

CHAPTER - II

IRRIGATION POTENTIAL IN SOLAPUR DISTRICT



C H A P T E R - II

IRRIGATION POTENTIAL IN SOLAPUR DISTRICT

Solapur is the drought prone district in Western Maharashtra. Though the district is endowed with good quality of cultivable land in all ^{the} 11 Talukas, the performance of agricultural sector is not satisfactory due to scanty and inadequate rainfall. However the river Bhima which flows through the middle ~~area~~ of the district from Jintli village in Karmala Taluka to Hilli in Akkalkot Taluka with its length of 289 Km. ~~The river is over flown~~ in rainy season.

The following table No. II.1 shows annual number of rainy days and rainfall of selected centers ^{res} in Solapur district from 1982 to 1987.

The following table No. II.2 discribed number of rainy days and rainfall of selected centers in Solapur district during 1987.

The Bhima (Ujjani) Irrigation project is one of the major irrigation projects in India which ~~tapes~~ the irrigation potentially of Bhima river which ~~as~~ almost realised the dream of green revolution particularly in talukas like Madha, Pandharpur, Mohol, Mangalwedha, Malshiras and North Solapur.

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The following table No. II.3 is shown major and medium irrigation projects in Solapur district.

IRRIGATION POTENTIAL IN THE DISTRICT :

Among the different sources of irrigation such as well, Tubewells, Tanks, Canal etc., the talukawise irrigated area under various sources is shown in table No. II.4.

The major irrigation project called Bhima (Ujjani) Irrigation project has ~~been~~ contributed 60% of the total irrigated area. But it covers only 165 total number of villages in these talukas such as Pandhapur (69), Madha (10), Mohol (42), Mangalwedha (22), Malshiras (9) and North Solapur (13)

In this chapter we have tried to study the general profiles of Bhima (Ujjani) Irrigation project. We have also tried to study here the contribution of Bhima (Ujjani) Irrigation Project the irrigation development of the district as a whole.

2.1 THE PROFILES OF BHIMA (UJJANI) IRRIGATION PROJECT :

Though the government of Maharashtra sanctioned this project in the year in 1964 with the government

Table No. II-4

Area Irrigated by different sources in each tahsil of Solapur District during 1960-61, 79-80, 80-81 & 82-83

(In hectares)

| Sr.No. | District/Tahsil | Year | Net area irrigated by | | | Total net area irrigated | Total gross area irrigated |
|--------|-----------------|---------|-----------------------|--------|---------------|--------------------------|----------------------------|
| | | | Surface irrigation | Wells | Other Sources | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1) | District Total | 1960-61 | 23775 | 85621 | 1784 | 1,11,180 | 1,31,856 |
| | | 1979-80 | 27278 | 103080 | - | 1,30,358 | 1,64,064 |
| | | 1980-81 | 31181 | 103765 | - | 1,34,946 | 1,82,131 |
| | | 1982-83 | 34995 | 103644 | - | 1,38,598 | 1,54,960 |
| 2) | <u>Tahsil</u> | | | | | | |
| 1) | Solapur North | 1960-61 | 1729 | 2917 | - | 4,646 | 5,411 |
| | | 1979-80 | 219 | 3800 | - | 4,019 | 4,130 |
| | | 1980-81 | 772 | 2828 | - | 3,600 | 4,342 |
| | | 1982-83 | 772 | 5524 | - | 6,296 | 7,811 |
| 2) | Barshi | 1960-61 | 34 | 7741 | 684 | 8,459 | 10,111 |
| | | 1979-80 | 1430 | 6331 | - | 7,761 | 15,443 |
| | | 1980-81 | 127 | 12331 | - | 12,458 | 17,098 |
| | | 1982-83 | 11487 | 5023 | - | 16,510 | 18,379 |
| 3) | Akkalkot | 1960-61 | - | 11092 | - | 11,092 | 13,472 |
| | | 1979-80 | - | 4532 | - | 4,532 | 6,361 |
| | | 1980-81 | - | 4986 | - | 4,986 | 6,957 |
| | | 1982-83 | - | 5921 | - | 5,921 | 6,977 |
| 4) | Solapur South | 1960-61 | - | 3943 | 65 | 4,008 | 5,015 |
| | | 1979-80 | 25 | 5839 | - | 5,864 | 8,310 |
| | | 1980-81 | 55 | 3782 | - | 3,837 | 6,916 |
| | | 1982-83 | 55 | 5194 | - | 5,249 | 5,943 |
| 5) | Mohol | 1960-61 | 238 | 7144 | - | 7,302 | 10,372 |
| | | 1979-80 | 194 | 12900 | - | 13,088 | 14,759 |
| | | 1980-81 | 143 | 12954 | - | 13,097 | 16,135 |
| | | 1982-83 | - | 9262 | - | 9,262 | 10,592 |
| 6) | Manjalwedha | 1960-61 | - | 5307 | 100 | 5,407 | 6,166 |
| | | 1979-80 | 522 | 4064 | - | 4,586 | 6,383 |
| | | 1980-81 | 445 | 3943 | - | 4,388 | 6,795 |
| | | 1982-83 | - | 6346 | - | 6,346 | 7,045 |
| 7) | Pandharpur | 1960-61 | 3586 | 7456 | - | 11,042 | 12,819 |
| | | 1979-80 | 7253 | 7455 | - | 14,708 | 16,041 |
| | | 1980-81 | 5699 | 7504 | - | 13,203 | 16,610 |
| | | 1982-83 | 3554 | 12480 | - | 16,034 | 17,770 |
| 8) | Sangola | 1960-61 | 1332 | 12837 | 935 | 15,104 | 18,830 |
| | | 1979-80 | 812 | 13864 | - | 14,680 | 15,575 |
| | | 1980-81 | 1661 | 12096 | - | 13,757 | 16,098 |
| | | 1982-83 | 796 | 12196 | - | 12,992 | 13,779 |
| 9) | Malshiras | 1960-61 | 15827 | 11231 | - | 27,085 | 28,606 |
| | | 1979-80 | 15199 | 17972 | - | 33,171 | 42,795 |
| | | 1980-81 | 15199 | 18872 | - | 34,071 | 47,267 |
| | | 1982-83 | 13518 | 25419 | - | 39,937 | 43,133 |
| 10) | Karmala | 1960-61 | 1016 | 6191 | - | 7,207 | 8,465 |
| | | 1979-80 | 1020 | 5819 | - | 6,839 | 9,610 |
| | | 1980-81 | 1020 | 3919 | - | 4,939 | 13,506 |
| | | 1982-83 | 580 | 600 | - | 1,180 | 1,767 |
| 11) | Madha | 1960-61 | 13 | 3762 | - | 9,775 | 12,589 |
| | | 1979-80 | 600 | 20500 | - | 21,100 | 25,257 |
| | | 1980-81 | 6060 | 20550 | - | 26,610 | 30,407 |
| | | 1982-83 | 4192 | 14679 | - | 18,871 | 21,324 |

Source :- Economic Review and District Statistical Abstract of Solapur 1982 & 1987.



Reso No. PIM-2264/4695/IP(Cell) dated 20-8-1964 for Rs. 4051.33 lakhs, the actual work commenced from the March 1965.

The hugeness of this irrigation project could be imagined from the following figures of the total expenditure till the expenditure Rs. 29852.22 lakhs up to March 1989. The Yearwise budgeted and actual expenditure for Bhima (Ujjani) Irrigation Project ^{is} shows in table II.5.

It is clear from the table No. II.5 that the total expenditure of the Bhima (Ujjani) Irrigation project has been continuously increasing over the period of 23 years from 1965-66 to 1987-88.

Budget provision for the current financial year and expenditure incurred till end Of March 1989. Proposed allocation for 1988-89. (All figures including ETP)

A) BUDGET PROVISION FOR CURRENT FINANCIAL YEAR 1988-89 :

(Including Central Aid Fund)

| | |
|-------------------------|--------------------|
| 1) Bhima Project Circle | Rs. 1,001.28 Lakhs |
| 2) Bhima Canal Circle | Rs. 1,478.29 " |
| 3) C.A.D.A. | Rs. 296.33 " |
| | <hr/> |
| | Rs. 2,775.90 Lakhs |
| | <hr/> |

B) EXPENDITURE INCURRED TILL END OF MARCH 1989 (i.e. 1988-89):

| | |
|-------------------------|----------------------------|
| 1. Bhima Project Circle | Rs. 17,031-83 Lakhs |
| 2. Bhima Canal Circle | Rs. 9,816-53 " |
| 3. C.A.D.A. | Rs. 3,003-86 " |
| | <u>Rs. 29,852-22 Lakhs</u> |

C) PROPOSED ALLOCATION FOR 1989-90 : Rs.(in lakhs)

| | Bhima Project Circle | Bhima Canal Circle | C.A.D.A. |
|------------------------|-------------------------|-----------------------|---------------|
| 1. Works | 402.17 | 1509.47 | 136.02 |
| 2. M & E | 37.00 | 21.00 | 25.00 |
| 3. Direction & Adm. | 336.99 | 217.69 | 78.71 |
| 4. E.G.S. | - | - | - |
| TOTAL : | 776.16 | 1748.16 | 239.73 |

This gigantic Bhima (Ujjani) Irrigation Project has created the total irrigation potential of 1,21,440 hectares which includes 1,12,940 hectares for flow irrigation and 8,500 hectares for lift irrigation of the backwater. The benefiting area of the Ujjani dam in Solapur District covers the talukas such as Madha, Mohol, Pandharpur, Mangalwedha, Malshiras and North Solapur Talukas. The Bhima Irrigation Project starts from the village Ujjani which situated on the river Bhima nearly 100 Km. away from the town of Solapur. The dam is 2467 meters in length. The maximum height 56 meters.

Table No. II.5 : Budgeted and Actual Expenditure for
Bhima Ujjani Irrigation Project

| Year | Budget Rs. (in lakhs) | Actual Expenditure Rs. (in lakhs) |
|---------|--------------------------|--------------------------------------|
| 1965-66 | - | 5.26 |
| 1966-67 | - - | 7.92 |
| 1967-68 | - | 19.02 |
| 1968-69 | - | 34.46 |
| 1969-70 | - | 88.30 |
| 1970-71 | 164.16 | 163.71 |
| 1971-72 | 236.33 | 235.82 |
| 1972-73 | 412.18 | 401.67 |
| 1973-74 | 561.54 | 560.02 |
| 1974-75 | 721.16 | 710.80 |
| 1975-76 | 1403.52 | 1397.37 |
| 1976-77 | 1347.90 | 1353.55 |
| 1977-78 | 1337.50 | 1343.74 |
| 1978-79 | 1364.79 | 1354.54 |
| 1979-80 | 1864.38 | 1905.79 |
| 1980-81 | 1500.05 | 1537.25 |
| 1981-82 | 1304.91 | 1497.20 |
| 1982-83 | 1956.83 | 1979.12 |
| 1983-84 | 1483.89 | 1744.87 |
| 1984-85 | 2122.94 | 2185.68 |
| 1985-86 | 2238.81 | 2185.98 |
| 1986-87 | 1512.47 | 1513.75 |
| 1987-88 | 2197.22 | 2347.69 |

Source : A Note on Bhima (Ujjani) Irrigation Project 1988-89.

The dam is having 41 circulating doors. The total water capacity of the Ujjani dam is 3140 million cubic meters out of which 1140 million cubic meters water is actually utilised.

The table No. II.6 describe the total level of water storage and actual irrigation potential from the 1st Oct. 1975 to 18th Oct. 1988.

It is clear from the table No. II-6 that the water storage capacity of the dam has been continuously increasing over the period of 14 years from 1975 to 1988.

The progress regarding the development of irrigation potential created and actually utilised can be observed from the table No. II.7.

It is observed that the irrigation potential started increasing at higher rate from the year 1984. It reached the highest ^{now much} level from 33775 hectares in 1984. The utilisation of irrigation potential of Bhima (Ujjani) Project (by flow) was 8460 hectares only, which increased at a faster rate to 20884 hectares in June 1988. The utilisation irrigation potential through lift was only 1939 hectares in June 1982 and it tremendously increased to 23729 hectares at the end June 1988. Thus out of total irrigation potential created by Bhima Ujjani project

Table No. II-6 : Total level of water storage and actual irrigation potential :

| Date | Level of water Meter | Gross storage (Million cubic Meter) | Live storage (Million Cubic Meter) |
|------------|----------------------|-------------------------------------|------------------------------------|
| 01-10-1975 | 464.090 | - | - |
| 03-08-1976 | 486.362 | 909.46 | -789.14 |
| 01-08-1977 | 490.482 | 1596.63 | -101.97 |
| 02-09-1978 | 491.447 | 1826.399 | +127.79 |
| 13-08-1979 | 492.802 | 2075.32 | +376.72 |
| 29-09-1980 | 494.327 | 2357.37 | +658.77 |
| 31-10-1981 | 495.372 | 2653.22 | +954.62 |
| 15-10-1982 | 496.137 | 2877.54 | +1178.94 |
| 18-08-1983 | 496.887 | 3134.16 | +1435.56 |
| 27-10-1984 | 496.827 | 3114.75 | +1416.15 |
| 21-10-1985 | 494.972 | 2339.95 | + 641.37 |
| 09-10-1986 | 495.772 | 2766.46 | +1067.86 |
| 26-10-1987 | 496.022 | 2838.47 | +1139.87 |
| 16-10-1988 | 496.657 | 3054.20 | +1355.06 |

Dead stroage = 1698.60 Million Cubic Meter

Live Storage = Gross storage - dead storage

Reference : Lake level Register Bhima (Ujjani) Irrigation Project, Bhimanagar.

Table No. II.7 : Irrigation Potential and its Utilisation :

| Year June | Potential Created | | By lift | Total Area in Ha. | Utilisation | | |
|--------------|----------------------|-------------------|---------|-------------------------|-------------------|--------------------|-----------------|
| | Total in Ha. | ICA:GCA in Ha. | | | By Flow in Ha. | By Lifts in Ha. | Total in Ha. |
| 1979 | 11170 | 14700 | 2000 | 16700 | 5309 | - | 5309 |
| 1980 | 14190 | 18675 | 2725 | 21400 | 4999 | - | 4999 |
| 1981 | 18460 | 24300 | 6100 | 30400 | 8460 | 720 | 9180 |
| 1982 | 22082 | 21060 | 8500 | 37560 | 10051 | 1939 | 11990 |
| 1983 | 29675 | 31120 | 8500 | 47560 | 12662 | 3741 | 10403 |
| 1984 | 33775 | 50515 | 12045 | 62560 | 13262 | 5205 | 18467 |
| 1985 | 44029 | 60980 | 12045 | 73025 | 15883 | 6434 | 22417 |
| 1986 | 50082 | 67971 | 12045 | 80016 | 22635 | 7553 | 30188 |
| 1987 | 53776 | 74480 | 12045 | 86525 | 27133 | 17065 | 44198 |
| 1988 | 58016 | 80353 | 12045 | 92398 | 20884 | 23729 | 44613 |

Source : Office of the Bhima Project Circle, Solapur.

*P.C. utilisation
should have been
given*

(58016 hectares) at the end of June 1988, 44613 hectares are under actual utilisation. This is really a remarkable progress of the Bhima (Ujjani) Irrigation Project.

2.2 ORGANISATION AND ADMINISTRATION WORK OF BHIMA (UJJANI) IRRIGATION PROJECT :

The present organisation and Administration work for the Bhima (Ujjani) Irrigation project consists of two circles at Solapur.

A) BHIMA PROJECT CIRCLE, SOLAPUR :

There are five divisions under this circle.

- 1) Ujjani Canal Division No. I - Bhimanagar.
- 2) Ujjani Canal Division No. III - Solapur.
- 3) Ujjani Canal Division No. VIII - Solapur.
- 4) Ujjani Canal Division No. X - Pandharpur.
- 5) Bhima Canal Design Division - Solapur.

1) UJJANI CANAL DIVISION NO. I - BHIMANAGAR :

Under this Division there are four sub-divisions.

- 1) Ujjani Canal Sub-division No. 2 Bhimanagar.
- 2) Ujjani Canal Sub-division No. 8 Bhimanagar.
- 3) Masonary Sub-division, Bhimanagar.
- 4) Earthen Dam Sub-division, Bhimanagar.

The main work of this division is as follow :

Residual works of Ujjani Dam, Land acquisition and Rehabilitation Bhima Acquaduct (Completed) and Ujjani left bank canal Km. 1 to 47 and its Distribution system, Ujjani right bank canal Km. 1 and 2 and construction of Ujjani Hydro Electric Project.

2) UJJANI CANAL DIVISION NO. III - SOLAPUR :

Under this Division there are six sub-divisions.

- 1) Ujjani Canal Sub-Division No. 11, Karkam.
- 2) Ujjani Canal Sub-Division No. 13, Ropale.
- 3) Ujjani Canal Sub-Division No. 14, Tungat.
- 4) Ujjani Canal Sub-Division No. 34, Modnimba.
- 5) Ujjani Canal Sub-Division No. 16, Solapur.
- 6) Ujjani Canal Sub-Division No. 56, Ashti.

The Main work of this division is as follows :

Ujjani Left Bank Calan Km. 48 to 76 and Km. 85 to 105 and its distribution system. Distributory No. 33 of Extension of Begampur Branch Canal.

3) UJJANI CANAL DIVISION NO. VIII, SOLAPUR :

Under this division there are five Sub-divisions.

- 1) Ujjani Canal Sub-division No. 15, Patkul.

- 2) Ujjani Canal Sub-division No. 45, Patkul.
- 3) Ujjani Canal Sub-division No. 44, Kolegaon.
- 4) Ujjani Canal Sub-division No. 46, Kolegaon.
- 5) Ujjani Canal Sub-division No. 49, Karkamb.

The main work of this division is as follows :

Construction of Ujjani Left Bank Canal Km. 77 to 84, Km. 105 to 126 and its distribution system and manufacturing work of pipes at Karkamb Taluka-Pandharpur. Construction of Kolhapur type war at Aarali.

4) UJJANI CANAL DIVISION NO. X - PANDHARPUR :

Under this division there are five Sub-divisions.

- 1) Ujjani Canal Sub-division No. 17, Pandharpur.
- 2) Ujjani Canal Sub-division No. 47, Ankoli.
- 3) Ujjani Canal Sub-division No. 57, Begumpur.
- 4) Ujjani Canal Sub-division No. 58, Begumpur.
- 5) Ujjani Canal Sub-division No. 64, Ankoli.

The main work of this division is as follows :

Entire work of Begumpur Branch Km. 1 to 34 and Extension of Begumpur Branch from Km. 34 to 52 with its its distribution system.

5) BHIMA CANAL DESIGN DIVISION - SOLAPUR :

Under this division there are one Sub-division and two Sub-Engineer.

The main work of this division is as follows :

Preparation of drawings and designs of structures of Bhima Project as well as Warna and Dudhaga Project.

B) BHIMA CANAL CIRCLE SOLAPUR :

There are five divisions under this circle.

- 1) Ujjani Canal Division No. V, Pandharpur.
- 2) Ujjani Canal Division No. VI, Pandharpur.
- 3) Ujjani Canal Division No. VII, Solapur.
- 4) Ujjani Canal Division No. IX, Mangalwedha.
- 5) Ujjani Canal Division No. XI, Solapur.

1) UJJANI CANAL DIVISION NO. V - PANDHARPUR :

Under this division there are five Sub-divisions.

- 1) Ujjani Canal Sub-division No. 21, Shripur.
- 2) Ujjani Canal Sub-division No. 24, Shripur.
- 3) Ujjani Canal Sub-division No. 25, Shripur.
- 4) Ujjani Canal Sub-division No. 26, Shripur.
- 5) Ujjani Canal Sub-division No. 27, Shripur.

The main work of this division is as follows :

Construction of Ujjani Right Bank Canal Km. 3 to 29 and its distribution system.

2) UJJANI CANAL DIVISION NO. VI PANDHARPUR :

There are six Sub-divisions under this Division.

- 1) Ujjani Canal Sub-division No. 28 Tondale Bondale.
- 2) Ujjani Canal Sub-division No. 29, Bhandishegaon.
- 3) Ujjani Canal Sub-division No. 30, Bhadishegaon.
- 4) Ujjani Canal Sub-division No. 31, Tondale Bondale.
- 5) Ujjani Canal Sub-division No. 32, Pandharpur.
- 6) Ujjani Canal Sub-division No. 41, Pandharpur.

The main work of this division is as follow :

Construction of Ujjani Right Bank Canal Km. 30 to 65 and its distribution system.

3) UJJANI CANAL DIVISION NO. VII SOLAPUR :

Under this division there are six Sub-divisions.

- 1) Ujjani Canal Sub-division No. 37, Mohol.
- 2) Ujjani Canal Sub-division No. 38, Mohol.
- 3) Ujjani Canal Sub-division No. 40, Mohol.
- 4) Ujjani Canal Sub-division No. 60, Mohol.
- 5) Ujjani Canal Sub-division No. 62, Mohol.
- 6) Ujjani Canal Sub-division No. 63, Mohol.

The main work of this division is as follows :

Construction of Mohol Branch Km. 1 to 25 with disnet work.

4) UJJANI CANAL DIVISION NO. IX - MANGALWEDHA :

Under this division there are six Sub-divisions.

- 1) Ujjani Canal Sub-division No. 33 Pandharpur.
- 2) Ujjani Canal Sub-division No. 50 Pandharpur.
- 3) Ujjani Canal Sub-division No. 51 Pandharpur.
- 4) Ujjani Canal Sub-division No. 52 Mangalwedha.
- 5) Ujjani Canal Sub-division No. 53 Mangalwedha.
- 6) Ujjani Canal Sub-division No. 22 Mangalwedha.

The main work of this division is as follows :

Construction of Ujjani Right Bank Canal Km. 66 to 112 with its distribution system and extension works.

5) UJJANI CANAL DIVISION NO. XI - SOLAPUR :

- 1) Ujjani Canal Sub-division No. 20 Kurul.
- 2) Ujjani Canal Sub-division No. 23 Kurul.
- 3) Ujjani Canal Sub-division No. 35 Solapur.
- 4) Ujjani Canal Sub-division No. 36 Mandrup.
- 5) Ujjani Canal Sub-division No. 42, Solapur.
- 6) Ujjani Canal Sub-division No. 43, Solapur.
- 7) Ujjani Canal Sub-division No. 63, Solapur.

The main work of this division is as follows :

Construction of Kurul Branch Km. 1 to 27, Mohol
Karamba Branch Km. 26 to 62 with distribution system
and Saudane cut and extension work of Kurul and Mohol,
Karamba Branch.

ORGANISATION AND ADMINISTRATION WORK OF BHIMA (UJJANI)
PROJECT :

