.64	116160	210
20	Tavadarvadi	Hanuman-1	314317	1.3.64	314310	600
21	Tasgaon	Gajanan	91795	1.2.64	91795	115
22	Mouje Digraj	Yashavant-1	510113	27.4.64	510113	600
23	Mouje Digraj	Vasant-2	291029	21.4.64	291029	300
24	Kasabe Digraj	Vasant-2	750000	25.2.64	750000	1750
25	Kasabe Digraj	Jivan-3	833485	26.2.64	625113	1700
26	Kasabe Digraj	Vaibhav-4	430594	20.3.64	430594	450
27	Bramhanal	Jitsidha-2	638836	20.3.64	179120	300
28	Kavathepiran	Vasant-1	240264	20.3.64	240264	450
29	Kavathepiran	Varana-2	240835	20.3.64	240435	300
30	Snirgaonkavathe	Ashok (Shivgaon kavathe)	135596	27.1.64	135596	180
31	Dudhagaon	Shetakari Sahakari	325000	20.3.64	325000	325
32	Tuang	Krishnamai-1	910707	25.3.64		1250
33	Karnal	Bhagyalaxmi-1	754258	5.2.64	754218	900
34	Ashta	Krishnamai-1	201353	25.4.64	151015	275
35	Nagathane	Nagathane-2	457543	20.4.64	343157	600
36	Dhavali	Shivaji-1 Dhavali	379582	1.2.64	379582	400
37	Dhavali	Mahavir-Dhavali	71401	1.2.64	71401	125
38	Vaddi	Vaddi-1 Vaddi	404438	1.2.64	404438	400
39	Smadoli	Mahavir-1 Samdoli	175478	21.11.63	175478	200
40	Samdoli	Navjewan-2 Samdoli	228805	16.11.64	228805	250
41	Inamdhamani	Javahar-1 Inamdhamani	350000	6.1.64	350000	350
42	Inamdhamani	Laxmi-2 Inamdhamani	88486	20.3.64	88486	125
43	Bamani	Vasant-1 Bamani	159101	13.4.64	159101	150
44	Nandre	Mahavir-1 Nandre	91840	28.2.64		175
45	Nandre	Laxmi-2 Nandre	100837	2.3.64	100837	125

25 DIRECT SCHEME

1.	Vaddi Bedag Bolavad	Vaddi Bedag Bolvad (Direct Scheme)	Total Expense		2000
2.	Takali	Takali Direct Scheme	Amount received by factory from govt. is Rs. 6.5.crore	17.6.85	1300 2000
3.	Malgaon	Malgaon Direct Scheme			2000
4.	Miraj	Miraj Direct Scheme			2000
5.	Miraj	Nilav Kupavad Miraj Nilaji Kupvad (Direct Scheme)			2000
6	Kupavad	Kupavad Direct Scheme			
7	Samdoli	Samadoli Direct Scheme			

No.of members	Name of River.
253	Krishna
145	Krishna
46	Krishna
75	Krishna
368	Krishna
194	Krishna
257	Krishna
253	Krishna
82	Krishna
43	Verala
51	Verala
240	Verala
239	Verala
82	Verala
256	Verala
51	Varana
227	Krishna
179	Krishna
87	Krishna
264	Krishna
35	Verala
234	Krishna
177	Krishna
370	Krishna
377	Krishna
161	Krishna
162	Krishna
91	Varana
96	Varana
58	Verala
149	Verala
361	Krishna
389	Krishna
76	Krishna
312	Krishna
170	Krishna
84	Krishna
144	Krishna
111	Varana
105	Varana
161	Krishna
122	Krishna
95	Krishna
32	Verala
56	Verala
242	Krishna
214	Krishna
280	Krishna
293	Krishna
268	Krishna
191	Krishna
377	Krishna

TABLE NO.4.1. (Contd....)

Sr. No.	Name of the village	Name of the project	Expenses of project	Date of starting	Amount of loan sanctioned (in Rs.)	Command area (Acre)	No.of members	Name of river.
8.	Kavathepiran	Kavathe piran Direct scheme				2000	356	Krishna
9	Kavathepiran	Kavathepiran Direct Scheme				2000	363	Krishna
10	Dudhgaon	Dudhgaon Direct Scheme				2000	95	Krishna
11	Ashta	Ashta Direct Scheme				2000	256	Krishna
12	Dudhgaon	Dudhgaon Direct Scheme				1300	260	Krishna
13	Bisur	Bisur Direct Scheme				2000	297	Krishna
14	Karajikhot-vadi	Karajhjotvadi Direct Scheme				2000	277	Krishna
15	Tavarasvadi	Tavarasvadi direct Scheme				650	192	Krishna
16	Velavi	Velavi 1 Direct Scheme				1300	100	Krishna
17	Vasagade	Vasagade Direct Scheme				1300	237	Krishna
18	Velavi	Velavi 2 Direct Scheme				1300	215	Krishna
19	Bambavade	Bambavade Direct Scheme				2000	356	Krishna
20	Savantpur	Savantpur Direct Scheme				1300	289	Krishna
21	Amanapur	Amanapur Direct Scheme				1300	276	Krishna
22	Mahisal	Mhaisal Direct Scheme				1300	192	Krishna
23	Mhaisal	Mhaisal Direct Scheme				2000	261	Krishna
24	Naravad	Narvad Direct Scheme				2000	271	Krishna
25	Bedag	Bedag Direct Scheme				2000	258	Krishna

SOURCE : Irrigation Section Shetakari Sahakari Sakhar Karkhana Ltd. Sangli.

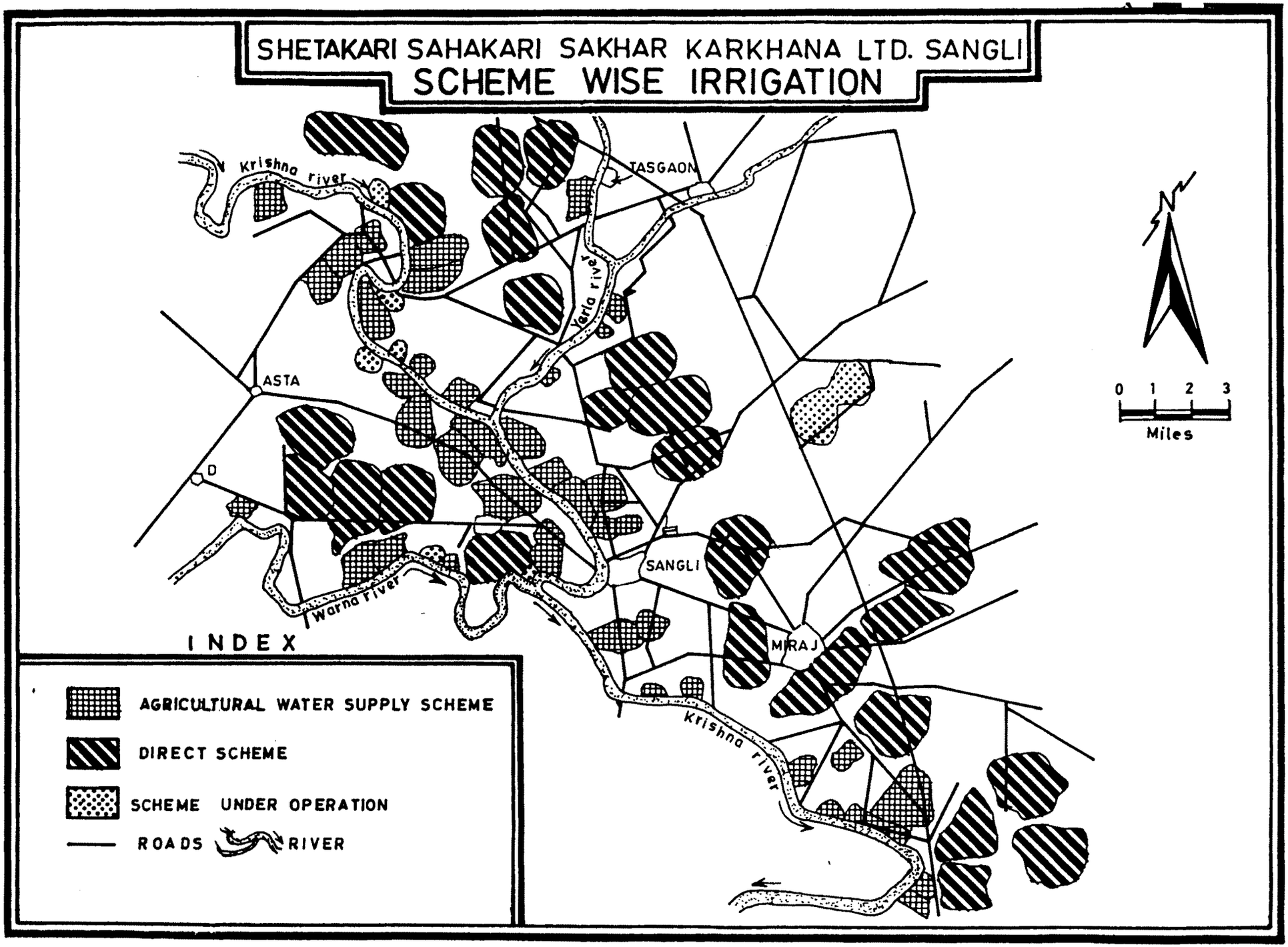
SHETAKARI SAHAKARI SAKHAR KARKHANA LTD. SANGLI
SCHEME WISE IRRIGATION
Krishna river
TASGAON
Yerla river
ASTA
D
SANGLI
Warna River
MIRAJ
Krishna river
N
0 1 2 3
Miles
INDEX
AGRICULTURAL WATER SUPPLY SCHEME
DIRECT SCHEME
SCHEME UNDER OPERATION
ROADS
RIVER

Fig. 4·1

CHANGES IN THE SUGARCANE PRODUCING AREA :

Due to any sugar factory the sugarcane produced in the operatio area of the factory gets an immediate market. Sugarcane starts getting reasonable prices. In addition, if necessary water supply facilities are made available sugarcane cultivation is encouraged and increased production of sugarcane becomes possible. The changes that have taken place in the sugarcane producing fields under the area of operating field of Shetakari Cooperative sugar factory can be studied with the help of Table No. 4.2

TABLE NO.4.2

EXPANSION OF AREA UNDER SUGARCANE WITHIN THE WORKING AREA OF FACTORY (Unit Acre)

Details	58-59	61-62	66-67	71-72	76-77	81-82	85-86	Percentage changes 61-62 / 58-59	66-67 / 61-62	71-72 / 66-67	76-77 / 71-72	81-82 / 76-77	85-86 / 81-82	85-86 / 58-59
A) Members														
i) Plantation	1066.00	2373	4505.16	5419.18	9357.11	17693	13538	122.61	89.85	20.29	72.67	89.09	- 23.48	1169.98
	(100.0)	(222.61)	(422.62	(508.36)	(877.78)	(1659-76)	(1269.98)							
ii) Ratoon	478.28 (100.00)	2727 (470.17)	4673.00 (877.04)	6665.00 (1293.53)	11218.00 (2245.49)	13292 (2679.12)	12940 (2605.53)	470.17	71.36	42.63	61.31	18.49	- 2.65	2605.53
Total	1544.28 (100.0)	5100 (330.25)	9178.16 (594.33)	12084.18 (782.51)	20575.11 (1332.34)	30985. (2006.44)	25678 (1662.78)	203.25	79.96	31.66	70.26	50.59	- 17.13	1562.78
B) Non-Members														
i) Plantation	398.00	411.32	56.00	971.00	354.09	2106	3118	3.25	- 86.38	1633.92	-63.53	494.76	48.05	683.42
	(100.0)	(103.25)	(14.07)	(243.97)	(88.97)	(529.14)	(783.42)							
ii) Ratoon	-	305.00 (100.0)	92.00 (30.16)	1412.00 (462.95)	2449.31 (803.05)	2435 (798.36)	2147 (703.93)	305.00	92.00	1412.00	2449.31	2435	2147	603.93
Total	398.00 (100.0)	716.32 (179.98)	148.00 (37.18)	2383.00 (598.74)	2814.00 (707.03)	4551 (1143.47)	5265 (1322.86)	716.32	148.00	2383.00	2814.00	4551	5256	1222.86
Grand Total	1942.28	5816.32	9326.16	14467.18	23389.11	35526	30943	199.46	60.34	55.12	61.67	51.89	- 12.90	1493.13
	(100.00)	(299.46)	(480.16)	(744.85)	(1204.21)	(1829.09)	(1593.13)							
No of villages within Jurisdiction of the factory	71	71	103	125	148	150	150	-	-	-	-	-	-	-
Outside villages	-	-	-	-	-	93	9	-	-	-	-	-	-	-

SOURCE : Annual Report,

Shetakari Sahakari Sakhar Karkhana Ltd., Sangli 1958-59 to 1985-86.

NOTE : Figures within the parenthesis show index numbers with 1958-59 as a base year.

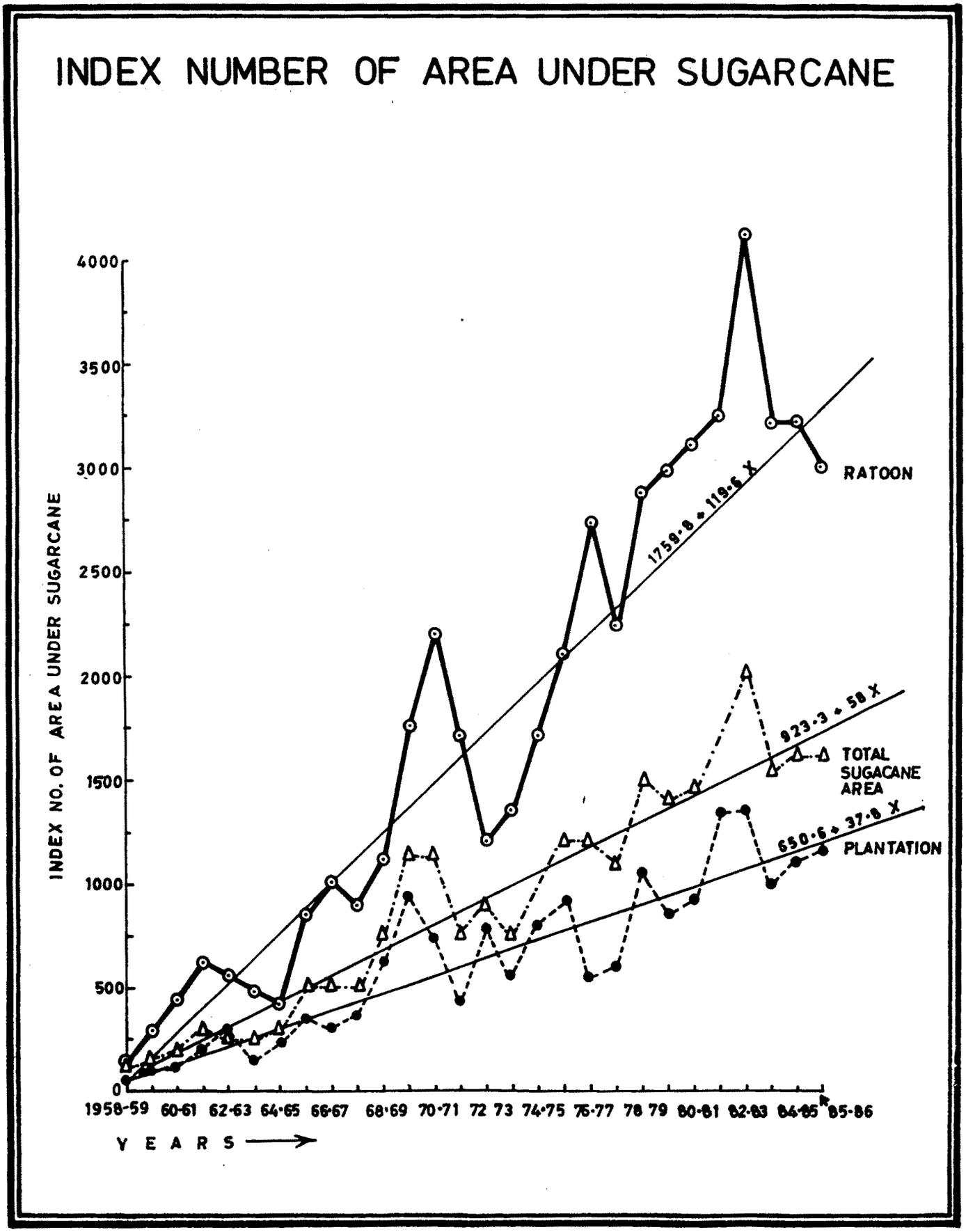
INDEX NUMBER OF AREA UNDER SUGARCANE
INDEX NO. OF AREA UNDER SUGARCANE
4000
3500
3000
2500
2000
1500
1000
500
0
1759·8 + 119·6 X
RATOON
923·3 + 58 X
TOTAL SUGACANE AREA
650·6 + 37·8 X
PLANTATION
1958-59 60-61 62-63 64-65 66-67 68-69 70-71 72 73 74-75 76-77 78 79 80-81 82-83 84-85 85-86
Y E A R S

Fig. 4·3

Originally the sugarcane crushing capacity of the factory was 1000 metric tonns daily then the sugarcane supply to the factory was supplied from about 2000 acres of field. But because of the higher rates being paid by the factory and because of the irrigation schemes started by the factory, the production of the sugarcane field kept on increasing. Capacity of the factory increased to 2600 metric tonns per day because of this there was tremendous rise in the sugarcane field.

Due to proper management in the factory and due to the considerable increase in irrigation, the area under sugarcane of the members and the non members kept on increasing consequently. So the sugarcane supply started coming on a large scale. To accommodate for the crushing of all this sugarcane, the crushing capacity of the factory was increased in the year 1971-72 and in 1975. Today daily 5000 metric tonns of sugar cane is crushed.

As the operating (working) area of the Sangli sugar factory is large and as Krishna, Warna and Yerla rivers flow through the operating area of the factory, the factory guaranteed adequate supply of water other crops being unable to command base rate consistent with the production cost, the common farmers have turned to producing sugarcane. As a result, it is difficult to completely crush the sugarcane under the operating area of the Sangli shetakari sugar factory, inspite of the expansion scheme.

Against the background of this overall picture, one can study the position of total sugarcane area of members and non members, and the area under plantation and ratoon of both the categories of supplies from table No. 4.2. It is found that, there has been countinuous expansion of the area under sugarcane with in the jurisdication of the factory during 1958-59 to 1984-85. ` At the indusial year, (i.e. 1958-59) area under sugarcane was around 1942 acres. Moreover, there has been remarkable progress in the expansion of area under sugarcane over a period of time. The area expansion under this crop has been occured at the 1493.1% during 1958-59 to 1985-86. In other world expansion of area under sugar cane took place 53.3% approximately annually. However, the magnitude in the growth rate of acres under sugarcane fluctuate from period to period. At the beginning the expansion of sugarcane cultivation tookplace at high rate(199.4%) during 1958-59 to 1961-62, due to enthuastic attitude of the farmers towards sugarcane as a new crop. During the subsequent period this picture did not remain constant. It can be noticed from table No. 4.2 that area expansion under sugarcane had been taking place at varing magnitude of growth rate. During 1961-62 to 1966-67 the area under sugarcane cultivations has recorded by 6.30% followed by 55.1% during 1966-67 to 1971-72,58.8% during 1976-77 to 1981-82. During the subsequent period it has been recorded negivate growth rate (-12.9%) in the cultivation of sugarcane crop during 1981-82 to 1985-86. As a whole it can be

stated that area under sugarcane in the region under study has been increasing steading at the cost of other low valued crops. Moreover table No. 4.2 throws light upon the relative share of member and non members of the factory to the cultivation of sugarcane. Of the total area under cultivation of sugarcane during 1958-59, 75.3% was occupied by the members and remaining by non members. But during the subsequent period it has been observed that the share of member producer to the total cultivated area under sugarcane had been increasing steadily, which increased to 82.9% in 1985-86. While the share of non member reduce to 70.3% during the same period. Which reflects the fact that producer members of the factory have been increasing over a period of time.

The question is also important that whether the production of sugarcane is increased with the increase of the area under sugarcane. Every sugar factory will receive regular, and dependable supply of sugarcane if production of sugarcane increases as the area under sugarcane increases. Total area under sugarcane, changes in the sugarcane field and production per acre can be obsetved in the table No. 4.3.

TABLE NO.4.3

CHANGES IN AREA OF PRODUCTION OF SUGARCANE

Year .	Total area under the sugarcane (Acre)	% change over previous year	Production per acre (unit Tonnes)	% change over previous year.
1958-59	1942	-	24.20	-
1961-62	5816	199.48	35.00	44.63
1966-67	9474	62.89	33.08	- 3.43
1971-72	14464	52.67	34.05	2.07
1976-77	23389	61.70	30.00	- 13.04
1981-82	35537	51.93	29.16	- 2.08
1985-86	30943	12.92	28.81	- 1.02

SOURCE : Shetakari Sahakari Sakhar Karkhana Ltd. Sangli.
Annual Report, 1958-59 to 1985-86.

From this table it is seen that only due to increase in sugarcane field, factory will not get sufficient supply of sugarcane. Increase in field due to sugarcane must be associated with production per acre to have sufficient and dependable sugarcane supply.

From the table it found that from the first crushing period i.e. first year average production per acre of sugarcane is decreasing rather than increasing. This has affected the total period of crushing and overall working of the factory. Because it is found that though the area under cultivation has increased. The facilities of irrigation have increased. Still production per acre has not increased. The 81 schemes have been started by factory on Krishna, Yerala and Yarana rivers. The farmers having lands near the river exploit these schemes along with the members. Increasing sugarcane field in Sangli district is mainly along the Krishna river banks. As a result more water than the capacity of river is being lifted.

In those areas, where there were no irrigation facilities, the recently introduced (81) irrigation schemes have contributed in extending larger area under sugarcane cultivation. As a result the crushing capacity of sugar factory has increased.

It is hoped that, due to Takari Project in Sangli District, supply of water will be available for sugarcane field under the

commanding area of the factory. Due to this Takari Project land under commanding area of factory will be irrigated and to accomodate increased sugarcane field, increase in the existing capacity of factory or establishing a new factory will be necessary.

We can see how the area under sugarcane is distributed under various types of irrigation from Table No. 4.4.

TABLE NO.4.4

SOURCEWISE IRRIGATION

Details	58-59	1961-62	66-67	71-72	76-77	81-82	85-86
1) River irrigated (Acre)	256	2568	5542	7474	9876	17914	19966
	(13.18)	(44.15)	(59.42)	(51.67)	(42.12)	(63.45)	(64.53)
2 Well irrigated (acre)	1686	3248	3784	6990	13573	17612	10976
	(86.82)	(55.84)	(40.57)	(48.33)	(57.03)	(62.38)	(35.47)
Total	1942	5816	9326	14464	23449	28232	30942
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

NOTE : Figures within the parenthesis show the relative position of well and river.

SOURCE : Annual Report, Shetakari Sahakari Sakhar Karkhana, Ltd. Sangli 1958-59 to 1985-86.

SHETAKARI SAHAKARI SAKHAR KARKHANA LTD. SANGLI

SOURCE WISE IRRIGATION

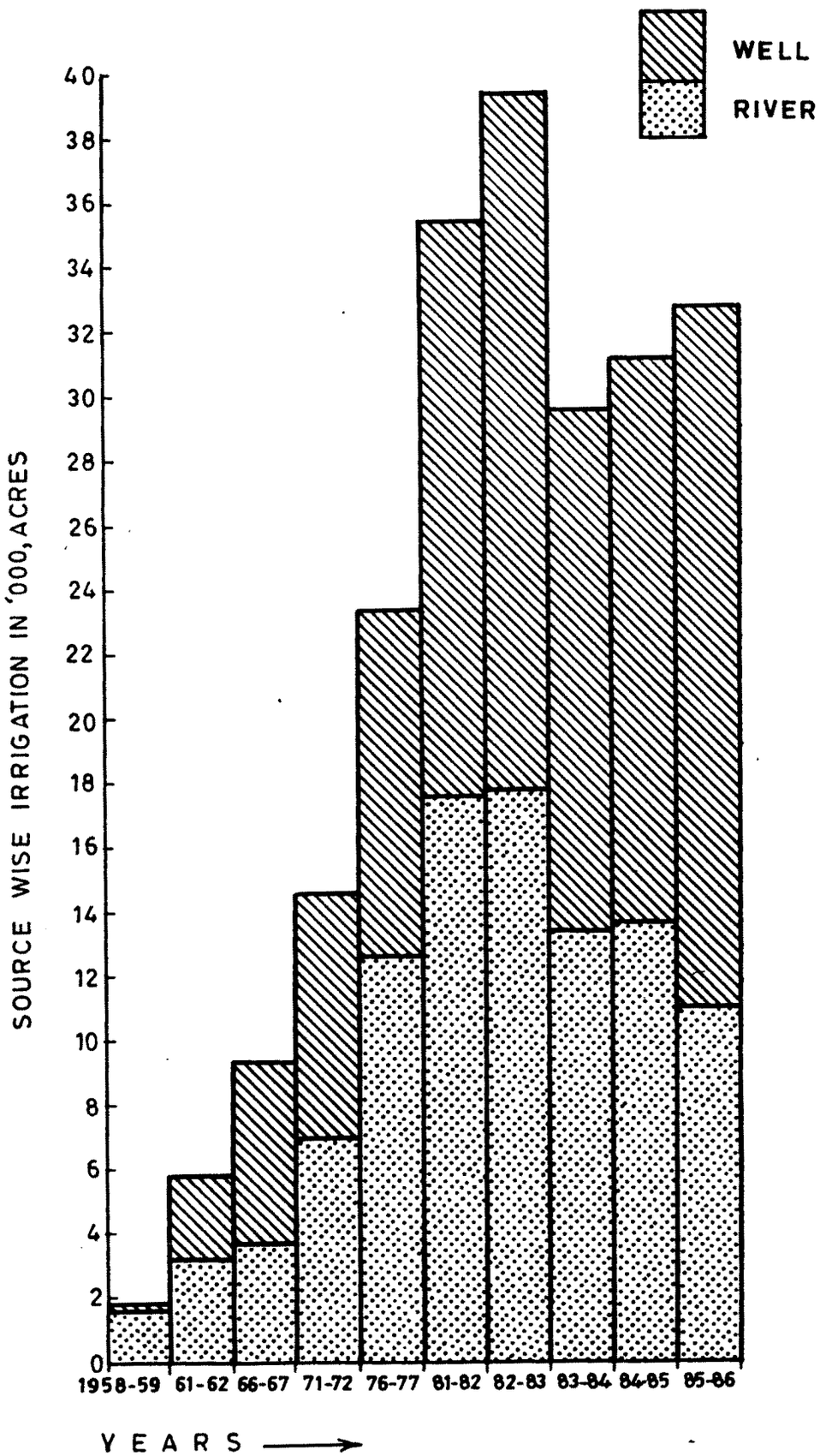

Fig 4.2

The sourcewise irrigation position reflects the fact that water derived from wells is still predominent source of water in the region. For instance out of the total irrigated area in 1958-59, 86% was occupied by well, but is subsequent period, a continuous fall is seen in well irrigated area. The reason might be low rain falls during these periods as a result, the underground level of water goes down.

On the contrary there is continuous rise in river irrigated areas from 13.18% in 1958-59 to 64.53% in 1985-86. The reasons seem to be launching of nearly 81 irrigation schemes during this period. The difference in these two irrigation facilities is reflected in the area under sugarcane. It is found that area under sugarcane is river bank side is more than in distant areas which depend on well irrigation.

IRRIGATION SCHEME :

Sangli Shetakari Sahakari Sakhar Karkhana was founded in 1956. At that time the area under sugarcane was small and all sugarcane was converted into Jaggery. Due to the establishment of factory all sugarcane started to came to factory. But larger supply of sugarcane was necessary for the development of sugarcane factory. So in 1958 factory started four irrigation schemes on Krishna river.

Krishna, Yerala, Warana and Agrani the four rivers flow through the command area of Sangli factory where sugarcane is

grown water from Krishna river is perennial. Due to this reason all irrigation schemes have been started on Krishna river.

Sangli Shetakari Sahakari Sakhar Karkhana has invested an amount of Rs. 33500000 for these 56 schemes, Also factory purchased the 25 direct schemes of Rs. 65000000 from Maharashtra Government. Due to this the area of 69325 acres of land has been irrigated. Out of above schemes, 65 schemes on Krishna river, 9 on Warana river and 7 on Verala river have been started.

All these schemes are located at a distance of 24 Km. away from the factory and it is found that most of the schemes are within the radius of 8 Kms. distance of factory, and beyond that number of schemes declines.

1. Irrigation Dep
Ltd.,Sang
2. Annual Report
Shetakari