

CHAPTER - III

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IRRIGATION SCHEME

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CHAPTER – III

IRRIGATION SCHEMES

In this chapter an attempt is made to examine position of irrigation schemes and their progress sponsored by the Krishna Co-operative Sugar Factory Rethare Bk. The factory has started various irrigation schemes in its operation area. Moreover their schemes have created positive impact of agriculture. In fact their schemes have stimulated the growth prospect of agriculture. Because irrigation is a crucial impact on which the use of other agricultural inputs depend upon.

3.1 ROLE OF IRRIGATION IN AGRICULTURAL DEVELOPMENT

India is agricultural oriented economy. The development of nation depends upon rural development and rural redevelopment ultimately depends upon agriculture. Irrigation is prerequisite for agricultural development, which is considered as crucial input. Great advances have been made in agricultural technology in the high-yielding variety of seeds and in the use of fertilizers. However, to be able to derive optimum benefits, water supply is one of the most essential pre-requisites. Rainfall in most parts of the country is confined to the four rainy months. June to September, while crops need moisture throughout the period of growth, particularly during the crucial stages, which could be arranged only by artificial watering or irrigation. Moreover, rainfall in a large part of the country is low and uncertain in its distribution. Based on the quantum of rainfall, India can be

divided into three different regions (i) regions with rainfall above 1150 mm (ii) regions with rainfall between 750 and 1150 mm and (iii) regions with rainfall of less than 750 mm. The high rainfall regions (above 1150 mm) constitute 30% of the net cropped area, while the average and low rainfall regions constitute 36 and 34% respectively of the net cropped area. Thus the distribution of rainfall among regions lacks uniformity apart from intro-seasonal variations.

3.1.1 IMPORTANCE OF IRRIGATION

Rainfall is very much unequal in India. About 90% of the rainfall occurs in only three months July to September. For the rest of the year there is uncertainty of rainfall. It also varies in different areas. The average rainfall of India is 42 inches in a year. But it is 70 inches in Assam, Bengal, Northern Bihar. It is very much essential to develop artificial irrigation facilities. Moreover rainfall is uncertain in nature. Sometimes it is not before the sowing, at the other time it is just after sowing which is unfavourable for getting the good results. There is drought at one time and flood at the other time, so the proper execution of crop planning is possible only with the adequate facilities of irrigation.

Irrigation can contribute in several ways as below:

- (i) the availability of irrigation can prosper, create employment potential, increase incomes and enhance capital formation. It has been estimated that in a season of unfavourable rainfall, there may be

a fall of 10 million tonnes in agricultural production, brought under the irrigation will give an additional output.

- (ii) Irrigation facilitates enhance double and multiple cropping. This is of particular importance in India where, with adverse land-man ratio, very little can be expected from extensive cultivation. Besides irrigation helps very greatly in raising the yield of land. Because this enables the application other modern inputs like chemical fertilizers, high yielding varieties of seeds etc. This aspect has special significance for India where the present methods of production are mainly traditional and the yields are miserably low.
- (iii) Some of the land maybe remained uncultivated due to shortage of water. Thus uncultivated land can be brought under cultivation if there is availability of irrigation water.
- (iv) The availability of irrigation raises the intensity of cultivation. The multiple cropping pattern can only be possible if there is sufficient irrigation water. The burden of population on agriculture is very high in India and the double, triple or multiple crops are required to be taken from the available cultivated land. The intensive cultivation, for example, sowing at proper time, application of fertilizers and other inputs is not possible without the sufficient irrigation water.

- (v) More production through irrigation would imply lesser use of land thus land can be released for other crops. This would make available more land for such purpose as animal husbandry, forestry, and horticulture. Equally important the inferior quality of land had, currently being used for crops like food grains will be put to users where it can promise better returns. Besides, the need for fast expanding non-agricultural uses like roads, railways, houses etc. will be easily met.

3.1.2 SOURCES OF IRRIGATION IN INDIA

There are three important sources of irrigation in India namely, wells, tanks and canals.

(i) Well Irrigation :

Wells are an important and dependable source of irrigation. Wells are mostly private but the government also helps in their construction by providing taccavi loan. In India there are more than 3 million wells, of which about half the number are in U.P alone. This source has been utilised successfully in Punjab, Southern Bihar, Western Bengal, Rajasthan, Gujarat, Maharashtra etc. On an average, a well can irrigate 2 hectares of land.

While tube-wells are considered to be an important aspect of Green Revolution which provide assured irrigation. As compared to surface wells tube wells are not only cheaper but, they also relieve our weak and overworked cattle of the great strain of working at the well. Where canal

irrigations likely to give rise to the evil of water logging these are best source of irrigation.

(ii) Tanks

Tanks form another important source of irrigation. They found in almost all states except Punjab, Bihar, Orissa and Madhya Pradesh. In rocky areas, the availability of underground water is poor as rocks do not such water, neither wells can be dug out nor canals can be constructed. But water can be easily stored in tanks, which may either naturally available or suitably constructed.

(iii) Canal

Canal irrigation is the most important source of irrigation in the present day. It accounts for about 40% of the net irrigated area. Canals are of two types namely inundation canals and perennial canals. In undertone canals are those which are fed by rivers without any barge or dam at the head. In the rainy season when the water flow is greater these canals over flood with the flooding of rivers. In the summer when the river goes dry, canals also go dry. Thus, there is uncertainty of the flow of water from these canals. These canals are of the little use in the days of drought when water is badly needed by farmers. On the other hand, in perennial canals water is reserved at the site of dams, which are built at higher levels. It is supplied through out the year irrespective of the fact whether or not the rivers are in spate. These canals are most suitable as they are permanent in nature

and ensure a regular supply of water. They can be dependable even in the days of droughts.

3.2 IRRIGATION SCHEMES SPONSORED BY KRISHNA CO-OPERATIVE SUGAR FACTORY, RETHARE BK. (SHIVANAGAR)

This section deals the position of irrigation schemes in term of membership, command area, actual irrigated area and finance. The supply of water for cultivation of the sugar cane is very important factors. Supply of water to sugarcane cultivation is done by following way –

- i) Krishna cannel (Khodashi dam)
- ii) Individual lift irrigation schemes located on Krishna River.
- iii) Individual well
- iv) Factories own lift irrigation schemes
- v) Farmer's co-operative lift irrigation schemes.

3.2.1 OLD LIFT IRRIGATION SCHEMES

Old lift irrigation schemes are as follows :

- 1) Yewalewadi lift irrigation scheme
- 2) Bahe-Tambave lift irrigation scheme
- 3) Rethare Bk. Lift irrigation scheme
- 4) Rathare khurd lift irrigation scheme.
- 5) Malkhed lift irrigation scheme

Thus Krishna Co-operative Sugar Factory is having its own five lift irrigation schemes which are known as old lift irrigation schemes. The construction of these schemes started in the year 1967 and actual operation of these schemes was started during the year 1967 to 1970. The construction cost and command area of schemes are given in table 3.1. Total membership of these five irrigation schemes was 3617. The break-up shows that the membership of Rathare Khurd lift irrigation scheme was 1434, followed by Rethare Bk (933) Yewalewadi lift irrigation scheme (862) , Bahe-Tambave (234) and Malkhed lift irrigation scheme (154). Of the total command area of there scheme it was 10400 acres, of which 3600 acres were shared by Yewalewadi lift irrigation scheme and Rethare Khurd lift irrigation scheme. Moreover of the total command area of these five lift irrigation schemes 82.69% area (8600 acres) actually brought under irrigation. Still 14.0 percentage potential is not being used. The individual scheme wise position show that Rethare Bk. Lift irrigation scheme has used its 100% irrigation potential, followed by Rethare Khurd and Yewalewadi lift irrigation scheme (83.33%), Bahe-Tambave and Malkhed lift irrigation scheme have brought area under irrigation to the extent of nearly 62.0%. Thus these schemes have further scope to bring additional area under irrigation. Moreover all these schemes were given grant by the government of Maharashtra. Total grant of these schemes was Rs.12.90 lakh. The position of individual scheme shows that 4.50 lakh was given by government to Yewalewadi and Rethare khurd lift irrigation schemes. While 2.40 lakh was given to Rethare Bk lift irrigation scheme and

Rs.75 thousand to Bahe-Tambave and Malkhed lift irrigation schemes thus at initial stage government of Maharashtra played significant role for the development of lift irrigation scheme based on co-operative line.

Table No. 3.1

OLD LIFT IRRIGATION SCHEMES

Sr. No.	Name of schemes	Member-ship	Command area (Acres)	Irritable area (Acres)	Construction cost (Rs.)	Grant by Govt. of Maharashtra
1	Yewalewadi lift irrigation scheme	862	3600	3000 (83.33)	40,56472	4,50,000
2	Bahe-Tambave Lift Irrigation Scheme	234	800	500 (62.50)	8,19,833	75,000
3	Rethare Bk lift irrigation scheme	933	1600	1800 (100.00)	4022,936	2,40,000
4	Rethare Khurd Lift irrigation scheme	1434	3600	3000 (83.33)	3545819	450000
5	Malkhed lift irrigation scheme	154	800	500 (62.50)	581717	75000
	Total	3617	10400	8600 (82.69)	1302677	1290000

Figures within bracket show the percentage of irrigated area to total command area

Source : 1) Annual report – 1981 of Krishna Co-operative Sugar Factory.

3.2.2 NEW LIFT IRRIGATION SCHEMES

Old five lift irrigation scheme were not adequate to provide sufficient water as per requirement of land cultivation. Therefore, for the purpose of providing adequate supply of water, factory has built up new co-operative lift irrigation schemes with the collaboration with factory, members, and financial institution. New lift irrigation schemes are as below –

- 1) Kirape Yenake Potale Lift Irrigation Scheme
- 2) Yerawale Ving Gharewadi Lift Irrigation Scheme
- 3) Chachegaon Lift Irrigation Scheme
- 4) Pachwad, Kale, Dhondwadi Lift Irrigation Scheme
- 5) Kalawade-Belawade Lift Irrigation Scheme
- 6) Kedarnath, Peth, Nerale Lift Irrigation Scheme
- 7) Bichud, Rethare Harnaxha Lift Irrigation Scheme
- 8) Yede, Narsingpur Lift Irrigation Scheme
- 9) Karwe Dhanai Lift Irrigation Scheme
- 10) Tembhu-Sayapur Lift Irrigation Scheme
- 11) Hanuman-Dushere Lift Irrigation Scheme
- 12) Shere Vadgaon Lift Irrigation Scheme

Thus the Krishna Co-operative Sugar Factory has started 12 new lift irrigation schemes based on co-operative line. Table 3.2 shows that the total membership of these projects was 11118 and total cost of construction was Rs.1105.85 lakh. These irrigation projects have created total command area of 29,625 acres, of which 23580 acres were brought under actual irrigation. Moreover it showed that of the total command areas created by these project actual areas brought under irrigation were not much satisfactory. Of the total irrigation potential, nearly 80.0% areas brought under irrigation by thus 20.0% irrigation potential is yet to be used. This vary from scheme to scheme. For example Hanuman-Dushere and Shere Vadgaon lift irrigation schemes used irrigation potential to the extent of nearly 85.0 percent, while Yede Narsingpur, Karwe Dhanai and Tembhu-Sayapur used irrigation

potentiality to the range from 60% to 70%. Other irrigation schemes have brought areas under irrigation less than 50.0 percentage of command area. Thus it reflects the fact that irrigation potential has not been used at the fullest extent.

Table No. 3.2

NEW LIFT IRRIGATION SCHEMES

Sr. No.	Name of schemes and year of establishment	Member-ship	Cost of construction (Rs. lakh)	Finance by factory (Rs. lakh)	Command area (Acres)	Irrigable area (Acres)
1	'Kirape Yenkode Potale Lift Irrigation Scheme (1981)	1452	65.26	13.79	2470	1027 (41.58)
2	Yewalewadi Ving, Gharewadi Lift Irrigation Scheme (1985)	1172	150.73	2.508	2800	1382 (49.36)
3	Chachegaon Lift irrigation Scheme (1981)	216	19.59	6.44	555	248 (44.68)
4	Pachwad, Kale, Dhondewadi Lift Irrigation Scheme (1981)	1557	131.26	40.62	4486	2470 (55.06)
5	Kalawade-Belawade Lift Irrigation Scheme (1985)	2150	25.08	70.70	5120	2162 (42.23)
6	Kedarnath, Peth, Nerale Lift Irrigation Scheme (1985)	1187	199.69	77.61	3000	1376 (45.87)
7	Bichud Rethare Haranaxha Lift Irrigation Scheme (1981)	525	62.2	13.76	2000	1155 (57.75)
8	Yede Narsingpur Lift Irrigation Scheme (1981)	525	43.60	14.20	1200	855 (71.25)
9	Karwe Dhanai Lift Irrigation Scheme (1983)	714	47.83	13.21	2000	1190 (59.50)
10	Tembhu Sayapur Koregaon Lift Irrigation Scheme (1984)	1085	130.39	20.19	3500	2124 (60.68)
11	Hanuman Dushere Lift Irrigation Scheme (1981)	215	-NA	-NA	700	600 (85.71)
12	Shere Vadgaon Lift Irrigation Scheme	320	- NA	-NA	1194	1000 (83.75)
	Total	11118	1105.85	295.60	29625	23580 (79.60)

Source : Annual report 1980-81 of Krishna Co-operative Sugar Factory.

Figures within brackets show the percentage of irrigated area to total command area.

3.3 PROGRESS OF IRRIGATION SCHEMES

In this section an attempt is made to assess the progress of irrigation schemes sponsored by the factory. The progress of old lift irrigation schemes was given in table 3.3. Irrigation areas created by these schemes was 3596.21 acres which increased to 3717.03 acres in 1997-98. However, it was reduced to 3070.16 acres in 1998-99 and marginally again increased to 3543 acres in 1999-2000. Thus it shows no systematic trend, having ups and down in respect of the progress of irrigated area.

Of the total irrigated area created by these projects nearly 46.8% share was occupied by Yewalewadi Lift Irrigation project followed by Rethare Khurd (26.64%) Rethare Bk(14.04), Bahe-Tambave scheme (7.32%) and Malkhed lift irrigation scheme (5.14%). The progress of individual lift irrigation scheme showed that Yawalewadi lift irrigation project had provided irrigation facilities to 1592 acres in 1996-97, which increased to 1677 acres in 1997-98 and 1658 acres in 1999-2000. Bahe-Tambave made progress in providing irrigational facilities during 1996-2000. Rethare Bk had brought 511.58 acres under irrigation in 1996-97, which reduced to 451.09 acres in 1997-98 and marginally increased to 497.37 acres in 1999-2000. Rethare Khurd and Malkhed lift irrigation schemes too have shown similar trend in the progress of irrigated areas during 1996-97 to 1999-2000.

Moreover, the progress of new irrigation schemes is given in table 3.4. It can be observed from the table that these 12 irrigation projects had provided irrigation facilities to 5268 acres in 1980-81, which raised to 5955

acres in 1985-86, and reduced to 4054 acres in 1999-2000. Moreover all individual schemes except Kedarnath Peth-Nerale and Kalwad-Belawade scheme have shown positive achievement in irrigation during 1980-81 to 1985-86. While during 1985-86 – 1999-2000 Kedarnath Peth-Nerale and Kalwad-Belawade schemes made significant progress in creating irrigational facilities, followed by other lift irrigation schemes. Thus over all position of these irrigation schemes show that these irrigation schemes have been creating irrigational facilities which is essential to stimulate the growth prospect of agriculture.

Table No. 3.3

PROGRESS OF OLD LIFT IRRIGATION SCHEMES

(Acres)

Sr. No.	Name of schemes	1996-97	1997-98	1998-99	1999-2000
1	Yewalewadi Lift Irrigation Scheme	1592.07 (44.27)	1677.01 (45.16)	1296.01 (42.21)	1658.33 (46.80)
2	Bahe-Tambave Lift Irrigation Scheme	274.39 (7.63)	309.22 (8.33)	254.08 (8.27)	259.31 (7.32)
3	Rethare Bk Lift Irrigation Scheme	511.18 (14.21)	451.09 (12.15)	444.05 (14.46)	497.37 (14.04)
4	Rethare Khurd Lift Irrigation Scheme	1031.10 (28.67)	1050.27 (28.29)	861.29 (28.05)	944.01 (26.64)
5	Malkhed Lift Irrigation scheme	186.27 (5.18)	224.24 (6.04)	214.13 (6.97)	182.18 (5.14)
	Total	3596.21 (100.00)	3713.03 (100.00)	3070.16 (100.00)	3543.00 (100.00)

Source : Annual Reports 1999-2000.

Figures within brackets show the percentage to total.

Table No. 3.4
PROGRESS OF NEW LIFT IRRIGATION SCHEMES

Sr. No.	Name of Schemes	1980-81	1985-86	1999-2000
1	Kirape, Yenake, Potale Lift irrigation Scheme	437.30	573	380.17
2	Yerawale Ving Gharewadi Lift Irrigation Scheme	458.27	481.00	273.00
3	Chachegaon Lift Irrigation Schemes	119.20	148.00	61.36
4	Pachwad, Kale, Dhondiewadi Lift Irrigation Scheme	1164.25	1399.00	495.00
5	Kalwade ;Belawde Lift Irrigation Scheme	624.11	619.00	903.15
6	Kedamath Peth-Nerale Lift Irrigation Scheme	235.24	232.00	424.37
7	Bichud Rethare Haranaxha Lift Irrigation Scheme	515.05	641.00	377.37
8	Yede Narsingpur Lift Irrigation Scheme	483.38	571.00	310.17
9	Karawe Dhanai Lift Irrigation Scheme	472.23	577.00	376.22
10	Tembhu-Sayapur Koregaon Lift Irrigation Scheme	756.06	774.00	450.23
11*	Hanuman Dushere Lift Irrigation Scheme	-	-	-
12*	Shere Vadgaon Lift Irrigation Scheme	-	-	-
	Total	5268.09	5955.00	4054.04

* These schemes are now closed down.

Source : 1) Annual report 1980-81, 85-86

2) A/C Office of Lift Irrigation

3.4 FINANCIAL PROGRESS OF LIFT IRRIGATION SCHEMES

The financial progress of old lift irrigation is given in table no.3.5. It can be observed from the table that the share capital of the old irrigation schemes was Rs.14.01 lakh in 1980-81 and 13.75 lakh in 1998-99. While deposit increased from Rs.14.05 lakh in 1980-81 to Rs.22.95 lakh in 1990-91 and further increased to Rs. 30.69 in 1998-99. The position of other fund showed that fund increased from 28.79 lakh in 1980-81 to 190.51 lakh in 1998-99. In respect of loan trend is on declining which indicates self sufficiency in financial matter.

Table No. 3.5

FINANCIAL PROGRESS OF OLD LIFT IRRIGATION SCHEMES

Sr. No.	Items	1980-81	1985-86	1990-91	1995-96	1998-99
1	Share Capital	14.01	14.01	13.75	13.75	13.75
2	Share deposits	14.05	16.19	22.95	29.80	30.69
3	Other fund	28.79	102.21	131.28	166.83	190.51
4	Loan	35.34	15.73	-	-	-

Source : Annual report 1980-81 to 1998-99.

Moreover the profit and loss of the old and new lift irrigation scheme are given in table 3.6. It could be observed that the old lift irrigation schemes had suffered to financial loss to the extent of Rs.32.77 lakh and Rs.12.54 lakh during 1985-86 and 1995-96, and had made profit Rs.0.30 lakh in 1980-81 and Rs.18.06 lakh in 1995-96. While the position of new lift irrigation schemes showed that these schemes have been

contraverusly suffering from financial losses during 1980-81 to 1998-99. Financial losses have been caused by the lack of effective management of irrigation scheme, political instability, malpractices in water distribution, high charges for electricity and of government policy. As consequence of this financial crises, out of 12 new irrigation schemes two irrigation schemes namely Hanuman Dushare and Shere Vadgaon had to close down.

Thus overall position of these lift irrigation schemes sponsored by Krishna Co-operative Sugar Factory Rethare, Bk. showed that the factory has been making the efforts to expand the irrigation facilities through the setting up of lift irrigation schemes within its area of operation. These schemes have made significant impact in the agricultural sector pericularly sugarcane cultivation.

Table No. 3.6

PROFIT AND LOSS OF LIFT IRRIGATION SCHEMES

(Rs. Lakh)

Sr. No.	Year	Old Schemes		New Schemes	
		Profit	Loss	Profit	Loss
1	1980-81	0.30	-	-	6.32
2	1985-86	4.63	-	-	89.09
3	1990-91	-	32.66	-	133.21
4	1995-96	18.06	-	-	133.45
5	1998-99	-	12.54	-	167.88

Source : Annual report of factory 1980-81 to 1998-99.