



Government of Bombay  
Public Works Department

Irrigation Administration Report  
Bombay State

Part I

*For the Year 1944-45*

*[For official use only]*

BOMBAY  
AT THE GOVERNMENT CENTRAL PRESS  
1952

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## SECTION II.

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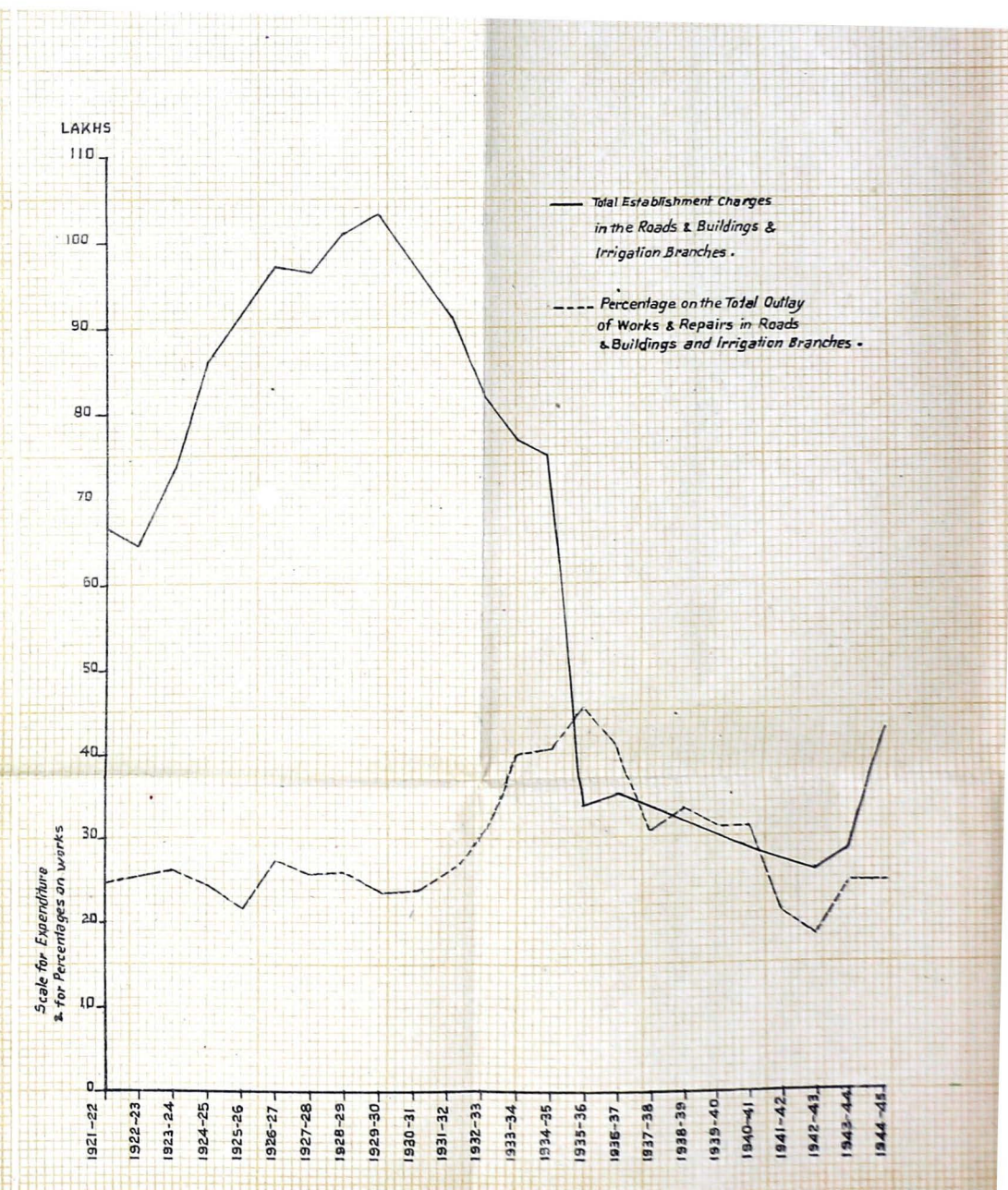
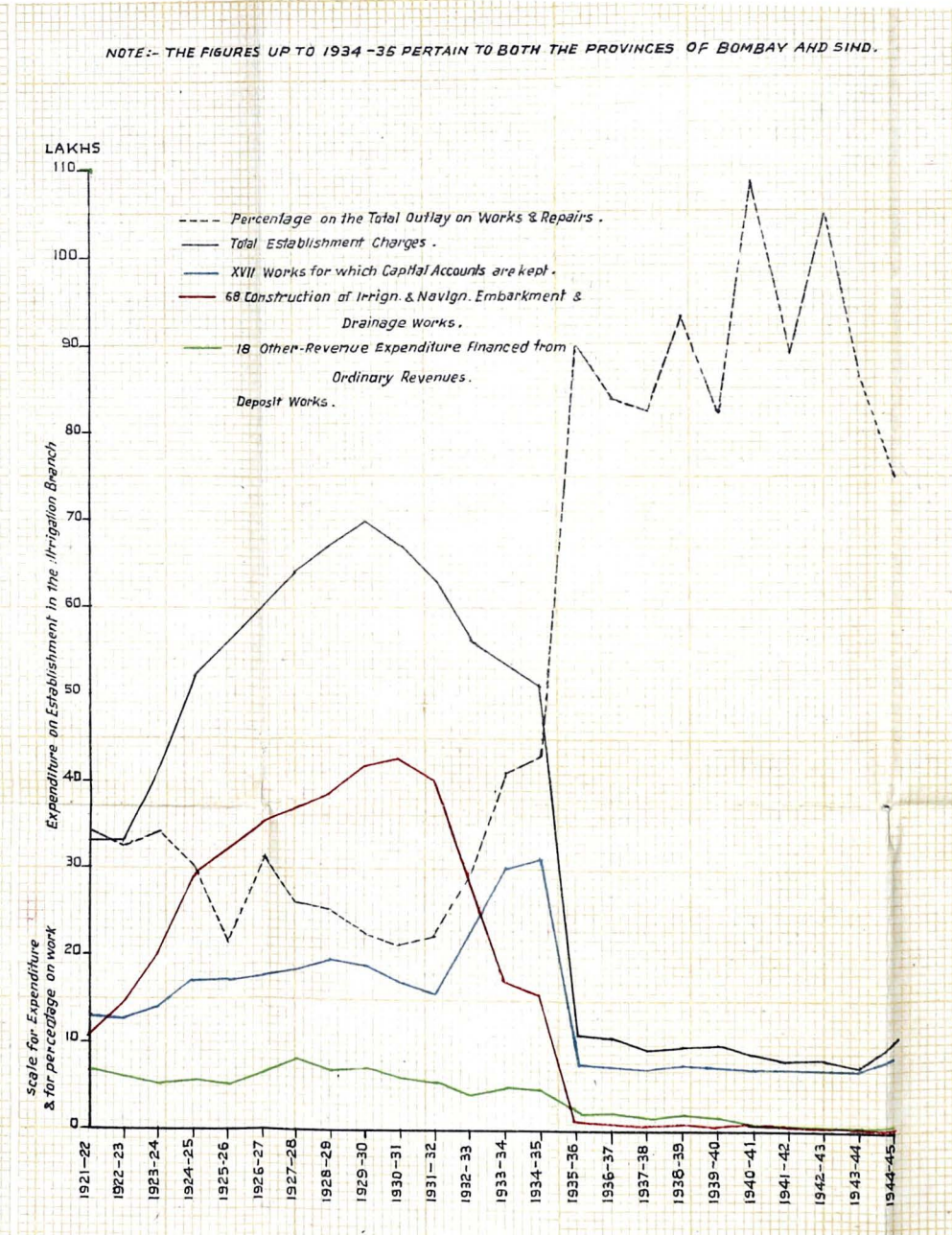
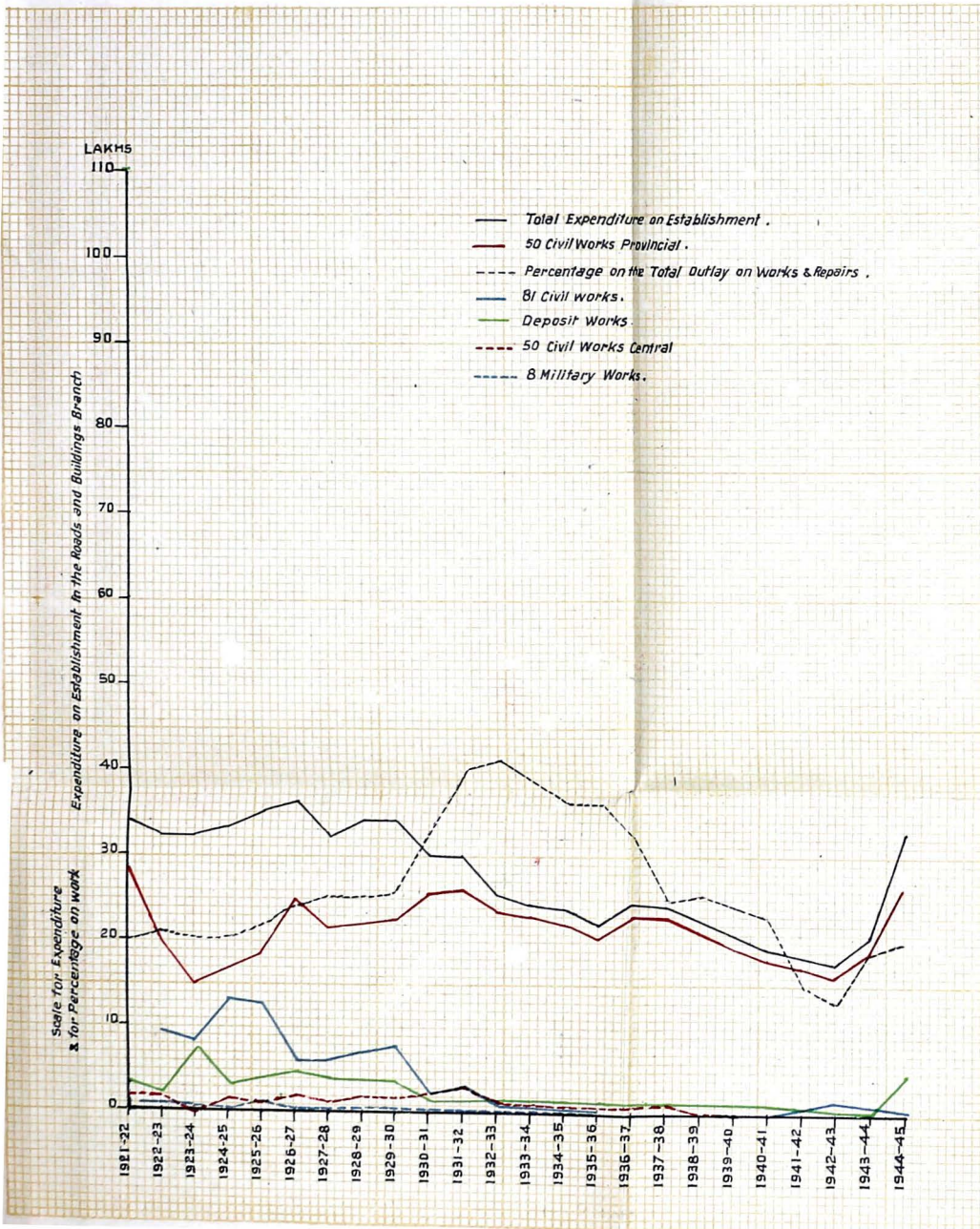
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**PROVINCE OF BOMBAY**  
**DIAGRAM SHOWING EXPENDITURE**  
**ON ESTABLISHMENT**  
**IN THE**  
**ROADS & BUILDINGS & IRRIGATION BRANCHES**  
**OF THE**  
**PUBLIC WORKS DEPARTMENT**  
**AND**  
**PERCENTAGE TO THE TOTAL OUTLAY ON WORKS AND REPAIRS**

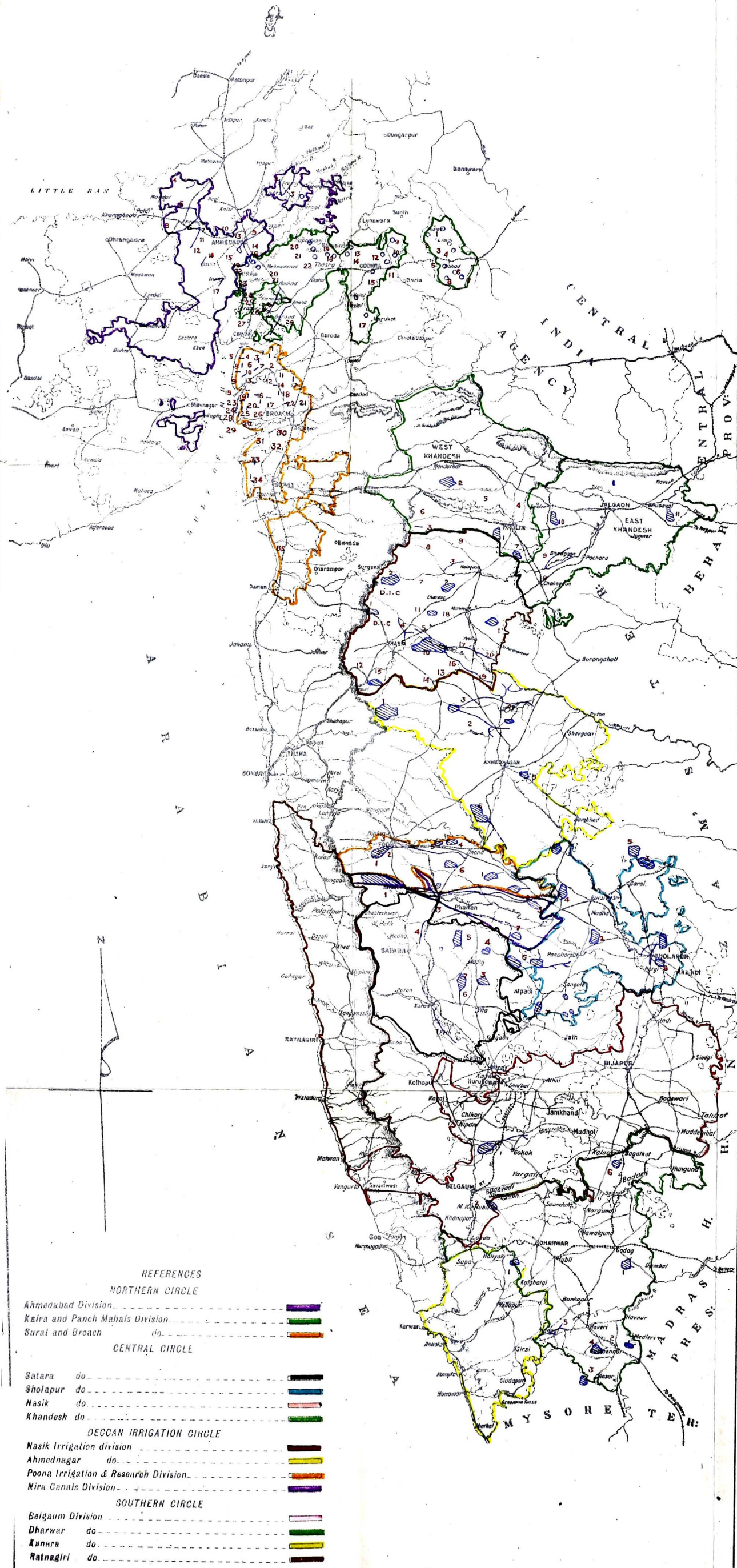
NOTE:- THE FIGURES UP TO 1934-35 PERTAIN TO BOTH THE PROVINCES OF BOMBAY AND SIND.



# MAP OF THE PROVINCE OF BOMBAY

## TO ACCOMPANY THE IRRIGATION ADMINISTRATION REPORT FOR 1944-45

SCALE 40 MILES TO 1 INCH



### NORTHERN CIRCLE

#### AHMEDABAD DIVISION

##### AHMEDABAD DISTRICT

###### Works in Operation

- |                            |  |
|----------------------------|--|
| 1. Hathnati Canal          | 10. Chikhli Drain                          |
| 2. Bokh Reservoir          | 11. Ghoda Feeder                           |
| 3. Timba Tank              | 12. Ogan Drain                             |
| 4. Odhav-Solgam Drain      | 13. Godhavi Gora Drain                     |
| 5. Panar Dodinson Drainage | 14. Chandola Tank                          |
| 6. Viramgam Drainage       | 15. Vasai Reservoir                        |
| 7. Narsingpur Drainage     | 16. Bhaiya Feeder                          |
| 8. Helatpur Drain          | 17. Eastern and Western Drainage at Dholka |
| 9. Khari Cut               |  |

##### KAIRA DISTRICT

###### Works in Operation

- |                   |                      |
|-------------------|----------------------|
| 18. Khari Sluices | 21. Bhauri Reservoir |
| 19. Golhij Tank   | 22. Nalka Reservoir  |
| 20. Galki Tank    |                      |

#### KAIRA AND PANCH MAHALS DIVISION

##### PANCH MAHALS DISTRICT

###### Works in Operation

- |                           |                      |
|---------------------------|----------------------|
| 1. Pania Tank             | 10. Dangaria Tank    |
| 2. Warod Sapoi Tank       | *11. Orwada Tank     |
| 3. Mandelao Tank          | 12. Boridra Tank     |
| 4. Suki River Project     | *13. Ganoli Tank     |
| 5. Muwalia Tank           | 14. Ratneshwar Tank  |
| 6. Futeho Tank            | *15. Kanchao Tank    |
| 7. Garudao Tank           | 16. Malao Tank       |
| 8. Chharchhona Ambli Tank | *17. Wada Talao Tank |
| 9. Rajyata Wandoli Tank   |                      |

##### KAIRA DISTRICT

###### Works in Operation

- |                   |                        |
|-------------------|------------------------|
| 18. Wangroli Tank | 24. Tranja Tank        |
| 19. Moteval Tank  | 25. Nagrana Tank       |
| 20. Savli Tank    | *26. Faraj Tank        |
| 21. Phidrar Tank  | 27. Tarapur Gora Drain |
| 22. Sait Tank     | 28. Karamad Drain      |
| 23. Matar Drain   | 29. Anand Mogri Drain  |

Note:—

Incomplete Works marked thus

#### SURAT AND BROACH DIVISION

##### (I) BROACH DISTRICT

###### Works in Operation

- |  |                                   |
|--|-----------------------------------|
| 1. Channel from Uber Vile to meet Channel near Daba        | 15. Protective Bund at Gandhar    |
| 2. Nohar-Uma-Kotasar Drainage Channel                      | 16. Ora-Vichad Badaipur Chai.     |
| 3. Namdhana-Nabar Drainage Channel                         | 17. Rahad Channel                 |
| 4. Bund at Dehej   | 18. Koyari Itoa Drainage Chai     |
| 5. Sudhav Drainage Channel                                 | 19. Bund at Aladar                |
| 6. Kora-Madapher-Jantran Drainage Channel                  | 20. Pakhajan Ambhel Channel       |
| 7. Amampur Nadhad Drainage Channel                         | 21. Waghunan Drainage Chai.       |
| 8. Bund between Nada and Devla Villages                    | 22. Wansi Channel                 |
| 9. Bund at Nada Village                                    | 23. Protective Bund at Hari-nagar |
| 10. Bund at Islampur                                       | 24. Protective Bund at Kadodra    |
| 11. Ghamad Drainage Channel including Danda and Shim-altha | 25. Samalghat Panidra Chai.       |
| 12. Wansetta Drainage Channel                              | 26. Nadida-Akhod Channel          |
| 13. Asarsa Reclamation Bund                                | 27. Bund at Suva                  |
| 14. Ninani Channel   | 28. Jolva Channel                 |
|  | 29. Protective Bund at Lakhi-gam  |
|  | 30. Asta Channel                  |
|  | 31. Hansot Reclamation Bund       |
|  | 32. Adol Hajat Channel            |

##### (II) SURAT DISTRICT

###### Works in Operation

- |  |                              |
|--|------------------------------|
| 33. Morthan Channel                            | 35. Waghrej Protective Works |
| 34. Bund between Kapsai and Kuandiava Villages |                              |

### CENTRAL CIRCLE

#### POONA DIVISION

##### POONA DISTRICT

###### Works in Operation

- |                    |                    |
|--------------------|--------------------|
| 1. Shirsuphal Tank | 2. Bhabadwadi Tank |
|--------------------|--------------------|

#### SATARA DIVISION

##### SATARA DISTRICT

###### Works in Operation

- |                          |                                |
|--------------------------|--------------------------------|
| 1. Krishna Canal         | 5. Yerla River Works Nehr Tank |
| 2. Rewari Canal          | 6. Chikhli Canal               |
| 3. Mayani Tank           |                                |
| 4. Upper Mau River Works |                                |
| Phugli Tank              |                                |

###### Incomplete Work

- |                  |
|------------------|
| 7. Goregaon Tank |
|------------------|

#### SHOLAPUR DIVISION

##### SHOLAPUR DISTRICT

###### Works in Operation

- |                   |  |
|-------------------|--|
| 1. Ekrak Tank     | 6. Mhaswad Tank and Nira Right Bank Canal Branch III from mile No. 101 to 105½ |
| 2. Ashti Tank     |  |
| 3. Pathri Tank    |  |
| 4. Wadshivne Tank |  |
| 5. Koregaon Tank  |  |

###### Incomplete Works

- |                  |                |
|------------------|----------------|
| 7. Budhihal Tank | 9. Mangi Tank  |
| 8. Hoigi Tank    | 10. Gheru Tank |
|                  | 11. Javla Tank |

#### NASIK DIVISION

##### NASIK DISTRICT

###### Works in Operation

- |                      |                |
|----------------------|----------------|
| 1. Khirdi Sathe Tank | 2. Parsul Tank |
|----------------------|----------------|

#### KHANDESH DIVISION

##### WEST KHANDESH DISTRICT

###### Works in Operation

- |                                  |                              |
|----------------------------------|------------------------------|
| 1. Mukti Tank                    | 4. Lower Panjhra River Group |
| 2. Tapti River Minor Tributaries | 5. Buni River Group          |
| 3. Upper Panjhra River Group     | 6. Kan River Group           |

###### Incomplete Work

- |                    |
|--------------------|
| 7. Farinapada Tank |
|--------------------|

#### EAST KHANDESH DISTRICT

###### Works in Operation

- |                      |                  |
|----------------------|------------------|
| 8. Janda R. B. Canal | 10. Mhaswa Tank  |
| 9. Janda L. B. Canal | 11. Hartala Tank |

### DECCAN IRRIGATION CIRCLE

#### NASIK IRRIGATION DIVISION

##### NASIK DISTRICT

###### Works in Operation

- |                              |   |
|------------------------------|---|
| 1. (D. I. C.) Waghad Tank    | 11. Kadwa Group                               |
| 2. (D. I. C.) Chankapur Tank | 12. Darna Group                               |
| 3. Girna Canal               | 13. Des Group                                 |
| 4. Palkhet Canal             | 14. Mahabungi Group                           |
| 5. Wadali Canal              | 15. Darna Reservoir (Lake Bente)              |
| 6. Ojhar Tambat Canal        | 16. Godavari R. B. Canal (from mile 0 to 35)  |
| 7. Girna Group               | 17. Godavari L. B. Canal (from mile 0 to 20½) |
| 8. Arun Group                |   |
| 9. Masam Group               |   |
| 10. Godavari Group           |   |

(Work under Construction-Incomplete Work)

- |  |
|--|
| 18. Odal Tank                                  |
| 19. Godavari R. B. Canal (from mile 35 to 60)  |
| 20. Godavari L. B. Canal (from mile 20½ to 48) |

#### AHMEDNAGAR DIVISION

##### AHMEDNAGAR DISTRICT

###### Works in Operation

- |                              |                 |
|------------------------------|-----------------|
| 1. Wilson Dam (Lake A. Hill) | 5. Bhatodi Tank |
| 2. Pravara R. B. Canal       | 6. Visapur Tank |
| 3. Pravara L. B. Canal       |                 |
| 4. Lakh Canal                |                 |

#### POONA IRRIGATION & RESEARCH DIVISION

##### POONA DISTRICT

###### Works in Operation

- |   |                |
|---|----------------|
| 1. Lake Fife at Khadakvasla               | 4. Matola Tank |
| 2. Mutha R. B. Canal (from mile 0 to 29½) |                |
| 3. Mutha L. B. Canal                      |                |

###### Incomplete Works

- |                   |                 |
|-------------------|-----------------|
| 5. Khambgaon Tank | 6. Warvand Tank |
|-------------------|-----------------|

#### NIRA CANALS DIVISION

##### POONA DISTRICT

###### Works in Operation

- |   |                |
|---|----------------|
| 1. Lloyd Dam at Bhatgar (New Lake Whiting)              | 3 A. Rakh Tank |
| 2. Nira L. B. Canal                                     |                |
| 3. Shetphal Tank  |                |
| 4. Nira R. B. Canal (from mile 0 to 11½)                |                |
| 5. Nira R. B. Canal (from mile 11½ to 47) Phaltan State |                |
| 6. Nira R. B. Canal (from mile 47 to 100)               |                |
| Incomplete Work   |                |
| 7. Bhamburdi Tank                                       |                |

### SOUTHERN CIRCLE

#### BELGAUM DIVISION

##### BELGAUM DISTRICT

###### Works in Operation

- |  |
|--|
| 1. Gokak Canal—1st Section and Storage Works |
| 2. Gadikeri Tank                             |

#### BIJAPUR DIVISION

##### BIJAPUR DISTRICT

###### Works in Operation

- |                  |
|------------------|
| 1. Muchkund Tank |
|------------------|

#### DHARWAR DIVISION

##### DHARWAR DISTRICT

###### Works in Operation

- |                 |                              |
|-----------------|------------------------------|
| 1. Dambal Tank  | 4. Asundi Tank               |
| 2. Medleri Tank | 5. Dharna and Naregal Canals |
| 3. Madag Tank   |                              |

#### KANARA DIVISION

##### KANARA DISTRICT

###### Works in Operation

- |                  |
|------------------|
| 1. Mavinkop Tank |
|------------------|

### REFERENCES

#### NORTHERN CIRCLE

Ahmedabad Division

Kaira and Panch Mahals Division

Surat and Broach do.

#### CENTRAL CIRCLE

Satara do.

Sholapur do.

Nasik do.

Khandesh do.

#### DECCAN IRRIGATION CIRCLE

Nasik Irrigation division

Ahmednagar do.

Poona Irrigation & Research Division

Nira Canals Division

#### SOUTHERN CIRCLE

Belgaum Division

Dharwar do.

Kanara do.

Ratnagiri do.

# PROVINCE OF BOMBAY

## DIAGRAM

SHOWING  
EXPENDITURE ON IRRIGATION WORKS  
IN THE PUBLIC WORKS DEPARTMENT  
FROM  
LOAN FUNDS, & REVENUE  
1922-23. TO 44-45.

LAKHS



## IRRIGATION ADMINISTRATION REPORT, PROVINCE OF BOMBAY, PART I, 1944-45.

### PHYSICAL FEATURES—GENERAL DESCRIPTION OF IRRIGATION.

The area under irrigation in the Province of Bombay is not compact. Rainfall is available for agricultural operations but is often precarious. Tanks and canals provide irrigation for valuable crops such as sugarcane and also provide a source of supply to other crops when the rainfall is deficient or irregular. The old irrigation works consist chiefly of a few small canals and moderately large tanks, some 12,000 smaller tanks mostly in the southern part of the Province and in Gujarat, and of about 400 bandharas in Nasik and Khandesh Districts. The tanks have earthen dams and the larger ones irrigate areas up to 1,300 acres, and the smaller ones up to 500 acres, situated immediately below the dams. The chief crop irrigated is rice. The bandharas are masonry weirs built across rivers to head up the water to a level sufficient to irrigate lands on the banks of the streams by means of channels taking off from the flanks of the bandharas. The areas irrigated are up to 800 acres and the chief crops are sugarcane, wheat, bajri and gram. From these small beginnings have evolved the magnificent irrigation works, which now form such a conspicuous feature in the Deccan and have so successfully fulfilled their beneficent purpose in banishing the famines which formerly devastated this portion of the Province.

2. The irrigation works in the Deccan are fundamentally different from those in Sind, the Punjab, Egypt or Mesopotamia, where wide alluvial plains have been formed by great deltaic rivers in perennial flow. The Bombay Deccan consists of a sloping table-land running eastward from the ridge of the Western Ghats. These form a ridge running parallel to the sea-coast at a distance from it of 50 to 100 miles; precipitous on the western side, they fall away more gradually to the east. The heaviest rainfall occurs on the peak of the ridge, where anything up to 270 inches of rain is recorded in the four monsoon months. The intensity of the rainfall rapidly decreases as we go eastward from the highest ridge, reaching a figure of 20 or 25 inches at a distance of 100 or 150 miles east of the Ghats. The rivers in the Deccan rise in the valleys close to the ridge, flow in an eastward direction, and are dry or practically so for 7 or 8 months of the year. The line of the Ghats, like the ridge of a roof, divides the rainfall into two parts; one the smaller portion falling westward into the Indian Ocean, and the other flowing through long lengths of tortuous rivers to the east and joining rivers, which reach the sea on the south-eastern coast of the peninsula. These rivers are in flow during the monsoon months only, and if no artificial means of conserving their waters were provided, the whole monsoon rainfall would be wasted so far as the Bombay Deccan is concerned, and would simply flow away to the sea, benefiting but to a small extent the country traversed.

3. The large irrigation systems in the Deccan are all of the same type. Each depends upon a storage lake near the head of one of the river valleys, where sufficient water is collected during the monsoon to supply the country on either side of the river valley below. The water stored during the rains is let out during the dry months of the year in accordance with requirements; and at a point on the river, which may be as far as 50 miles from the main storage lake, a "pick-up-weir" is constructed across the river-course to divert the water into canals which take off on either side of the weir. In one case only, that of Lake Fife at Khadakwasla near Poona, do the canals take off from the flanks of the dam itself. The canals are always constructed at a considerably flatter slope than that of the river, and consequently are able to diverge from the river itself on each side of the valley; as a rule each canal only irrigates the area between itself and the river.

## SECTION I

## COMPRISING IRRIGATION WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.

## GENERAL REMARKS.

Works in operation.

4. The following list includes all the works in operation (40 in number):—

Serial No.	Name of Work.	Area of four months' crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the monsoon and 120 acres for the rabi season per cosec.	Whether supply is reliable or dependent on local rain.	Whether storage works completed or proposed.	Remarks.						
1	Hathmati and Khari Cut Canals.	Acres. 24,000	Dependent on local rain.	No storage work. Bokh reservoir, Chandola tank and Wasal reservoir, completed.	The catchment of the Hathmati river is hilly, covered partly with forest and that of the Khari is undulating ground at its source and then plain ground with cultivated fields. The supply depends upon the flow in the rivers, and the contents of the Bokh reservoir, Chandola tank and Wasal reservoir.						
2	Wangrol Tank ..	3,400	Do.	Completed ..	The catchment is ordinary plain ground and cultivated fields.						
3	Savli Tank .. ..	3,000	Do.	Do.	Ordinary catchment on undulating ground.						
4	Tranza Nagrama Tanks ..	800	Do.	Do.	The Tranza tank has no independent catchment. The Nagrama has a catchment of 1.52 sq. miles. Both are fed by the Mataf drainage channel which is not reliable as it seldom flows.						
5	Futelo Tank .. ..	800	Do. ..	Do.	Hilly catchment.						
6	Nira Left Bank Canal including Sotphal Tank..	100,000	Reliable ..	Lake Whiting (Lloyd Dam) completed.	Ghat catchment.						
7	Nira Right Bank Canal	180,000	Do.	Do.	Do.						
8	Mutha Canals including Matoba Tank ..	49,000	Do.	Lake Fife: completed.	Do.						
9	Shiruphal Tank ..	1,150	Dependent on local rain.	Completed ..	Deccan catchment.						
10	Bhadavadi Tank ..	1,123	Do.	Do.	Do.						
11	Godavari Right Bank Canal	44,000	} Reliable	Lake Beale: completed.	Ghat catchment.						
	Godavari Left Bank Canal	26,000									
12	Girna Canal .. ..	9,000	Do.	Chankapur Tank completed.	Do.						
13	Kadva River Works. { Falkhed Canal. Ojhar Tambat Canal. Wadali Canal.	7,689	Do.	Waghad Tank completed.	Do.						
						14	Pravara Right Bank Canal	18,480	} Do.	Lake Arthur Hill (Wilson Dam) completed.	Do.
							Pravara Left Bank Canal	64,080			



Serial No.	Name of Work.	Area of four months' crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the monsoon and 120 acres for the rabi season per cusec.	Whether supply is reliable or dependent on local rain.	Whether storage works completed or proposed.	Remarks.
15	Bhatodi Tank .. ..	Acres. 1,461	Dependent on local rain.	Completed ..	Deccan catchment.
16	Ekrak Tank .. ..	13,070	Do.	Do.	Do.
17	Mhaswad Tank .. ..	14,000	Do.	Do.	Do.
18	Koromon Tank .. ..	416	Do.	Do.	Hilly catchment.
19	Ashli Tank .. ..	3,382	Do.	Do.	Deccan catchment.
20	Pathi Tank .. ..	3,084	Do.	Do.	Hilly catchment.
21	Jamda Canals .. ..	42,000	Girna river supply not reliable.	Water is issued from the Chankapur Tank when available.	Ghat catchment for a small part and for the rest Deccan catchment.
22	Mhaswa Tank .. ..	3,256	Do.	Do.	Do.
23	Shahada Channel .. ..	2,000	Reliable ..	No storage work	Hilly catchment. Supply is perennial.
24	Lower Panjhra River Works .. ..	8,173	Panjhra river supply not reliable.	Mukhl Tank completed.	Ghat catchment for one part and Deccan catchment for the rest.
25	Krishna Canal .. ..	6,412	Reliable ..	Proposed ..	Ghat catchment.
26	Reward Canal .. ..	430	Dependent on local rain.	No storage work	Deccan catchment.
27	Upper Man River Works. .. ..	873	Dependent on local rain.	Pingli Tank completed.	Deccan catchment.
28	Yeria River Irrigation Works. .. ..	1,182	Do. ..	Netli Tank completed.	Do
29	Chikhli Canal .. ..	358	Do. ..	No storage work	Do.
30	Mafni Tank .. ..	455	Do. ..	Completed ..	Do.
31	Parsul Tank .. ..	1,440	Do. ..	Do. ..	Do.
32	Gadikeri Tank .. ..	416	Do. ..	Do. ..	Do.
33	Gokak Canal .. ..	17,627	Reliable ..	(27) completed..	Ghat catchment.
34	Muchkundi Tank .. ..	750	Dependent on local rain.	Completed ..	Deccan catchment.
35	Dembal Tank .. ..	531	Do. ..	Do. ..	Do.
36	Medleri Tank .. ..	231	Do. ..	Do. ..	Do.
37	Madag Tank .. ..	1,418	Do. ..	Do. ..	Ghat and Forest catchment.
38	Asundi Tank .. ..	503	Do. ..	Do. ..	Deccan catchment.
39	Dharama Canal .. ..	For monsoon 12,370 acres. For rabi nil.	Do. ..	No storage work. The canal takes off from the river itself.	Forest catchment.
40	Mavinkop Tank .. ..	617	Do. ..	Completed ..	Do. reliable.

Ekrak tank, Gadikeri tank, Mavinkop tank and Shahada channel are the only productive works and the rest are unproductive.

5. The interest account for the year was as follows:—

	Productive Works.	Unproductive Works.	Total
	Rs.	Rs.	Rs.
Total interest charges during 1944-45	46,361	40,97,587	41,43,948
Net revenue realised during 1944-45	2,63,711	30,05,927	33,29,638

Net loss, i.e., difference between interest and net revenue—Rs. 8,14,310

## 6. The financial results of the year by main heads were as under:—

	Area irrigated.	Revenue realised			Working expenses.	Net revenue.
		Direct receipts.	Share of land revenue.	Total.		
		Rs.	Rs.	Rs.		
Productive .. ..	11,954	2,93,887	10,430	3,04,326	40,815	2,63,711
Unproductive .. ..	4,36,900	52,68,382	24,392	52,92,774	22,26,847	30,65,927
Total .. ..	4,48,944	55,62,269	34,831	55,97,100	22,67,462	33,29,638

\*Inclusive of 11,285 acres under consolidated assessment.

The gross revenue and the net revenue show increases of Rs. 10,30,188 and Rs. 3,06,488 respectively, as compared with the figures for the previous year.

## 7. The figures of the area irrigated, the revenue assessed and realised and the working expenses, as compared with those of the previous three year, are given below:—

Year.	Area irrigated*.	Revenue.		Working expenses.
		Assessment.	Realisations.	
		Rs.	Rs.	
1941-42 ... ..	328,194	48,10,444	56,62,972	15,52,384
1942-43 ... ..	371,021	41,02,832	52,15,898	15,30,056
1943-44 ... ..	437,997	46,11,343	45,06,988	15,43,838
Average ... ..	379,071	45,08,373	51,48,619	15,42,093
1944-45 ... ..	448,944	55,61,978	55,97,100	22,67,462

\*Inclusive of the area under consolidated water and land assessment.

8. The gross area under command is 1,765,038 acres. The area irrigable at present is 624,085 acres.

## 9. The state of Revenue collections was as follows:—

Balance of demands unrealised at the commencement of the year ... ..

Rs.  
8,03,260

Demands of the year—	Rs.	Rs.
Rabi 1943—44 ... ..	13,25,208	
Kharif 1944—45 ... ..	34,88,652	
Miscellaneous receipts ... ..	9,45,905	
	<u>          </u>	57,59,765
	Total ... ..	<u>65,63,025</u>
<i>Deduct—</i>		
Remissions ... ..		29,679
	Net total ... ..	<u>65,33,346</u>
Amount unrealised at the close of the year		9,13,762
	Rs.	
Actual receipts of the year ... ..	55,62,634	
<i>Add—</i>		
Share of land revenue ... ..	34,831	
	<u>          </u>	55,97,465
<i>Deduct—</i>		
Refunds of revenue ... ..		365
Revenue realised ... ..		<u>55,97,100</u>

The remissions and refunds together amounted to Rs. 30,044

Unrealised irrigation revenue at the close of the year amounted to Rs. 9,13,762 which is made up as follows :—

	Rs.
Ekruk Tank ... ..	14,643
Hathmati and Khari Cut Canals ... ..	64,624
Krishna Canal ... ..	58,161
Ashti Tank ... ..	919
Lower Panjhra River Works ... ..	1,923
Mutha Canals and Matoba Tank ... ..	41,272
Gokak Canal ... ..	53,112
Mhaswad Tank ... ..	1,946
Jamda Canals ... ..	1,540
Pathri Tank ... ..	1,342
Nira Left Bank Canal and Shetpal Tank ... ..	1,98,495
Chankapur Tank—Girna Canal ... ..	34,994
Kadwa River Works ... ..	24,444
Godavari Canals ... ..	86,379
Nira Right Bank Canal ... ..	1,94,894
Pravara River Works ... ..	1,11,692
Other Works ... ..	23,382
	<u>          </u>
Total ... ..	<u>9,13,762</u>

10. The working expenses of the year amounted to Rs. 22,67,462 as compared with Rs. 15,65,882 during the previous year. The following table compares the charges under the principal heads with those of the previous three years:—

	1941-42	1942-43	1943-44	1944-45
	Rs.	Rs.	Rs.	Rs.
Works ... ..	67,123	66,912	1,35,699	4,94,546
Repairs ... ..	6,67,207	6,30,296	6,41,997	7,40,811
Establishment ... ..	6,67,815	7,09,327	6,71,298	9,91,251
Tools and Plant ... ..	7,394	6,913	11,872	18,551
<b>Total in the Public Works Department ... ..</b>	<b>14,19,539</b>	<b>14,13,448</b>	<b>14,60,866</b>	<b>22,45,159</b>
Collection charges ... ..	1,25,502	1,10,665	97,118	9,949
Indirect charges ... ..	7,343	6,970	7,900	12,354
<b>Total working expenses ... ..</b>	<b>15,52,384</b>	<b>15,31,083</b>	<b>15,65,882</b>	<b>22,67,462</b>

11. The following table gives the details of working expenses for some of the principal works:—

Name of work.	Average incidence of water rate per acre.	Cost of measurement.		Working expenses in the Public Works Department.	
		Total cost.	Per acre.	Per mile of canal.	Per acre irrigated.
	Rs.	Rs.	Rs. a. p.	Rs.	Rs.
Nira L. B. Canal & Shotphal tank ... ..	10.13	1,953	0-0-5	913	2-37
Pravara Canals ... ..	17.17	2,876	0-1-4	1,250	4-65
Girna Canal ... ..	12.89	1,084	0-1-8	2,844	8-60
Godavari Canals ... ..	16.24	3,003	0-1-5	1,270	5-88
Mutha Canals and Matoba Tank ... ..	5.36	1,228	0-0-10	737	5-45
Kadwa River Works ... ..	11.03	450	0-1-10	764	5-83
Nira Right Bank Canal ... ..	10.80	4,513	0-0-10	657	3-86
Mhaswad Tank ... ..	3.80	643	0-1-2	1,875	5-04
Krishna Canal ... ..	7.86	1,227	0-5-11	1,719	9-52
Yerla River Irrigation Works ... ..	4.80	382	0-1-7	335	2-70
Upper Man River Works ... ..	4.49	44	0-0-7	194	2-74
Jamda Canals ... ..	3.61	636	0-1-11	177	3-24
Ekruk Tank ... ..	4.36	473	0-1-2	556	3-46
Maini Tank ... ..	5.07	51	0-0-9	5,747	47-63
Gokak Canal ... ..	4.19	1,710	0-2-0	300-7	1-15
Dharma Canal ... ..	5.01	610	1-0-0	254-5	0-75

12. The gross assessed revenue, direct and indirect, amounted to Rs. 55,61,978 as compared with Rs. 51,26,746 in the previous year. The details of the gross assessment are as under:—

	Direct revenue,			Indirect revenue.	Total.
	Water rate.	Other receipts.	Total.		
	Rs.	Rs.	Rs.	Rs.	Rs.
Productive ... ..	43,099	2,63,318	3,06,417	10,439	3,16,856
Unproductive ... ..	46,58,910	5,61,820	52,20,730	24,392	52,45,122
Total ... ..	47,02,009	8,25,138	55,27,147	34,831	55,61,978

The net assessed revenue of the year, after deducting working expenses (Rs. 22,67,462), amounted to Rs. 32,94,516 as compared with Rs. 35,60,864 during the previous year.

13. The following table gives the percentage return earned during the year on capital outlay on the principal works in operation:—

	Total capital outlay (direct and indirect.)	Gross receipts (direct and indirect).	Working expenses (direct and indirect)	Net Revenue.	Percentage return on capital outlay.
	Rs.	Rs.	Rs.	Rs.	Rs.
Ekrak Tank ... ..	13,40,386	2,88,951	26,635	2,62,266	19.57
Hathmati and Khari Canals ... ..	13,18,729	28,723	1,27,788	—89,065	7.51
Nira Left Bank Canal and Shotpal ... ..	1,47,38,926	10,15,752	2,24,616	7,91,136	5.37
Nira Right Bank Canal ... ..	4,12,21,453	11,01,985	3,44,847	7,57,138	1.84
Mutha Canals and Mastoba Tank ... ..	70,19,168	4,75,437	1,26,781	3,48,656	4.97
Godavari Canals ... ..	1,06,69,349	8,70,104	2,97,339	5,72,765	5.37
Chankapur Tank—Girna Canal ... ..	20,79,541	1,27,170	1,10,932	16,238	0.78
Kadwa River Works ... ..	10,35,876	71,072	29,039	42,033	4.06
Pravara River Works ... ..	1,51,02,323	12,44,782	3,28,883	9,15,899	6.06
Mhaswad Tank ... ..	20,96,016	38,963	46,766	—7,803	.....
Lower Panjhra *River Works ... ..	4,68,621	26,085	2,911	23,174	4.95
Krishna Canal ... ..	9,49,807	46,502	60,617	—14,115	.....
Gokak Canal ... ..	15,76,668	75,732	15,564	60,168	3.82

14. The average water rates per acre of land actually irrigated were :—

Productive works	...	...	...	...	3.9
Unproductive works	...	...	...	...	25.50

15. The water rate assessments and other receipts compare with those of the previous year as under :—

			1943-44	1944-45
			Rs.	Rs.
Water rates	...	...	43,36,505	47,57,542
Other receipts—				
Plantations	...	...	41,346	56,460
Water power	...	...	14,431	14,313
Miscellaneous	...	...	7,13,831	4,63,627
		Total	7,69,608	5,34,400
<hr/>				
Share of land revenue	...	...	20,633	23,722
<hr/>				
		Grand Total	51,26,746	53,15,664

16. The principal crop acreages irrigated during 1943-44 and 1944-45 are given below :—

			1943-44	1944-5
			Acrees	Acrees
Garden and orchards	...	...	11,175	10,926
Sugarcane	...	...	59,504	65,039
Wheat	...	...	34,406	31,543
Rice	...	...	20,316	31,301
Jowar	...	...	105,137	107,375
Bajri	...	...	58,566	46,825
Gram, etc.	...	...	28,978	34,715
Groundnut	...	...	11,206	7,879
Cotton	...	...	503	25
Condiments	...	...	5,668	5,214

The total estimated value of the crops irrigated was Rs. 1143.92 lakhs as compared with Rs. 1,213.29 lakhs during the previous year.

## DETAILED REPORTS BY LOCAL OFFICERS

### NORTHERN CIRCLE.

The year under review was marked by an abnormal and well distributed rainfall. The monsoon first broke out in the 3rd week of June 1944 and lasted upto the middle of September 1944. There was very good run-off from the catchments of the rivers. The flow in the Hathmati River, was utilized in filling up the reservoirs and tanks and for rice irrigation. The transplanted area was protected by canal water. The total area protected by irrigation under the Hathmati and Khari Cut Canals was 19,015 acres.

The rainfall gauged at Ahmedabad and at Prantij was 39.88 and 46.17 inches, respectively, as compared with 41.87 and 31.97 inches, the average precipitation, respectively of the last three years. Similarly at Bareja, which is situated in the centre of the area irrigated by the Khari Cut Canal, the rainfall was 48.40 inches as compared with 37.80 inches, the average of the last three years. At Himatnagar, where the Head Works of the Hathmati Canal are situated, it was 60.58 inches as compared with 36.65 inches, the average of the past three years.

The principal irrigation works in operation in this Circle are (1) the Hathmati and Khari Cut Canals, (2) the Wangroli Tank, (3) the Savli Tank, (4) the Tranza-Nagrama Tanks and (5) the Futelao Tank.

No. (1) is a work which includes the Bokh Storage Reservoir with a capacity of 300 million cubic feet of water and several small tanks with small independent catchments depending on local rainfall. The other works are storage tanks all depending on local rainfall.

The five works are financially unproductive, as the annual revenue is not sufficient to cover the working expenses.

### AHMEDABAD AND KAIRA AND PANCH MAHALS DIVISIONS.

#### HATHMATI AND KHARI CUT CANALS.

This is the most important canal system in Gujarat. The Hathmati Canal irrigates a tract of land lying between the Sabarmati and Khari rivers and this system in addition to irrigating the area dependent on it, is designed to pass surplus water, when available, first into the Bokh Reservoir and then into the Khari River direct via the Bhujwa Channel. The Bokh Reservoir does not provide any direct irrigational supplies but only acts as a storage reservoir for the Khari Cut Canal. Further downstream on the Khari River are situated two small irrigation systems and these utilize the natural flow of the river and also any surplus water which can be made available from the Hathmati canal; the Khari water is abstracted at the so-called "Khari Sluices" for direct irrigational purposes, while the surplus water from the Hathmati is diverted through an artificial cut called "the Khari Cut" into a natural channel and this in its turn supplies a system of distributaries, several small tanks and the large Chandola Tank situated near Ahmedabad. The system was first opened in 1873-1874 and has cost more than Rs. 13 lakhs.

The Hathmati River was in flood on ten occasions of moderate to good intensity due to abnormal rainfall in the catchment of the river. The area irrigated under this canal was 2,351 acres in the Kharif season and 3,374 acres in the Rabi season. The average daily discharge admitted into the canal at its head during the Kharif season was 204 cusecs of which quantity only 66 cusecs were utilized for irrigation carried out under the canal, the balance being let down into the Bokh Reservoir. During the Rabi season an averaged daily discharge of 171 cusecs was obtained from the river, which was utilized for irrigational purposes.

The Khari River rose in flood moderately to heavy ten times during the season. The floods were of good duration and of heavy volume. The flood waters were not drawn into the Khari Cut Canal but were passed down to the Kalambandhi villages. Under this canal 12,835 acres were irrigated in the Kharif season and 455 acres in the Rabi season.

The area irrigated, the revenue assessed and the working expenses in connection with the Hathmati and Khari Cut Canals compared with the average of the three preceding years as under :—

Year.	Kharif.		Rabi.		Total.		Working expenses
	Area irrigated.	Assessment.	Area irrigated.	Assessment.	Area irrigated.	Assessment.	
	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Rs.
Average ...	9,562	35,833	1,802	4,846	11,364	40,696	69,545
1944-45 ...	15,186	70,578	3,829	11,617	19,015	82,248	1,27,788

The remissions sanctioned during the year amounted to Rs. 506. The gross revenue realized from all sources amounted to Rs. 28,723 while the working expenses were Rs. 1,27,788. These figures show a net loss of 7.51 per cent. on the total capital outlay of Rs. 13,18,729.

#### FIRST CLASS IRRIGATION TANKS IN GUJARAT.

The four first class tanks, viz. Wangroli, Savli, Tranza Nagarama and Futelao were constructed between the years 1904 and 1917 at the aggregate cost of Rs. 9 lakhs. They rarely yield any net return, as the demand for water from them is small in years of good rainfall, whereas in years of scarcity the tanks themselves store deficient supplies. The first three tanks are situated in Kaira Collectorate, while the last one is in the Broach and Panch Mahals Collectorate.

The area irrigated, the revenue assessed and the working expenses in connection with the tanks during the year are compared with the average of the preceding three years as below :—

Name of Tank.	Year.	Kharif.		Rabi.		Total.		Working expenses.
		Area irrigated	Assessment.	Area irrigated	Assessment.	Area irrigated.	Assessment.	
		Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	Rs.
Wangroli ..	Average ..	1,162	5,688	222	886	1,385	6,574	6,656
	1944-45 ..	728	3,586	628	2,151	1,356	5,737	7,238
Savli ..	Average ..	1,910	9,585	16	60	1,925	9,645	5,261
	1944-45 ..	1,420	7,101	..	..	1,420	7,101	5,968
Tranza Nagarama ..	Average ..	148	548	2	5	150	553	5,601
	1944-45 ..	66	237	..	..	66	237	2,611
Futelao ..	Average ..	12	44	136	368	148	432	4,389
	1944-45 ..	4	15	234	507	238	622	10,051



## WANGBOLI TANK.

The rainfall gauged at the site of the tank was 45.26 inches. The tank was properly filled and the water was utilized in irrigating the Kharif and Rabi crops (mainly rice, wheat, and gram). The miscellaneous revenue realized during the year amounted to Rs. 2,963 compared with Rs. 1,780 received during the previous year. No remissions were granted during the year.

## SAVLI TANK.

The rainfall gauged at the site of the tank was 37.72 inches. The tank was filled and the water was utilized in irrigating Kharif crops which were mainly rice. The miscellaneous revenue realized amounted to Rs. 3,157 compared with Rs. 875 received during the previous year. No Remissions were granted during the year.

## TRANZA NAGRAMA TANKS.

The rainfall gauged at Tranza Nagrama was 371.12 inches. The tanks were partly filled and water was utilized in irrigating Kharif crops. The miscellaneous revenue realized amounted to Rs. 1257 compared with Rs. 831 received in the previous year. No remissions were sanctioned during the year. An expenditure of Rs. 393 was incurred for special repairs to this tank.

## FUTELAO TANK.

The rainfall gauged at the site of the tank was 36.16 inches during the year. The tank was filled to F.S.L. As the rainfall was timely and suitable for maturing Kharif crops, there was very little irrigation in the Kharif season. The remaining water was utilized in irrigating Rabi crops. The miscellaneous revenue realized amounted to Rs. 30 compared with Rs. 10 received in the previous year. Special repairs to the tank were carried at a cost of Rs. 7,177. The work is in progress.

The percentage returns obtained during the year from the working of these tanks are shown below:—

Name of Tank	Gross assessment	Gross realisation.	Less Working expenses.	Net revenue.	Capital outlay direct and indirect to end of 1944-45	Percentage of return.
	Rs.	Rs.	Rs.	Rs.	Rs.	
Wangroli ...	8,700	7,076	7,223	—147	2,55,210	—0.06
Savli	10,258	10,998	5,968	5,010	2,03,295	1.96
Tranza Nagrama ...	1,841	1,734	2,511	—777	2,80,635	—.27
Futelao ...	552	153	10,051	—9,898	1,16,461	—3.49

### DECCAN IRRIGATION CIRCLE.

The rainfall of the year was generally satisfactory. Vigorous propaganda among irrigators for the purpose of "Grow More Food Campaign" was in progress during the year under report on all the canals in the D. I. C. There was great response to this on the Nira Canals. On the Pravara, Godavari, Girna and Kadwa Canals, there was decrease on the areas under food crops which can be attributed to good and well distributed rainfall in the canal tracts. What demand was received was all met with. Efforts were also made for the full use of nalla and river water for growing food and fodder crops.

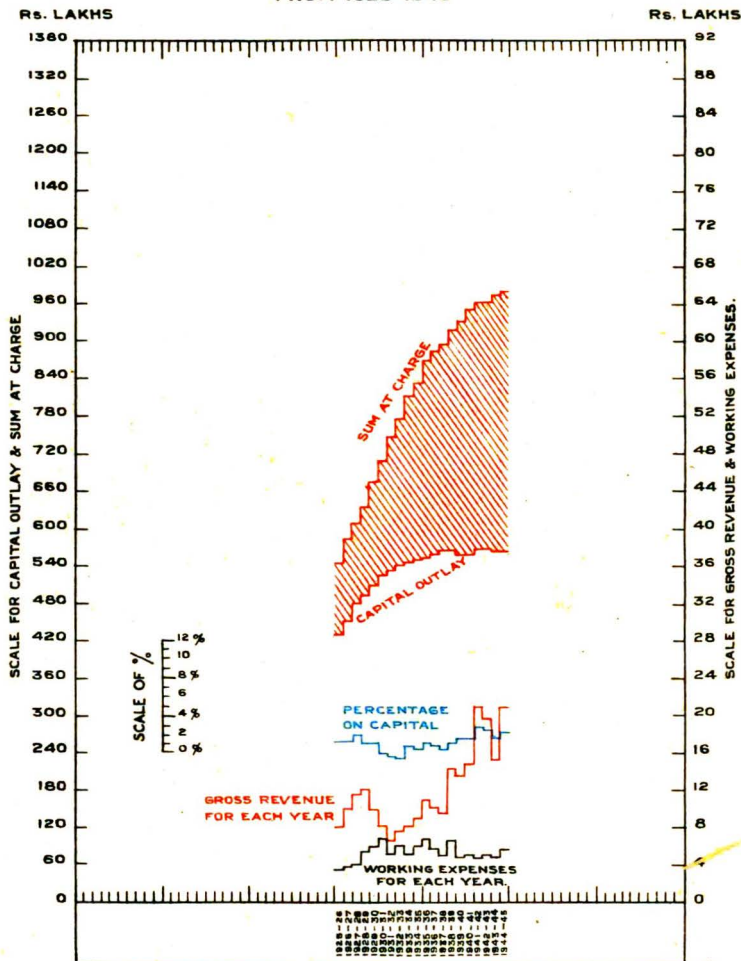
Gl rates continued to be high throughout the year and consequently, there was great demand for new cane which had to be refused and all the available surplus supply was reserved for food and fodder crops. The general condition of the irrigated crops was satisfactory. The financial condition of the cultivators had also greatly improved.

#### SUGAR FACTORIES.

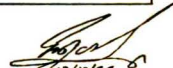
The following ten sugar factories have been established on the Deccan Canals and the acreages for which water is guaranteed at present is noted against each :—

Name of sugar factory.	Annual guarantee of water supply for areas of sugarcane.	Crushing Capacity in tons per day.
	Acres.	
1 The Belapur Company, Harigaon, Pravara Left Bank Canal.	3,050	1,200
2 The Maharashtra Sugar Mills, Limited, near Belapur, Pravara Left Bank Canal.	4,250	1,000
3 Messrs. Marsland Price and Company, Limited, at Walchandnagar, Nira Left and Right Bank Canals.	3,500	1,250
4 The Phaltan Sugar Works, Limited, near Tadavli, Nira Right Bank Canal.	2,500	650
5 The Sawad Mali Sugar Factory, Limited, near Akhoj, Nira Right Bank Canal.	1,600	450
6 The Ravalgaon Sugar Farm, Limited, near Ravalgaon, Girna Canal.	1,400	650
7 The Brihan Maharashtra Sugar Syndicate, Ltd., at Borgaon, Nira Right Bank Canal.	1,600	350
8 Belwandi Sugar Farm near Visapur-Visapur Tank ...	No guarantee in respect of area is given but 3/4th of the water available on the 15/11 in the Visapur tank is guaranteed annually.	250
9 The Godavari Sugar Mills, Ltd., on Godavari Right and Left Bank Canals.	2,850	650 (G.R.B.C.) 950 (G.L.B.C.)
10 The Shree Chingdeo Sugar Mills, Ltd., Godavari Right Bank Canal.	1,000	350

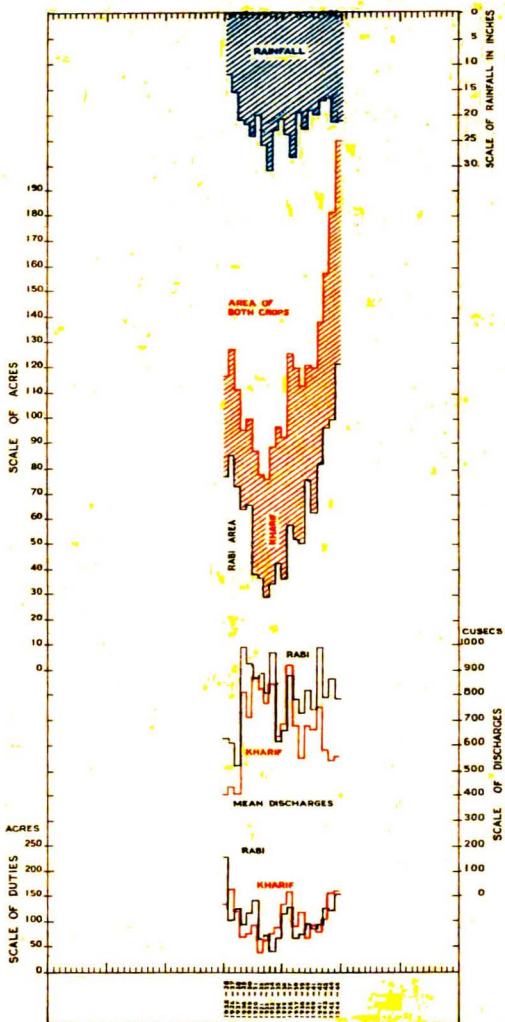
# NIRA CANALS DIVISION FINANCIAL RECORD FOR NIRA R.B. AND L.B. CANALS. FROM 1925-1946



G. P. P. POONA, 1946.

  
 13/10/44  
**EXECUTIVE ENGINEER**  
**NIRA CANALS DIVISION.**

# WORKING RECORD FOR NIRA R.B. & L.B. CANALS, 1925-1945



S.R.P. FORM 1948

  
 EXECUTIVE ENGINEER  
 NIRA CANALS DIVISION

The areas of sugarcane planted by the sugar factories during the year were about 4,320 acres.

A number of drainage projects to save lands from damage due to intensive cultivation of sugarcane by Sugar Companies has been carried out.

The total area irrigated in the Deccan Irrigation Circle during the year was 3,47,125 acres as compared with 340,155 acres during the previous year and the gross revenue amounted to Rs. 48·03 lakhs as compared with the figure of Rs. 43·32 lakhs for the previous year.

#### NIRA CANALS DIVISION.

##### LLOYD DAM AT BHATGAR AND NIRA RIGHT BANK CANAL.

The Nira Right Bank Canal is the largest canal in the Deccan. The original estimate of the project framed in 1910 provided for:—

- (1) The raising of the Dam at Bhatgar by 60 feet in order to increase its storage capacity from 5,300 million cubic feet to 24,000 million cubic feet;
- (2) The construction of a canal 109 miles long on the right bank of the Nira river having a capacity of 1,500 cusecs at head; and
- (3) The enlarging of the existing Nira Left Bank Canal in order to increase its discharge from 450 to 760 cusecs.

The total cost was estimated at about Rs. 258 lakhs and the area to be irrigated annually at 190,000 acres. The project was submitted to the Government of India in May 1911, sanctioned by the Secretary of State in June 1912 and the work was started in the same year. Before the work of raising the Bhatgar Dam was commenced, however, it was decided for technical reason to build an entirely new dam. Owing to this change and to the unprecedented rise in the cost of labour and materials due to the Great War, a revised estimate amounting to Rs. 491 lakhs was framed in 1920 and submitted to the Government of India in September 1921. The revised project provided for:—

- (1) The construction of a new dam at Bhatgar designed to increase the storage from 5,300 million cubic feet to 24,000 million cubic feet;
- (2) The construction of a canal 106½ miles long on the right bank of the Nira river; and
- (3) The enlargement of the Nira Left Bank Canal, including the expenditure of Rs. 3½ lakhs already incurred on widening the Nira Left Bank Canal.

It was anticipated that 1,32,000 acres would be irrigated annually as a result of this scheme and that the gross revenue would amount to Rs. 15·22 lakhs and the net revenue to Rs. 11·92 lakhs yielding a return of 2·4 per cent. on the capital outlay. The revised project was sanctioned by the Secretary of State in June 1922.

The Lloyd Dam at Bhatgar, 190 feet high, 5,333 feet long including the waste weir (4,266 feet long excluding the waste weir) and 124 feet wide at the base, was completed in 1928 at a cost of Rs. 172 lakhs. It is one of the largest dams in the world and contains 21½ million cubic feet of masonry. The lake formed by the construction of the dam has a length of 17 miles at full supply level with a corresponding storage capacity of 24,000 million cubic feet. The catchment area is 128 square miles in extent with an annual rainfall varying from 250 inches in the Ghats to 40 inches at Bhatgar. In addition to the sluices required for releasing water for irrigation purposes, there are 81 waste weir gates for the control and regulation of the flood level in the lake.

The Nira Right Bank Canal has its head works at Vir, 17 miles from the Lloyd Dam. The designed discharges of the canal at head and at tail are 1,500 and 414 cusecs, respectively, the corresponding full supply depths being 8·5 and 6·5 feet, respectively. The canal about 106½ miles in length commands lands situated in the Satara and Solapur Districts and the Phaltan State. Water was first supplied from the canal for the irrigation of rabi crops in 1924-25. The works on the main canal are completed. The Lloyd Dam was completed in the year 1928 and the Nira Right Bank Canal Project was completed in the year 1937-38. There are 3 branches and 69 distributaries taking off from the canal, while the culturable area commanded by it is 4,48,000 acres. The water regulation and distribution works on the canal are constructed on modern lines and the latest types of Standing Wave Flume measuring devices are provided at distributary heads on the channels. The whole of the perennial area under the canal has been surveyed and the soil classification carried out before designing the channels, while the lands suitable for perennial and other crops have been classified by the Irrigation Research Division and shown on maps.

On the 1st April, the level of the water in Lake Whiting at Bhatgar was 96·95 feet (full supply level 143 feet) above the sill of the sluices, the corresponding contents being 8,822 million cubic feet. The lowest level of 68·00 feet was reached on the 16th June, the corresponding contents being 2,730 million cubic feet. The lake began to fill after 3rd July 1944 and received replenishment up to its full supply level of 143 feet [contents 24,198 million cubic feet]. Full supply level was maintained till the 4th September, when the draw-off for irrigation purposes commenced from the 5th September. On the 31st March 1945 the water level was at 95·05 feet, the corresponding contents being 8,316 million cubic feet. The rainfall gauge at Bhatgar during the year was 64·85 inches, while the rainfall in the Nira Right Bank Canal tract averaged 20·25 inches and that on the Nira Left Bank Canal averaged 21·92 inches.

The following table gives the area irrigated, revenue assessed, etc., during the year as compared with the corresponding averages of the past three years:—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
94,627	69,645	10,31,200	8,91,054	10,67,305	9,21,787

Working expenses.		Realisations.		Rainfall.	
1944-45.	Average	1944-45.	Average.	1944-45.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
3,44,847	2,93,846	11,01,985	9,03,483	20·25	17·23

The increase in the area irrigated and the assessed revenue was due to increase in the areas under food crops and cane on pazar and walls and cane in reinstated blocks. The area under sugarcane was 10,492 acres compared with 9,836 acres in the previous year. The areas of sugarcane blocks and two-season blocks were 5,870 acres (owners 4,072 and 1,798 acres of tenant irrigators) and 8,014 acres, respectively. The area of garden and fruit blocks totalled 107 acres. The remissions sanctioned during the year amounted to Rs. 2,092.

The cost of the measuring establishment employed was pies 10 per acre as against the same amount of the previous year. The expenditure incurred on maintenance and repairs amounted to Rs. 1,34,430. The perennial section of the Nira Right Bank Canal extended up to mile 79.

#### NIRA LEFT BANK CANAL.

This canal forms part of the scheme known as the Nira Valley Development Project and irrigates lands situated on the left bank of the Nira river. It is one of the pioneer irrigation works in the Deccan and protects a tract in the Poona District, with a very precarious rainfall. The original scheme consisted of—

- (a) A ghat-fed storage tank at Bhatgar (Lake Whiting) about 32 miles south of Poona on the Yelwandi river, impounding 5,300 million cubic feet of water;
- (b) A pick-up-weir at Vir on the Nira river about 17 miles down-stream from Bhatgar;
- (c) A canal about 100 miles long irrigating about 80,000 acres annually; and
- (d) The Shetphal Tank at the tail of the canal with an effective capacity of 592 million cubic feet for the purpose of storing a portion of the surplus monsoon discharge.

The original masonry dam at Bhatgar, 127 feet high has since been replaced by the higher Lloyd Dam mentioned above. The original works were commenced in 1881 and the canal came into operation in 1885-86. The canal originally had a capacity of 456 cusecs but it has now been remodelled to carry a discharge of 720 cusecs. The canal, together with the tank, commands a gross area of 2,01,000 acres while the area commanded by the Shetphal Tank itself is 23,500 acres. The culturable area under the canal is 1,49,821 acres.

#### NIRA VALLEY DEVELOPMENT PROJECT.

This project was designed for the complete development of irrigation in the Nira Valley. It provided, *inter alia*, for the widening and remodelling of the Nira Left Bank Canal in order that the canal should irrigate an additional area of 19,000 acres of various types of crops and the construction of a new dam at Vir designed to supplement the storage of 24,000 million cubic feet impounded by the Lloyd Dam at Bhatgar. The construction of the Vir Dam, estimated to cost about a crore of rupees which was abandoned on the assumption that by economical distribution of the water available, the storage at Bhatgar would be sufficient to meet all irrigation requirements of the Nira Valley, will however have to be reconsidered owing to the development of irrigation by the opening of sugar factories in the Valley. The remodelling of the Nira Left Bank Canal, which was started in the year 1926-26, was practically completed by the end of the year 1942-43. The expenditure incurred on some works in progress during the year amounted to Rs. 19,579.

The rainfall at Bhatgar was 64·85 inches as compared with 57·50 inches, of the previous year. The average rainfall in the irrigated tract of the Nira Left Bank Canal was 21·92 inches against 19·40 inches of the previous year. The water in the Shetphal Tank went down to a depth of 16·60 feet on the 20th June 1944, the corresponding contents being 95 million cubic feet. The tank reached the supply level of 37·00 (F. S. L. 38 feet) on the 6th October 1944, the corresponding contents being 573·00 million cubic feet.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the average of the previous three years :—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
89,373	76,811	9,05,838	8,26,224	9,35,093	8,48,102

Working expenses.		Realisations.		Rainfall.	
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
2,24,616	1,80,107	10,15,752	8,77,185	21·92	17·06

The area of sugarcane blocks was 14,105 acres (owners 11,526 acres and 2,579 acres of tenant irrigators) on the Nira Left Bank Canal and that on the Shetphal Tank 839 acres (owners 734 acres and 105 acres of tenant irrigators) while the area under two seasonal blocks was 19,048 acres on the Nira Left Bank Canal and 1,451 acres on the Shetphal tank. The area of fruit and garden blocks was 439 acres on the Nira Left Bank Canal and 21 acres on the Shetphal Tank as compared with 428 and 14 acres respectively, during the previous year. The cost incurred on the measuring establishment was 4 pies per acre against the same amount of the previous year. Remissions sanctioned amounted to Rs. 279 during the year under report. The expenditure incurred on maintenance and repairs amounted to Rs. 94,407.

The perennial limit of the Nira Left Bank Canal is up to mile 75 and that of the Shetphal Tank is up to mile 10 of the Shetphal Channel.

#### MUTHA CANALS.

This system came into operation in 1874-75. The canals were constructed at a cost of about Rs. 65½ lakhs, including the cost of a large ghat-fed storage reservoir (Lake Fife) on the Mutha river at Khadakwasla, about 12 miles from Poona.



The dam is 107 feet high, spanning the valley of the Mutha. The system comprises two canals, the Mutha Right Bank and Mutha Left Bank Canals, 70 and 18 miles long, respectively. The maximum designed discharges of the two canals at their heads are 412 and 38·5 cusecs, respectively. Both the canals take off direct from the lake, which has a storage capacity of 3,091 million cubic feet, of which 500 million cubic feet are reserved for the Poona Water Supply system as a margin of safety in the event of replenishment being received late. The storage is partly utilised for drinking and domestic purposes in Poona and partly for irrigation. The supply available for irrigation being insufficient the perennial limit of the Mutha Right Bank Canal is restricted to the reach between the head of the canal and mile No. 23½, i.e., up to and including Distributary No. 9. Even so, the supply available in the lake is totally inadequate to meet the increasing demands on it and a project for increasing the storage is under consideration. The Matoba tank is a tail tank receiving the surplus supply of the canal during the monsoon months.

On the 1st April 1944, the level of the water in Lake was 21·45 feet the corresponding contents being 1,512 M. cft. against the level of 18·40 feet and contents 1,221 M. cft on the same date of the previous year.

The replenishment in the lake commenced from the 16th June 1944 and the full supply level of 34 feet (contents 3,091 M. cft) was reached on the 29th October 1944 and regular draw off commenced from the 10th November 1944. The level of water on the 31st March 1945 was 21·00 feet the corresponding contents being 1,369 M. cft. as compared with the 21·55 feet and the 1,522 M. cft. cubic feet respectively of the previous year. The rainfall at Khadakwasla was 34·20 inches compared with 44·40 inches during the previous year. The rainfall on the canal tract was 26·54 inches against 33·74 inches during the previous year. The Matoba Tank (tail tank of the Mutha Right Bank Canal) was dry on the 15th February 1944. Replenishment from the rainfall in its catchment began from 18th May 1944. The tank began to receive replenishment from the Mutha Right Bank Canal from the 28th June 1944. The full supply level of 28·85 feet was reached on the 15th September 1944.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the previous three years :—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1944-45	Average.	1944-45	Average.	1944-45	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
23,238	19,767	1,24,561	1,43,515	4,47,025	4,02,122

Working expenses.		Realisations.		Rainfall.	
1944-45	Average.	1944-45	Average.	1944-45	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
1,26,781	93,324	4,75,437	4,48,310	26·54	22·38

The area under two-season blocks on the Mutha Canals was 696 acres and that on Matoba tank 1,503 acres. The quantities of water supplied to the Poona Cantonment and Poona City Municipality during the year was 1,924 and 3,234 million gallons, respectively, as compared with 1,760 and 3,015 million gallons, respectively, in the previous year. The revenue assessed amounted to Rs. 75,983 and Rs. 1,36,570 respectively compared with Rs. 70,387 and Rs. 1,25,065 respectively, during the previous year. The cost incurred on the measuring establishment employed was equivalent to a figure of Re. 0-0-10 per acre against 14 pies in the previous year. The expenditure incurred on maintenance and repairs amounted to Rs. 55,584.

#### NASIK IRRIGATION DIVISION.

##### GODAVARI CANALS.

This is one of the major irrigation works undertaken in the Deccan for the protection of areas liable to famine. It was started in 1907 and completed in 1915-16 at a cost of about 1 crore of rupees. The system comprises—

(1) A storage reservoir (Lake Beale) on the Darna River, a tributary of the Godavari, situated about 20 miles from Nasik ;

(2) A pick-up-weir at Nandur-Madhmeshwar on the Godavari, 47 miles below the Darna Dam, which impounds the water released from the storage reservoir ; and

(3) Two canals, the Right Bank Canal, 69 miles long, which serves the northern tracts of the Ahmednagar District and the Left Bank Canal, 48 miles long, which irrigates lands north of the Godavari in the Nasik and Ahmednagar Districts.

The length of the Darna Dam (inclusive of its waste weir) exceeds a mile and the dam has a maximum height of 92 feet above its lowest foundation level. The lake has a storage capacity of 7,763 million cubic feet and the cost of the dam was Rs. 34·27 lakhs. The catchment area is 156 square miles. The weir at Nandur-Madhmeshwar is a work of considerable magnitude, its length being 3,618 feet inclusive of the Right and Left Bank Canal regulators. It has a maximum height of 34 feet above the level of the river bed. Scouring sluices have been constructed close to the head regulators of the two canals with the object of keeping the approach channels to the latter clear of silt. The total area under the command of the canals is 2,32,390 acres. The two canals (Right Bank and Left Bank) are designed to discharge 384 and 228 cusecs at their heads, respectively, with full supply depths of 7 feet and 6 feet, respectively.

On the 1st April, the level of water in the lake was 58·40 feet, the corresponding contents being 3,340 million cubic feet. The lowest level of 28·80 feet was reached on the 9th June, the contents being 544 million cubic feet, when the lake began to receive replenishment. The draw-off for irrigation purposes commenced on the 10th December with a water level of 74·30 feet, the corresponding contents being 7,522 million cubic feet. On the 31st March 1945, the level of water was 63·20 feet, the corresponding contents being 4,352 million cubic feet. The perennial limit of the Right Bank Canal is up to mile 69 and that of the Left Bank Canal up to 44/4 miles (temporarily extended to mile 48). The average rainfall in the catchment area of the lake was 111·79 inches.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the corresponding averages of the past three years :—

Name of work.	Area irrigated.		Water rates assessed.		Gross assessed revenue.	
	1944-45	Average.	1944-45	Average.	1944-45.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Godavari Right Bank Canal ...	30,907	24,253	4,64,934	4,01,313	8,68,900	7,43,440
Godavari Left Bank Canal ...	19,636	18,492	3,56,104	3,10,158		

Name of work.	Working expenses.		Realisations.		Rainfall.	
	1944-45	Average.	1944-45	Average.	1944-45	Average.
	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Lake Beale ...	...	...	...	...	111.79	64.19
Godavari Right Bank Canal ...	2,97,339	3,19,866	8,70,104	7,93,764	23.30	20.21
Godavari Left Bank Canal ...					23.00	20.19

The increase in the area irrigated and assessed revenue was due to the increase in areas of cane on well, pazar etc. Penal rates on unauthorised crops resulted in the increase in revenue. The area under sugarcane blocks was 7,472 acres (owners 4,212 and 3,260 acres of tenant irrigators) on the Godavari Right Bank Canal and 5,013 acres (2,557 acres of owner irrigators and 2,456 of tenant irrigators) on the Godavari Left Bank Canal that is the total block area on the Godavari Canals was 12,485 acres. The area of two seasonal blocks was 1,458 acres and fruit and garden block area was 3,120 acres. The cost of measuring establishment was 17 pies per acre against 12 pies of the previous year. Remissions and refunds sanctioned during the year, amounted to Rs. 192. The expenditure incurred on maintenance and repairs amounted to Rs. 90,192.

#### CHANKAPUR TANK—GIRNA CANAL.

This is comparatively small irrigation system situated in the Nasik District having its storage reservoir at Chankapur fed from a catchment of 100 square miles in extent and its pick-up-weir at Thengoda situated further downstream on the Girna river, from which weir the Girna canal (19 miles in length) takes off. The tank is situated on the Girna river, a tributary of the Tapti and has been formed by the construction of a masonry dam 140 feet high, which impounds 1,500 million cubic feet of water. The dam and the canal (up to mile 13) were completed in 1909-10 and

the canal has been in operation since then. The extension of this canal designed to carry about 40 cusecs, up to mile 19 was completed in 1920-21. The designed discharge of the canal at its head is 90 cusecs and at its tail 15 cusecs, the corresponding full supply depth being  $4\frac{1}{2}$  feet and 2 feet respectively. The total area under the command of the canal is 29,182 acres and the irrigable area is 8,500 acres.

On the 1st April, the level of water in the tank was 89·70 feet, the corresponding contents being 1,405 million cubic feet. The lowest level of 59·95 feet was reached on the 9th June (contents 413 million cubic feet) when the lake began to receive replenishment. The first draw off for irrigation purposes commenced on the 13th February with the level of water at 90·50 feet, the corresponding contents being 1,453 million cubic feet. On the 31st March 1945, the level of water was 86·95 feet, the contents then being 1,253 million cubic feet.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the past three years :—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
12,898	12,953	1,66,168	1,32,299	1,72,994	1,39,355

Working expenses.		Realisations.		Rainfall.	
1944-45.	Average.	1944-45.	1944-45.	1944-45.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
1,10,932	50,448	1,27,170	1,56,595	33·84	19·20

The decrease in the area irrigated was due to timely reinfall as the demand for food crops mainly depends on rain. The reason for the increase in assessed revenue was due to penal assessments levied on unauthorised cane on pazar etc. The cane area was 3,469 acres against 3,328 acres in the previous year. The increase was due to cane on pazar irrigated unauthorisedly. The cost of the measuring establishment was 20 pies per acre against 13 pies of the previous year. The remissions and refunds sanctioned during the year, amounted to Rs. 1,202. The expenditure incurred on maintenance and repairs amounted to Rs. 24,100.

#### KADWA RIVER WORKS.

These works, which came into operation in 1868-69, consist of three small canals, viz., the Palkhed, the Ojhar Tambet and the Wadali, taking off from weirs constructed across the Kadwa river and its tributary, the Banganga. The system comprises 38 miles of canals and distributaries. The storage reservoir is at Waghad (a ghat-fed storage) situated on the Kolwan river in the Nasik District. The catchment of the tank is 29 square miles in extent. The tank is remarkable for the size of its earthen dam, which has a maximum height of 96 feet. The designed discharges

of the Palkhed canal at its head and at its tail are 63 cusecs and 15 cusecs, respectively, the corresponding depths at full supply being  $3\frac{1}{2}$  feet and 2 feet. The designed discharges of the Ojhar Tambet canal at its head and at its tail are 33 cusecs and 5 cusecs, respectively, the depths at full supply being 3 feet and 1 foot, respectively. The designed discharges of the Wadali canal at its head and at its tail are 19 cusecs and 5 cusecs, respectively, the depths at full supply being 2 feet and 1 foot, respectively.

On the 1st April, the level of water in the tank was 38.75 feet above the sill, the corresponding contents being 355 million cubic feet. On the 9th June the level of water fell to lowest level of 21.50 feet, when the lake began to receive replenishment. The draw-off for irrigation purposes commenced on the 15th December with a water level of 46.90 feet, the corresponding contents being 596 million cubic feet. On the 31st March 1945 the level of water was 37.2 feet, the corresponding contents being 323 million cubic feet.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the past three years :—

Name of Canal.	Area irrigated.		Water rates assessed.		Gross revenue assessed.	
	1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
	Acres.	Acres.	Ra.	Ra.	Ra.	Ra.
Palkhed Canal ...	2,468	2,662	24,079	22,404	56,672	52,167
Ojhar Tambat Canal ...	1,670	1,865	20,251	16,693		
Wadali Canal ...	845	1,188	10,628	10,432		

Name of Canal.	Working expenses.		Realisations.		Rainfall.	
	1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
	Ra.	Ra.	Ra.	Ra.	Inches.	Inches.
Palkhed Canal ...	29,039	26,993	71,072	66,874	33.37	25.07
Ojhar Tambat Canal ...					34.93	23.68
Wadali Canal ...					33.31	22.11

The decrease in the area irrigated and assessed revenue was due to less demand for kharif and rabi crops due to good rainfall. The increase in the revenue assessed was due to penal assessment on unauthorized crops. The area of two-seasonal

blocks was 1,187 acres. The expenditure on maintenance and repairs amounted to Rs. 14,081.

The cost incurred on the measuring establishment employed was Re. 0-1-10 per acre as against Re. 0-1-9 for the previous year. Remissions sanctioned during the year amounted to Rs. 200.

#### AHMEDNAGAR DIVISION.

#### PRAVARA RIVER WORKS.

This canal system, which was constructed at a cost of Rs. 1½ crores, comprises:—

(1) The Wilson Dam at Bhandardara on the Pravara river. This dam which impounds the water of the Lake Arthur Hill, is one of the highest dams in the world having a height of 282 feet. It is 1,600 feet in length and the lake formed by the dam has a storage capacity of some 11,189 million cubic feet.

(2) A pick-up-weir, 890 feet long, situated at Ojhar, 53 miles downstream from Lake Arthur Hill, and about 8 miles east of Sangamner; and

(3) Two canals, the Pravara Right Bank Canal, 33 miles long, and the Pravara Left Bank Canal, 48 miles long, which take off at their weir at Ojhar.

These canals irrigate lands in the Ahmednagar District and command an area of 2,58,720 acres. The designed discharges of the two canals (Pravara Right and Left Bank Canals) at head are 152 and 530 cusecs, respectively, the corresponding full supply depths being 5 feet and 8 feet. The work of remodelling the first 16½ miles of the Pravara Left Bank Canal and the Northern Branch has almost been completed in order to meet the increased demand for water from the sugar factories established on the Left Bank Canal and the work of remodelling Distributaries Nos. 8 and 9 and Water Course Nos. 32, 33 and 34 of the Pravara Left Bank Canal has also been completed. The works (1) Remodelling Lakh Canal —0 to 5½ miles and (2) completing the Musalwadi (Tail tank of the Pravara R. B. Canal) were in progress with the remodelling of the canal and the rotational running now practised weeds do not appear at present. The Ojhar weir has been raised by two feet for additional storage in order to obtain the necessary supplies in the two canals. The height of the waste weir at Bhandardara was raised by 5-70 feet by constructing a crest wall. The construction of the Wilson Dam, which impounds the water of Lake Arthur Hill, was commenced in 1911 and completed in 1926. The catchment area of the lake is 47 square miles; it is situated in the ghats and has an assured run-off. The dam is designed to impound a maximum depth of water of 270 feet and is constructed across a gorge in the valley of the Pravara river. At present water is impounded to a depth of 265-70 feet giving a storage of 11-189 million cubic feet.

On the 1st April, the level of water in the lake was 219-6 feet, the corresponding contents being 4,730 million cubic feet. The lowest level of 162-9 feet was reached on the 2nd July, the contents being 1,345 million cubic feet. Replenishment commenced with effect from the 3rd July and the full supply level of 265-70 feet was reached on the 22nd July, the contents being 11,189 million cubic feet. The maximum flood occurred on the 24th July, when the level was 267-85 feet, which lasted for about 12 hours. The draw off for irrigation purposes commenced on 4th October 1944. The level of water gradually fell to 245-2 feet on the 15th February, the contents being 7,718 million cubic feet. The level of water on the 31st March 1945 was 232-3 feet, the corresponding contents being 6-051 million cubic feet. The yield from the catchment (47 square miles) of the lake was 16,134 million cubic feet while the average rainfall of the several rain-gauge stations was 206-05 inches.

# AHMEDNAGAR DIVISION

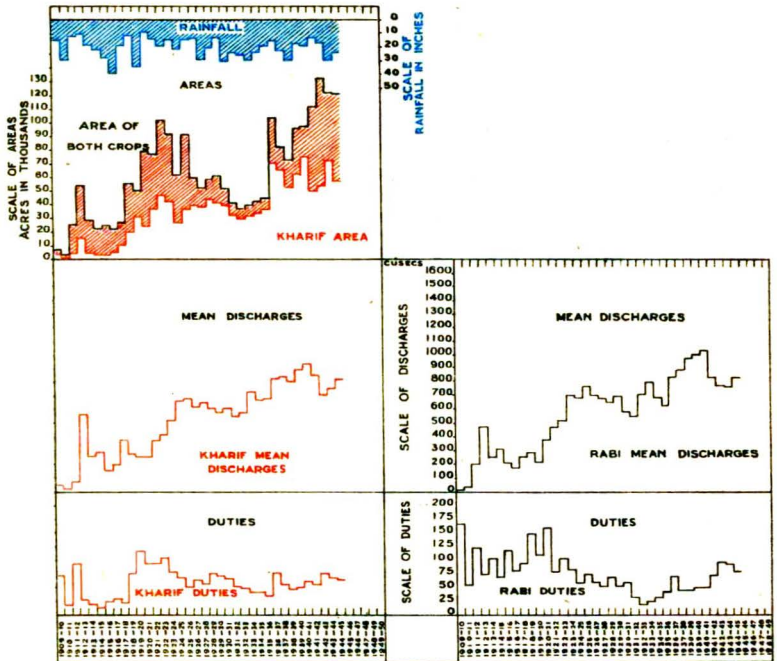
## GODAVARI AND PRAVARA CANALS.

### COMBINED WORKING RECORD

#### FOR THE YEAR 1944-45

NOTE:—

- (1) THE INTERCEPTS IN THE RED AREA SHOW THE RABI AREAS EACH YEAR.
- (2) THE AREAS SHOWN EXCLUDE THOSE OF THE LAKH CHANNEL TILL IT WAS AMALGAMATED WITH THE PRAVARA LEFT BANK CANAL IN 1925-26.
- (3) THE DISCHARGES ARE AVERAGE DISCHARGES AT HEAD CALCULATED ON THE TOTAL NUMBER OF DAYS OF THE SEASON CONCERNED.
- (4) THE DUTIES ARE CALCULATED ON THE ABOVE AREAS AND DISCHARGES.
- (5) THE RAINFALL IS AVERAGE RAINFALL OF ALL THE STATIONS ON THE CANALS.
- (6) THE DISCHARGES AND DUTIES FOR KHARIF AND RABI 1912-13 ARE FOR GODAVARI R.B. CANAL AND PRAVARA CANALS ONLY. FIGURES FOR GODAVARI L.B. CANAL ARE NOT AVAILABLE.

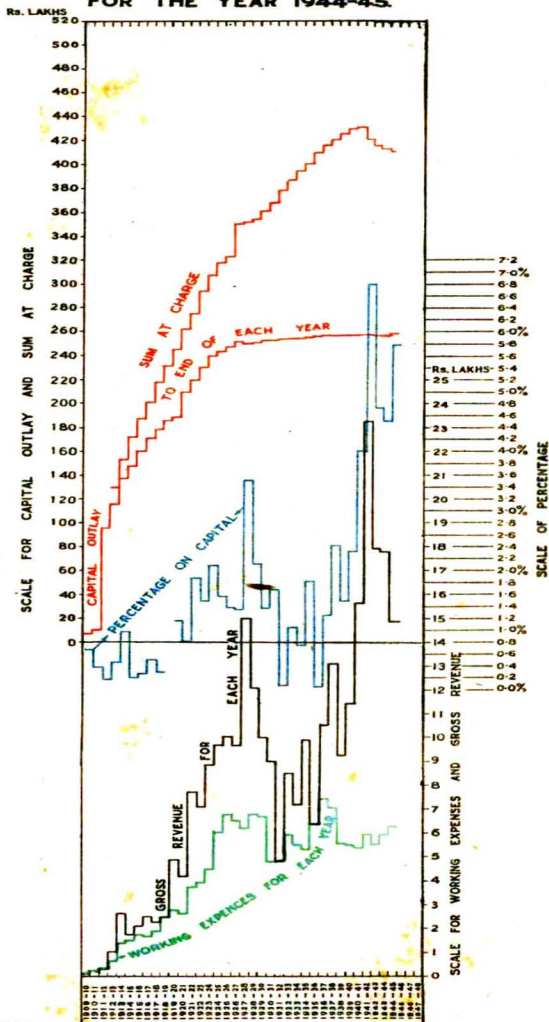


G. D. P. PUDHA, 1945.

*A. Chit*  
 SUPERINTENDING ENGINEER  
 DECCAN IRRIGATION CIRCLE.

*R. Shewale*  
 EXECUTIVE ENGINEER  
 AHMEDNAGAR DIVISION

# AHMEDNAGAR DIVISION GODAVARI AND PRAVARA CANALS. COMBINED FINANCIAL RECORD FOR THE YEAR 1944-45.



NOTE :-

THE INTERCEPT BETWEEN THE TWO RED LINES SHOWS ARREARS OF INTEREST UNPAID UPTO END OF EACH YEAR, WHICH BEING ADDED TO THE CAPITAL GIVES SUM AT CHARGE.  
THE INTERCEPT BETWEEN GREEN & BLACK LINES SHOWS THE NET INCOME EACH YEAR.

NAME OF CANAL	CONSTRUCTION COMMENCED IN	CANAL WAS OPENED IN
PRAVARA CANALS	1907	1911-12
GODAVARI CANALS	1909	1909-10

*R. Shewak*

EXECUTIVE ENGINEER  
AHMEDNAGAR DIVISION.



The following table gives the figures of area irrigated, revenue assessed, etc. during the year as compared with the averages of the past three years :—

Name of work.	Area irrigated.		Water rates assessed.		Gross assessed revenue.	
	1944-45	Average.	1944-45	Average.	1944-45	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Pravara Right Bank Canal	20,053	18,988	2,26,720	2,06,819	2,50,390	2,12,599
Pravara Left Bank Canal	50,634	49,272	9,86,462	8,13,585	9,97,489	8,20,775

Name of work.	Working expenses.		Realisations.		Rainfall.	
	1944-45	Average.	1944-45	Average.	1944-45	Average.
	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Pravara Right Bank Canal	3,28,883	2,58,060	12,44,782	11,12,175	20·99	20·50
Pravara Left Bank Canal					27·78	21·00

The increase in the area irrigated was due to more irrigation under food and fodder crops. The total area of sugarcane blocks was 3,606 acres on the Pravara Right Bank Canal (owners 1,840 acres and 20 gunthas and 1,765 acres and 20 gunthas of tenant irrigators) and 4,705 acres and 20 gunthas on the Pravara Left Bank Canal (2,250 acres of the owner irrigators and 2,455 acres and 20 gunthas of tenant irrigators) i. e., the total block area on the the Pravara Canals was 8,311 acres and 20 gunthas, while the area under two-seasonal blocks was 7,140 acres. The remissions sanctioned during the year amounted to Rs. 3,134. The cost of the measuring establishment was equivalent to 16 pias per acre as compared with the same cost of the previous year. The expenditure incurred on maintenance and repairs to the Wilson Dam and the two canals amounted to Rs. 1,02,748.

#### BHATODI TANK.

This is a small tank situated on the Mehakri river about 12 miles from Ahmednagar. It depends entirely on local rains for its supply. Due to silting, the storage capacity of the tank has been reduced from 154 million cubic feet to about 40 million cubic feet. The first replenishment was received on 13th June which raised the level of water to 21·50 feet. The highest level of 23·50 feet was reached on 22nd November and the waste weir overflowed to a depth of 1·00 foot. The lowest level in the tank was 17·50 feet on the 24th December 1944.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the past three years :—

Area irrigated.		Water rates assessed.		Gross assessed revenue.	
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
776	495	3,322	2,135	7,136	4,926

Working expenses.		Realisations.		Rainfall.	
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
2,413	3,000	9,136	1,589	22.25	25.06

The increase in area irrigated was due to additional areas under food crops. No remissions were sanctioned during the year under report. The expenditure incurred on maintenance and repairs during the year amounted to Rs. 1,201.

#### SATARA DIVISION

The area irrigated, the gross assessed revenue and the working expenses of the 6 works mentioned below as compared with the averages of the preceding three years, are given in the following statement :—

Name of work.	Area irrigated.		Gross assessed Revenue.		Working expenses.	
	1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
1. Krishna Canal ...	6,366	8,346	51,721	55,717	60,617	25,095
2. Rewari Canal ...	541	564	3,137	3,102	8,780	2,378
3. Upper Man River Works.	1,243	552	5,671	3,166	3,404	5,468
4. Yerla River Irrigation Works.	4,137	4,732	25,647	25,428	11,174	12,719
5. Chikhli Canal ...	111	399	746	2,224	906	1,322
6. Maini Tank ...	1,116	1,376	7,136	8,015	53,158	4,487

**KRISHNA CANAL.**

The total rainfall gauged at Retre Budruk, which is situated in the centre of the canal tract, was 45.33 inches, as compared with the average of 26.36 inches for the past three years. Water could not be made available for sugarcane beyond mile 16/4 of the canal, as its discharging capacity has been considerably reduced owing to the accumulation of silt. The decrease in area and revenue is due to restriction over high rated crops and also due to the fact that there was no sufficient rainfall.

**REWARI CANAL.**

The rainfall gauged at Rewari, which is situated one mile below the bandhara, was 3.713 inches, as compared with 20.62 inches, the average of the preceding three years.

**UPPER MAN RIVER WORKS.****PINGLI TANK.**

On 1st April, the tank was dry and it remained so till 16th May 1944, when the first replenishment was received and the level of water rose to 22.50 feet, the corresponding contents being 39.15 million cubic feet. The tank received good replenishment during June and July 1944 with the result that it reached its full supply level and the waste weir overflowed on 9th and 10th July 1944. The waste weir overflowed again on 28th October 1944, 30th October 1944, 1st November 1944 to 6th November 1944, 13th November 1944 and 14th November 1944. The supply available was fully utilized for Rabi irrigation, for which there was an increased demand.

The rainfall gauged at Gondawala which is situated 3 miles below the tank was 31.17 inches as against 12.40 inches, the average of the preceding three years.

**CENTRAL CIRCLE.****POONA DIVISION.****SHIRSUPHAL TANK.**

On 1st April 1944, the tank was dry and it remained so till 18th May 1944, when the first replenishment was received and the level went up to 13 feet including silt deposit of 11.25 feet. Due to good rain on the 19th May 1944, the level rose to 16 feet, the corresponding contents being 51.53 M. Cft. The level gradually went down to 14.55 feet, when second replenishment was received, the level again rose to 23.65 feet on 14th June 1944, the corresponding contents being 154.18 M. Cft. The available supply was utilized for Kharif irrigation. The tank received further replenishment during September and October 1944 and the maximum level reached was 25.60 feet on 31st October 1944, corresponding contents being 195.87 M. Cft. Advantage of this supply was taken and an area to the extent of 1,260 acres was allowed during the rabi season, which was nearly double the average of the past three years. The level of water went down to 16.95 feet on 31st March 1945, the corresponding contents being 59.10 M. Cft.

The rainfall gauged during the year under report, was 15.90 inches against 10.59 inches, the average of the preceding three years.

## BHADALWADI TANK.

On 1st April 1944, the level of water in the tank was 24·70 feet, the corresponding contents being 67·62 M. Cft. The first replenishment was received on 19th May 1944, raising thereby the level of water to 25·0 feet, the corresponding contents being 70·37 M. Cft. Due to further replenishment on 3rd July 1944, the level was raised to 27·90 feet, the corresponding contents being 99·98 million cubic feet. No appreciable replenishments were received thereafter, for 2 months and the accumulated supply was utilized for Kharif crops, for which there was heavy demand. Due to intermittent but heavy showers during September and October 1944, the tank received good replenishment and the maximum level reached was 34·80 feet. On 31st October 1944, the corresponding contents being 187·86 million cubic feet. This water supply was utilized in Rabi season to sanction an area to the extent of 1,200 acres. The level of water on 31st March 1945, was 27·35 feet, contents being 94·06 million cubic feet. Efforts were made to increase food and fodder crops area.

A project for raising the dam has been sanctioned and the work is in progress.

The total rainfall gauged during the year under report; was 18·57 inches against 16·64 inches, the average of the preceding three years. The following table gives the figures of the area irrigated and the gross assessed Revenue on the two tanks during the year as compared with the average of the preceding three years.

Name of tank.	Area irrigated.		Gross assessed Revenue.		Working expenses.	
	1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Shirsuphal Tank ..	1,262	629	5,468	3,037	5,984	3,163
Bhadalwadi Tank ..	1,406	1,131	6,776	5,309	2,10,417	4,273

## YERLA RIVER IRRIGATION WORKS.—NEHR TANK.

On 1st April 1944, the tank was dry and it remained so till 16th May 1944, when the first replenishment was received and the level of water rose to 20·10 feet, the corresponding contents being 116·84 M.Cft. Due to good replenishment, the tank reached its full supply level and the waste weir overflowed from 15th September 1944 to 26th November 1944. The supply was utilized for Rabi irrigation. There was no sufficient demand due to timely rains. The rainfall gauged during the year under report, was 30·00 inches as compared with 22·84 inches, the average of the preceding three years.

## CHIKHALI CANAL.

On 1st April 1944, there was no flow in the river Nandni from which the canal receives its supply. The first flood occurred on the 8th May 1944. It was 2·80 feet in depth. The highest flood occurred on 28th October 1944 and lasted for six hours, raising the depth of water to 4·50 feet.

The total rainfall gauged at Chikhali was 20.56 inches as compared with 19.13 inches, the average of the preceding three years. The decrease in area is due to timely rains.

#### MAINI TANK.

The tank was dry up to 8th March 1944, when first replenishment was received and the level of water rose to 30.50 feet equivalent to a storage of 32.0 M. Cfs. Due to subsequent replenishments, the level of water reached to its full supply level and the waste weir overflowed on 30th September 1944, 12th October 1944 and 13th November 1944. The supply available was utilized for irrigation purposes. The tank became dry on 25th January 1945 and the tank bed was given for cultivation. The work of raising and strengthening the waste weir and Dam is in progress.

The total rainfall gauged at Maini during the year under report, was 25.57 inches as against 19.35 inches, the average of the preceding three years.

#### SOLAPUR DIVISION.

The area irrigated, the gross assessed revenue and the working expenses of the tanks in the Sholapur Division, as compared with the corresponding averages of the preceding three years, are given in the following statement:—

Name of work.	Area irrigated.		Gross assessed revenue.		Working expenses.	
	1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Ekruk Tank ..	7,701	5,479	2,96,771	2,12,275	26,685	27,803
Koregaon Tank ..	810	534	3,240	2,614	1,102	3,010
Ashti Tank ..	4,269	4,808	21,258	28,911	11,100	20,513
Pethri Tank ..	1,674	1,015	14,239	11,225	4,874	3,412

#### EKRUK TANK.

The Ekruk Tank, situated near Sholapur, which came into operation in the year 1872-73 is an artificial reservoir formed by the construction of a large earthen embankment 7,000 feet long and having a maximum height of 76 feet with a storage capacity of 2616.53 million cubic feet. It supplies water not only for irrigational purposes but also to the town of Sholapur, the mills in Sholapur and the Great Indian Peninsula Railway. Under unfavourable conditions of replenishment, which occur periodically, the supply available from the tank is not sufficient to meet all the demands which arise, and the question of providing a supplementary storage for the Sholapur Town is under consideration.

On 1st April 1944, the level of water in the tank was 35.33 feet above the sill of the outlet and advantage was taken of this satisfactory level to sanction sugarcane area to the extent of 120 acres. In addition, applications for an area of 12,00

acres for Hot Weather Crops were accepted. On 31st May 1944, there was 1,605·88 cubic feet of water in the tank and an area of 1,500 acres was accepted during the Kharif season. Due to failure of rains in the monsoon subsequently, the tank did not receive sufficient replenishment and an area of 4,000 acres could only be accepted during the Rabi season. The waste weir did not overflow during the year under report.

The mean rainfall gauged at the 5 stations in the catchment area of the tank was 16·81 inches against 22·72 inches, the average of the preceding three years.

#### KOREGAON TANK.

On 1st April 1944, the level of water in the tank was 4·5 feet above the sill of the outlet. The tank received 1st replenishment of 15·22 million cubic feet on 8th July 1944. Subsequent replenishment of 10 million cubic feet was received from 9th to 22nd August 1944. The supply available was utilized for Kharif irrigation to the extent of 50 acres. The maximum level of R. L. 93·96 was reached on 11th November 1944. The waste weir did not overflow during the year under report. The supply available was utilized fully and an area to the extent of 725 acres was accepted during Rabi Season.

The rainfall gauged at Koregaon was 19·30 inches as compared with 23·93 inches, the average of the preceding three years.

#### ASHTI TANK.

On 1st April 1944, the level of water in the tank was at R. L. 219·45 i.e. 9·45 feet above the sill of outlet. The first replenishment of 2·57 million cubic feet was received on 19th May 1944. Due to scanty rains, further replenishment of 19·04 million cubic feet was only received during June and July 1944. The available supply was utilized for Kharif irrigation to the extent of 380 acres. Due to rains during September and October 1944, the tank received good replenishment and the maximum level reached on 6th November 1944 was at R. L. 220·02. The supply was inadequate and hence an area upto 4,250 acres only, was accepted during Rabi against the demand of 5,800 acres. The waste weir did not overflow during the year under report.

The mean rainfall gauged was 20·23 inches as compared with 19·98 inches, the average of the preceding three years.

#### PATHRI TANK.

The tank supplies water to the town of Barsi and Mill Industries as well as for irrigation purposes.

On 1st April 1944, the level of water in the tank was at R. L. 235·52 i.e. 25·82 feet above the sill of the outlet. The first replenishment of 27·70 million cubic feet was received in the tank on 10th June 1944. Due to subsequent replenishments during monsoon, the level of water was gradually increasing and the maximum level reached on 2nd November 1944, was R. L. 237·00. The supply available was utilized for irrigation to the extent of 325 acres during Kharif and 1300 acres during rabi. The waste weir did not overflow during the year under report.

The mean rainfall gauged in the catchment area of the tank was 22·00 inches against 19·43 inches, the average of the preceding three years.

#### MHASWAD TANK.

This irrigation tank is formed by an earthen dam built across the Man river, the dam being 9,000 feet long and 80 feet high at its highest point. The tank, which is situated on the eastern border of the Satara district, has a storage capacity of 2,602 million cubic feet and supplies water for the irrigation of lands situated mostly in the Sholapur district. The tank is provided with a masonry overflow waste weir. The project was commenced in 1876-77 and completed in 1888-89. There is only one canal taking off from the left flank of the dam, previously called Mhaswad Canal No. 1 and now termed Mhaswad Canal, Part I. The designed discharge of the canal is 180·7 cusecs, whereas the present actual discharge is about 146 cusecs with a full supply depth of 4 feet. The Nira Right Bank Canal cuts across the Mhaswad Canal at mile 15 and the old Mhaswad Canal has been re-modelled to function as Branch III of the Nira Right Bank Canal passing a discharge of 300 cusecs. The irrigation on this branch is being carried out with water obtained from the Mhaswad Tank but the supply is always insufficient to meet the full demand. Hence water from the Nira Right Bank Canal has to be borrowed so as to meet the demand of the irrigators.

On 1st April 1944, the level of water in the tank was 14·40 feet above the sill. The supply available was utilized for Hot Weather irrigation to the extent of 900 acres. Due to good rains during May, June and July 1944, the waste weir began to overflow from 2nd July 1944 and continued till 4th July 1944. The waste weir again overflowed on 8th and 9th July 1944, 13th to 18th September 1944, 27th September 1944, 29th September 1944 to 1st October 1944, 28th October 1944 to 4th November 1944 and 13th to 15th November 1944. The supply was utilized in meeting the demand to the extent of 7,800 acres in Kharif and Rabi seasons. Water from Nira Right Bank Canal was obtained during Kharif season for distributaries 68 to 70 and for Branch No. III. The Nira Canals Division was requested to supply water for Branch No. III during Rabi season, but it was refused and the whole irrigation had to be managed with Mhaswad Tank supply.

The rainfall gauged at five stations in the catchment area of the tank was 25·66 inches against 13·58 inches, the average of the preceding three years.

The following table shows the area irrigated, revenue assessed, etc., during the year as compared with the corresponding averages of the past three years :—

Area irrigated.		Gross assessed revenue.		Working expenses.	
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
9,270	4,777	42,653	24,297	46,766	32,248

## KHANDESH DIVISION.

## JAMDA CANALS.

These canals receive their supply from the Girna river. The rainfall during the year was 27·87 inches, as compared with 29·89 inches, the average of the preceding three years. The sub-joined table shows the area irrigated, the gross assessed revenue and the working expenses as compared with the corresponding average of the preceding three years:—

Area irrigated.		Gross assessed revenue.		Working expenses.	
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
6,224	2,818	24,695	19,162	20,143	16,651

## MHASWA TANK.

The tank derives its supply from local rains. On the 1st April, the storage of the tank amounted to 6·96 million cubic feet. The first replenishment was received on the 13th June, when the contents increased to 42·61 million cubic feet. The maximum storage of 170·3 million cubic feet was obtained on the 17th August; on the 31st March, the storage was 2·23 million cubic feet. The rainfall gauged at the tank was 29·20 inches as compared with 26·35 inches, the average of the preceding three years.

The area irrigated, the gross assessed revenue and the working expenses as compared with the corresponding averages of the preceding three years are given below:—

Area irrigated.		Gross assessed revenue.		Working expenses.	
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
975	659	6,174	3,702	1,367	1,440

## SHAHADA CHANNEL.

The channel is fed by the Gomai river which has a perennial flow. The rainfall gauged at Shahada was 34·28 inches as compared with 26·35 inches, the average of the preceding three years. There was sufficient supply of water throughout the year and the demand for water was more than normal in both Kharif and Rabi seasons. The Bombay Irrigated Crop Regulation Act was made applicable during the year under report.



The area irrigated, the gross assessed revenue and the working expenses as compared with the corresponding averages of the preceding three years are given below :—

Area irrigated.				Gross assessed revenue.		Working expenses.	
Patasthal.		Jirayat.					
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Acres.	Acres.	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
1,014	1,014	2,323	1,318	15,727.	12,967	12,882	7,869

#### LOWER PANJHRA RIVER WORKS.

These works comprise eight bandharas and nine channels situated between Dhulia and Betawad on the Panjhra river, and the Mukti tank which is situated about four miles to the south-west of Dhulia. The channels obtain their supply from the river but when that supply is insufficient, it is supplemented by water obtained from the Mukti tank.

On the 1st April, the contents of the tank were 175·73 million cubic feet, which gradually diminished to 130·40 million cubic feet. The first replenishment was received on the 13th July which raised the contents to 135·00 million cubic feet. The maximum storage of 320·00 million cubic feet was reached on the 18th September. The year closed with a storage of 241·70 million cubic feet. The rainfall gauged within the catchment at Dayana and Sadgaon during the year was 25·90 inches as compared with 19·69 inches, the average of the preceding three years.

The sub-joined table shows the area irrigated, the gross assessed revenue and the working expenses as compared with the corresponding averages of the preceding three years :—

Area irrigated.				Gross assessed revenue.		Working expenses.	
Patasthal.		Jirayat.					
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Acres.	Acres.	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
1,277	1,277	1,535	1,098	26,915	24,439	2,911	6,055

#### NASIK DIVISION.

##### PARSUL TANK.

This tank is formed by an earthen dam across the Parsul river in the Malegaon taluka of the Nasik district. It depends solely on local rains for its supply. The storage capacity of the tank is 119 million cubic feet with a depth of 35 feet. There is no canal and the irrigation is done by small channels taking off the Parsul river itself downstream of the tank.

On 1st April 1944, there was 15·78 million cubic feet of water in the tank and it went dry on 23rd April 1944. The first replenishment was received on 7th June 1944. The maximum level reached was 35·90 feet on 22nd August 1944, the corresponding contents being 125·88 million cubic feet. The tank was dry on 31st March 1945. The rainfall gauged in the catchment area of the tank was 23·4 inches compared with 14·87 inches, the average of the preceding three years.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year as compared with the averages of the past three years :—

Area irrigated.		Gross assessed revenue.		Working expenses.	
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
1,492	945	6,038	3,951	1,33,278	1,908

### SOUTHERN CIRCLE.

#### BELGAUM DIVISION.

#### GADIKERI TANK.

The lands under the command of the tank are all assessed at consolidated rates. The area irrigated and the irrigation share of the land revenue assessed were 423 acres and Rs. 2,344 respectively.

#### GOKAK CANAL.

This canal system is the most important irrigation scheme in the Southern Circle and consists of a reservoir formed by a masonry weir across the Ghataprabha river at Dhupdal in the Belgaum district, together with 16 miles of main and branch canals and 36 miles of distributaries. The canal commands an area of 18,668 acres, the area irrigable being 17,627 acres. Although the Dhupdal Storage is mainly intended for irrigating lands under the canal, a stipulated quantity of water is issued to the Gokak Mills Company in accordance with an agreement between Government and the Company, in consideration of which a sum of Rs. 14,313 is annually paid by the Company subject to a rebate in the event of the supply falling short of the quantity contracted for. During the year under report, a rebate of Rs. 840-7-0 was paid to the Company.

Water was supplied to the M. & S.M. Railway Company at their Hukeri Road station at a charge of Rs. 82-8-0 per month. The total amount recovered from the Railway Company on this account during the year was Rs. 982-8-0. The period of the old agreement having expired on the 31st March 1944, a fresh agreement in this connection has been drawn up with the Railway Company as per G. R., P. W. D., No. 2188/36, dated the 22nd December 1944.

On the first April, the gauge reading of the water level in the Dhupdal lake was 20·15 feet. The level gradually went down to 16·38 feet on the 10th May (evening). Owing to replenishments received, the water in the reservoir rose to 18·80 feet on the 11th May morning and again slowly fell to 16·10 feet on the 7th June (evening). Thereafter, the level of water began to rise. The permanent crest overflowed on the 10th July. The period of continuous overflow on the weir was from the 10th July to the 6th August. The highest flood depth over the crest during the season, was 4·04 feet on the 23rd October. The maximum discharge for the day was 49,788·86 cusecs on the 17th July. In order to store water from the post monsoon floods, the raising of the temporary crest excepting the top 2' of the 100 reserve bays, was carried out from the 7th to 10th October. After completion, of the reserve bays, the level of water began to rise and reached the F.S.L. viz. 26·06 on the 18th November. This level continued until the 24th December and subsequently decreased to 23·50 feet on the 14th February evening. The water level on the 31st March was 20·27 feet.

The following table gives information regarding the area irrigated and revenue assessed as compared with the average of the previous three years :—

						Area irrigated.	Gross assessed revenue.
						Acres.	Rs.
Average	..	..	..	..	..	12,366	77,923
1944-45	..	..	..	..	..	13,468	77,157

**BLJAPUR DIVISION.**  
**MUCKKUNDI TANK.**

This tank is solely dependent on local rains for its supplies and the storage of water in the tank is uncertain owing to the scanty rainfall in the area. The rainfall recorded during the year, was more than the average of the previous three years. There was some water in the tank for issue but owing to favourable rains during the year, there was no demand for tank water for the Kharif season. The tank was dry from 20th April to 15th September 1944. The highest level of water during the year was R. L. 1790·50 or 4·56 feet above the sill of the outlet on the 5th November 1944 against the R. L. 1793·20 or 7·26 feet above the sill of the outlet on the 12th November 1943. The lowest level was at R. L. 1,788·56 or 2·62 feet above the sill of the outlet on the 20th October 1944. The gross assessed revenue was Rs. 806.

**DHARWAR DIVISION.**  
**DAMBAL TANK.**

On 1st April 1944, the water level was at R. L. 143·90 i.e., 7·70 feet above the sill of the out-let. The tank received good replenishment on 25th June 1944 and overflowed up to 1st July 1944. The level of water from 25 June to 1st July 1944 was at R. L. 144·90 i.e., 8·70 feet above the silted bed of the tank. The tank received its second and third replenishments on the 23rd and the 29th October respectively and it overflowed again from 23rd October to 22nd November 1944. The highest level reached during the year was at R. L. 145·00 i.e., 8·80 feet about the silted bed of the tank on the 29th October 1944. The water level reached R.L. 143·60 i.e., 7·40 feet above the silted bed of the tank on 31st March 1945.

Part of the land dependent on this tank is assessed at water rates, the balance being assessed at consolidated rates. The total area irrigated and the assessment levied under water rates were 295 acres and Rs. 1,110 respectively as compared with 179 acres and Rs. 776, the average of the preceding three years. The area irrigated under consolidated assessment and the irrigation share of land revenue assessed thereon, were 144 acres and Rs. 916 respectively the total assessed revenue was Rs. 2,696.

The work of "Urgent Repairs" to the tank (constructing down stream toe wall and apron paving for the waste weir) was in progress during the year. The expenditure incurred thereon, to end of March 1945, was Rs. 492 against the estimated cost of Rs. 7,931.

#### MEDLERI TANK.

On the 1st April 1944, the water level in the tank was at R. L. 172.85 i.e., 7.85 feet above the sill of the outlet. The tank received its replenishment on 12th September 1944 and the water level rose to R. L. 174.40 i.e., 9.40 feet above the sill of the outlet. The highest level reached during the year was R. L. 181.00 i.e., 16 feet above the sill of the outlet on 2nd November 1944 and the tank over flowed for two days. The water supply was adequate for the crops both during kharif and Rabi seasons and the level of water reached on the 31st March 1945 was R. L. 172.95 i.e., 7.95 feet above the sill of the outlet.

The area irrigated and the assessment levied thereon, were 171 acres and Rs. 840 respectively as compared with 108 acres and Rs. 745 respectively, the average of the past three years. The gross assessed revenue was Rs. 1,177.

A project costing some Rs. 27,000 for constructing a masonry bandhara across the waste weir nala of the tank in order to utilize the leakage water for extra irrigation and also to reduce the incidence of malaria in the village which was submitted to Government, has been returned for resubmission after the close of the war *vide* Government Letter No. 7116/36-I, dated the 23rd December 1944.

#### MADAG TANK.

On the 1st April, the water level in the tank was at R. L. 1,876.98 i.e., 3.72 feet above the sill of the outlet. The tank received its first replenishment on the 29th May 1944 and overflowed from that date to the 24th June 1944. The tank received a good replenishment again on the 11th July 1944 and overflowed from that date to the 24 February 1945. The highest level reached during the year, was at R. L. 1,888.40 i.e. 10.67 feet above the crest of the waste weir on the 28th July 1944. The water level on the 31st March 1945, was at R. L. 1,875.86 i.e., 2.60 feet above the sill of the outlet. The water supply was more than sufficient for the irrigated area in all the seasons.

The area irrigated and the assessment levied thereon, were 463 acres and Rs. 1,962 respectively, as compared with 492 acres and Rs. 2,178 respectively, the average on the past three years. The slight decrease in the area irrigated was due to the enforcement of the Bombay Irrigated Crop regulation Act 1944, restricting a portion of the area commanded under the scheme to grow scheduled crops only. The gross assessed revenue amounted to Rs. 2,628 as compared with Rs. 2,525, the average of the past three years.

As the incidence of malaria in Masur village is attributed to the mosquito breeding places caused by the stagnation of water in the depressions due to percolation from paddy fields irrigated by the left bank canal of the tank, it is proposed to adopt antimalarial measures near Masur village to redress the grievances of the villagers. Accordingly, an estimate amounting to Rs. 504 was prepared. But, as the proposals were found to be inadequate, a revised estimate amounting to Rs. 2,097 has been prepared by the Executive Engineer and approved by this Office.

#### ASUNDI TANK.

On the 1st April 1944, the level of water in the tank was at R. L. 103·10 i.e., 4·10 feet above the sill of the outlet. The tank was empty from the 18th April to the 10th May 1944. The first replenishment was received on the 11th May 1945, when the level of water in the tank rose to R. L. 103·75 i.e., 4·75 feet above the sill of the outlet. The highest level reached during the year was at R. L. 107·80 i.e., 8·80 feet above the sill of the outlet on the 6th November 1944. The water level in the tank on the 31st March 1945, was at R. L. 102·99 i.e., 3·99 feet above the sill of the outlet.

The supply of water in the tank was adequate. The lands assessed at consolidated rates received their full share of water during the year.

The lands under this tank are partly assessed at water rates and partly at consolidated rates. The area irrigated and the assessment levied thereon, under the former head (water rates) were 75 acres and Rs. 559 respectively, as compared with 29 acres and Rs. 218 the corresponding averages of the past three years. The area irrigated under the consolidated assessment was 182 acres and the irrigation share of land revenue assessed thereon, was Rs. 710. The gross assessed revenue amounted to Rs. 1,347, as compared with Rs. 1,202, the average of the past three years.

In addition to the usual maintenance and repairs to the tank some urgent repairs to the apron pitching, waste weir, toe wall etc., were carried out to the extent of Rs. 1,992, against the estimated cost of Rs. 3,857. The work, which is in progress is being carried to completion, during the current financial year i.e., 1945-46 departmentally.

#### DHARMA CANAL.

The canal gets its supply from the Dharma River and irrigates lands directly and through a number of tanks fed by the canal. The canal was flowing continuously from the 10th July 1944 to 15th November 1944 with varying discharges. The rainfall during the year was satisfactory on the whole. Troubles however arose during the middle of second watering due to break in the rains for over a month and a half. The crops in the Hangal Taluka were estimated at annas 6 during the year.

The canal is an old one and is dependent on the rains for its supply. A project for the construction of an earthen dam at a site 4 miles upstream of the present Dharma Canal weir was prepared. This project was, however, not approved by Government, as the proposed site for the waste weir was considered unsuitable, *vide* Government Letter No. 1834/36-I, dated the 16th August 1944. Investigations for another suitable site are, however, in progress and the final result is awaited.

The work of improvements to Dharma Canal which was sanctioned as being essential and urgent was let out on contract to Messrs. Gupta and Company but the contractors did not turn up to complete the contract documents and hence the contract had to be cancelled. Thereafter, tenders were called for publicly more than once but no contractor has come forward due to unsettled conditions created by the war and also due to the work having been situated in malarial tract. The work had, therefore, to be split up for letting out the items of urgent nature on small piece work contracts to several pieceworkers. No reliable contractors to carry out the remaining portion of the work are yet coming forward.

The lands commanded by this canal are assessed partly at water rates and partly at consolidated rates. The area irrigated and assessment levied under the former head (water rates) were 606 acres and Rs. 3,034 respectively, as compared with 508 acres and Rs. 2,414 respectively, the average of the past three years. The increase was partly due to more cultivation of rice area on account of grow more campaign and partly due to high prices for food stuffs offered by Government. The gross assessed revenue, after deducting the amount of Rs. 23,156 (to be credited to old work), amounted to Rs. 1,904. The area irrigated under the consolidated assessment and the irrigation share of land revenue thereon, were 8,648 acres and Rs. 22,026 respectively.

#### KANARA DIVISION

#### MAVINKOP TANK.

The management of this tank has been entrusted to the Revenue Department. The supply of water in the tank was adequate for irrigation. The area irrigated which is assessed at consolidated rates amounted to 493 acres and the irrigation share of land revenue was Rs. 2,013 as compared with 505 acres and Rs. 2,013 for the previous year. The gross assessed revenue was Rs. 2,013.

**SECTION II.**

COMPRISING IRRIGATION WORKS FOR WHICH NEITHER  
CAPITAL NOR REVENUE ACCOUNTS ARE KEPT.

AHMEDABAD AND KAIRA AND PANCH MAHALS DIVISIONS.

**NORTHERN CIRCLE.**

DETAILED REPORTS BY LOCAL OFFICERS.

**KHARI SLUICES.**

The Khari Sluices System which is a second class irrigation work has now been transferred to the Revenue Department and it is not in charge of P. W. D. The only works classified under this head and in charge of this Department in Ahmedabad Division now are the Timba, Gobraj and Galki Tanks. The area irrigated and the revenue assessed under these tanks were 2,60,771 and 642 acres and Rs. 778, 3,907 and 1,899 respectively. The miscellaneous revenue derived from these tanks during the year under report was Rs. 1,180 and they were maintained at a total cost of Rs. 5,810 excluding Rs. 3,061 spent for making good the damage caused to the Timba Tank due to heavy rains.

**MUVALIA TANK.**

This is an important tank situated in the vicinity of Dohad town in the Broach and Panch Mahals Collectorate and has a catchment area of about 30 square miles. The rainfall gauged at the site of the tank was 34.29 inches. The tank was filled to F. S. L. The water available was utilized in irrigating Kharif and Rabi crops. The storage of the last year was made use of irrigating Hot Weather crops. The area irrigated was 1,276 acres and the net assessment amounted to Rs. 3,639. Incomplete original work of adopting measures for the prevention of breach and failure of the tank was in progress during the year and an expenditure of Rs. 36,985 was incurred thereon.

**SALAT TANK.**

The rainfall gauged at the site of the tank was 42.33 inches. The tank was filled and the water was utilized in irrigating Kharif and Rabi crops viz., Rice, Wheat, etc. The miscellaneous revenue during the year amounted to Rs. 1,326 against Rs. 652 in the previous year. No remissions were granted during the year. Area irrigated during the year amounted to 533 acres and the net assessment amounted to Rs. 1,852.

**DECCAN IRRIGATION CIRCLE.**

NIRA CANALS DIVISION.

**RAKH TANK.**

This tank is situated about 5 miles from Walha railway station of the Madras and Southern Mahratta Railway and is formed by an earthen dam constructed across a nala near Rakh village in Purandhar Taluka of the Poona District. The catchment area of the tank is 5.38 square miles and its capacity is only 34.2 million cubic feet. The tank has two channels of a total length of 3 miles. The area under

command on channel No. 1, which is on the left bank, is 265 acres and that on channel No. 2 is 321 acres. The main channel is designed to discharge 12·8 cuses leaving sufficient margin for all losses in transit. An area of 268 acres was irrigated and the revenue assessed amounted to Rs. 1,087 as compared with 110 acres and Rs. 487, respectively during the previous year. The increase in the area irrigated and assessed revenue during the year was due to the sufficient storage in the tank.

#### POONA IRRIGATION AND RESEARCH DIVISION.

##### EFFLUENT IRRIGATION ON THE MUTHA RIGHT BANK CANAL.

The total area of sugarcane irrigated on effluent during the year was 64 acres as compared with 30 acres during the previous year. The average discharge pumped during the year was 9·47 cusecs against 8·52 cusecs of the previous year and the whole discharge were utilized for purposes of irrigation. The total area irrigated was 2,052 acres as compared with 1,750 acres during the previous year. The assessed revenue amounted to Rs. 69,864 as compared with Rs. 47,516 during the previous year. The rate for the supply of effluent for sugarcane was Rs. 120 per acre against the same rate of the previous year.

##### BANDHARAS (POONA DISTRICT).

Bandharas are small weirs built across streams in order that the level of the water flowing in the streams may be raised sufficiently to command the lands to be irrigated. The following table gives the area irrigated and the consolidated assessed revenue on the bandharas in the Haweli Taluka of the Poona Collectorate during the year as compared with the average of the past three years:—

	Area irrigated.	Consolidated revenue.		
		Irrigation share.	Land share.	Total.
	Acres.	Rs.	Rs.	Rs.
1944-45	29	73	174	247
Average	29	73	174	247

##### KHAMGAON TANK.

The tank which is situated in mile 43 of the Mutha Right Bank Canal is only partially completed. It receives replenishment during the monsoon through the Mutha Right Bank Canal, Distributory No. 17. The area irrigated and the gross assessed revenue during the year was 383 acres and Rs. 1,812 respectively, the corresponding figures for the previous year being 483 acres and Rs. 1,178 respectively. The dam is raised by 6 feet raising its capacity to 36 million cubic feet and it is expected to irrigate about 720 acres.



## NASIK IRRIGATION DIVISION.

## BANDHARAS (NASIK DISTRICT.)

There are numerous bandharas situated in this District. There are in all 295 such bandharas on the list. The expenditure incurred on repairs to bandharas (68 in number) during the year amounted to Rs. 26,662. The following table gives the area irrigated and the consolidated assessed revenue during the year as compared with the averages of the past three years :—

	Area irrigated.	Consolidated revenue.		
		Irrigation share.	Land share.	Total.
		Acres.	Rs.	Rs.
1944-45	30,017	1,80,915	55,215	2,36,130
Average	27,467	2,02,552	56,429	2,58,981

The construction of bandharas across Pan-Ohol Nalla, Kanheri Nalla and Bandhara near Khomtana village were in progress during the year under report.

## AHMEDNAGAR DIVISION.

## VISAPUR TANK.

The Visapur Tank dam which is situated about 2 miles from the Visapur railway station on Dhond-Manmad Railway line is built across the Hanga river, a tributary of the Bhima river. It was started as a famine relief work in 1896 and was subsequently completed in successive stages by criminal tribes and convict labour by June 1927. This earthen dam which is 7,440 feet long and 84 feet high, forms a lake having a gross capacity of 1,510 million cubic feet. The estimated cost of the whole scheme was Rs. 41 lakhs of which a sum of Rs. 21 lakhs was spent on the dam and head works and the balance on the construction of the canal, distributaries and minors, which aggregate 46 miles in length. The total area under command is 95,000 acres of which 26,000 acres are irrigable. The catchment area of the tank is 159 square miles in extent and it has a capacity of 1,510 million cubic feet. Irrigation from this tank was first started during the rabi season of 1929-30. Owing to an increased demand for water due to the starting of a small sugar factory on the Chimbla Distributary, the waste weir was raised by 2 feet in March 1934 to increase the storage in the tank by 130·20 million cubic feet.

On the 1st April, the level of water in the tank was 33·55 feet above the sill of the outlet, the contents being 901 million cubic feet. The lowest level of 30·3 feet was reached on the 12th June 1944, the corresponding contents then being 702 million cubic feet. Replenishment was received in the tank on the 13th June and the level of water rose to 30·5 feet, the corresponding contents being 713 million cubic feet. The highest level of 37·85 feet was reached on the 8th November 1944 with a storage equivalent to 1,206 million cubic feet. The tank did not overflow during the year under report. The area irrigated, the irrigation assessment and the gross assessed revenue were 7,216 acres, Rs. 36,337 and Rs. 62,103 as compared

with 5,229 acres, Rs. 27,992 and Rs. 39,191 respectively, the average of the past three years. The rainfall during the year was 17·05 inches against 17·10 inches, the average of the past three years. The expenditure incurred on maintenance and repairs to the tank and canal amounted to Rs. 9,704.

#### CENTRAL CIRCLE.

The area irrigated and the gross assessed revenue on small tanks and bandharas were 2,858 acres and Rs. 10,391 respectively. The area irrigated and the irrigation share of revenue on the old bandharas and channels in the Khandesh Division were 8,802 acres and Rs. 64,668, respectively.

#### SHOLAPUR DIVISION.

##### WADSHIVNE TANK.

On 1st April, the tank was dry. Due to replenishment of 3,701 million cubic feet received in the month of June, Kharif irrigation to the extent of 10 acres only, was admitted. Substantial replenishment was received in the tank and advantage of this supply was taken and an area of 1,300 acres was sanctioned for Rabi season. The maximum R. L. during the monsoon was at 453·00 i.e., 17 feet of water above the sill. The waste weir did not overflow during the year under report.

During the year under report, the area irrigated and the gross assessed revenue were 1,363 acres and Rs. 4,485 as compared with 1,144 acres and Rs. 3,914, the corresponding averages of the previous three years.

The mean rainfall gauged at two stations was 29·23 inches, as compared with 21·41 inches, the average of the preceding three years.

##### GHERDI TANK.

This Minor tank is formed by an earthen dam across the nalla Apprupa near Gherdi village about 3 miles up stream. The dam is 1,400 feet in length and 46" in height. The gross storage of the tank is 102·85 million cubic feet but 86 million cubic feet is only available for irrigation. The tank is provided with Left Bank canal of 4 miles—1 furlong and 220 feet in length and a distributary 2 miles, 2 furlongs and 370 feet in continuation of the canal. The designed discharge of the canal is 8·9 cusecs from head to tail to irrigate 1,020 acres, when the tank is full.

During the year under report, area of 610 acres was irrigated and the gross assessed revenue was Rs. 735. Water was allowed at the concessional rate as sanctioned by Government. Some of the cross drainage works are incomplete and are under consideration.

##### WAKI BANDHARA AND HOTGI TANK.

Irrigation was done for the first time during Rabi season of 1944-45 and canal water was allowed free in accordance with Government Resolution, P.W.D., No. 929/36, dated 31st March 1945 and 20th February 1945 respectively. Area up to 21 acres under Waki Bandhara and 13 acres under Hotgi Tank were irrigated on canal water during the Rabi of 1944-45.

#### KHANDESH DIVISION.

##### HARTALA TANK.

The tank derives its supply from local rains. On April 1944, the contents of the tank were 21·73 million cubic feet. The first replenishment was received on 29th June. The maximum storage reached was 134·87 million cubic feet on 22nd September 1944.

The rainfall gauged at the tank was 53.67 inches against 24.91 inches, the average of the preceding three years.

This tank was handed over for management to Revenue Department from 1st October 1944 as per Government Resolution R., D., No. 7950/33, dated the 12th January 1943.

The area irrigated and gross assessed revenue and the working expenses as compared with the average of preceding three years are given below :—

Area irrigated.		Gross Assessed revenue.		Working Expenses.	
1944-45	Average.	1944-45	Average.	1944-45	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
*		*			
8	74	32	1,069	424	736

\* The figures pertain to kharif season only as the tank was transferred to Revenue Department from 1st October 1944.

#### OLD WORKS.

The old bandharas and channels are grouped as under :—

1. The Upper Panjhra river group including Gondur Tank.
2. The Kan river group.
3. The Burai river group.
4. The Girna river group.
5. The Bori river group.

The subjoined table shows the area irrigated and the revenue derived from these works as compared with the averages of the preceding three years :—

Area irrigated.		Revenue.					
		Irrigation share.		Land share.		Total.	
1944-45.	Average.	1944-45.	Average.	1944-45.	Average.	1944-45.	Average.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
8,802	8,762	64,668	64,482	13,649	13,835	78,317	78,317

The expenditure on these bandharas was as under :—

	Rs.
Extensions and improvements	19,707
Repairs	93,542
Establishment on special Survey	1,554

An expenditure of Rs. 250 was also incurred on river and rain gauge operations during the year.

The following two works were sanctioned under the head 18-A Civil Special Development Programme New works and work in progress and the expenditure as noted against each was incurred during the year.

(i) Construction of a bandhara and channel on Titoli Nala in mile	Rs.
No. 4 of Dhulia—Chalisgaon Road	3,957
(ii) Carrying out survey of the proposed bandhara on the River Bhokari etc	623

#### MASIK DIVISION.

##### KHIRDI SATHE TANK.

This is a small tank in Yeola Taluka of the Nasik District. The tank is formed by an earthen dam and is dependent on local rains for its supply which is generally sufficient for crops grown during the monsoon and rabi seasons.

On the 1st April, there was 25·90 million cubic feet of water. Due to Replenishments on the 13th June and again on 18th September 1944, the level of water reached at R. L. 236·00, the contents being 101·49 million cubic feet. The draw off for irrigation purposes commenced on the 12th August. The year closed leaving the storage 34·01 million cubic feet. The average rainfall gauged was 26·95 inches against 21·55, the average of the preceding three years. The area irrigated during the year was 851 acres as compared with 437 acres, the average of the previous three years. The gross assessed revenue amounted to Rs. 5,171 as compared with Rs. 2,431 the average of the previous three years.

#### SOUTHERN CIRCLE.

##### BELGAUM DIVISION.

There are approximately 525 second class irrigation tanks, besides 211 Inamdar tanks and Honds in the Belgaum Division. During the year under report, repairs to 31 tanks were carried out at a cost of Rs. 19,095 and in addition to this sum, an expenditure of Rs. 3,487 was incurred on the survey of the old tanks. The area irrigated during the year was 12,783 acres, the irrigation share of land revenue being Rs. 1,21,817. The total direct and indirect receipts amounted to Rs. 1,22,719 as compared with Rs. 1,22,008 during the previous year.

**BEJAPUR DIVISION.**

There are 12 tanks in this Division, out of which 4 have been declared as second class Irrigation tanks. During the year under report an expenditure of Rs. 46 was incurred on Saraswati Nala at Chatackaud. The area irrigated during the year was 1,152 acres and the irrigation share of land revenue amounted to Rs. 2,990. No remissions were granted during the year.

**NANDARGI TANK.**

The control and the management of the tank has been transferred to the P. W. D. under G. R. (R. D.) No. 1747/39, dated the 19th January 1944 and the tank has been classified under 1st Class Irrigation Works under Government P. W. D. Letter No. 1657/36-I, dated the 6th November 1944. The catchment is a fair one and yields a good run off. The rainfall recorded during the year under report was 15.39 inches. There was sufficient water in the tank for issue for irrigation in the Kharif Season but owing to the fact that it was the first year of irrigation under the tank, the irrigators had to arrange and spent substantially for making their lands fit for cultivation and hence there was less demand for water. However, the application of the Bombay Irrigated Crop Regulation Act 1944, was enforced during Rabi and the area irrigated under Rabi Crops was about 304 acres. The highest level of water reached during the year, was R. L. 208.50 or 21.5 feet above the sill of the outlet on the 7th July 1944 and the lowest level was at R. L. 191.25 or 4.25 feet above the sill of the outlet on the 30th June 1944. The gross assessed revenue was Rs. 9. Although the tank has been notified as a First Class Irrigation work, it has been classified under the head 18-Irrigation (P. W. D.) and hence it has been included under Second Class Irrigation Tanks.

**DHARWAR DIVISION.**

There are about 2,931 Second Class Irrigation Tanks-708 declared 1,205 non-declared and other Inamdars Tanks and honds. During the year under report, an expenditure of Rs. 49,451 was incurred on repairs to about 153 tanks and a sum of Rs. 8,810 was spent on extensions and improvements etc. The area irrigated during the year, was 83,333 acres and the irrigation share of land revenue thereon amounted to Rs. 2,06,032. The total direct and indirect receipts were Rs. 2,06,440 as compared with Rs. 2,16,680 of the previous year.

**KANARA DIVISION.**

In this Division, there are about 198 Second Class Irrigation Tanks. Besides these, there are also 3,120 non-declared tanks and 4,253 bandharas. During the year under report, expenditure of Rs. 10,606 was incurred on repairs to 49 tanks and a sum of Rs. 3,418 was spent on surveying irrigation tanks and preparing projects for their improvements. In addition to this, an expenditure of Rs. 3,162 was incurred under the head 18-B Irrigation Civil "Special Development Programme". The area irrigated during the year was 35,677 acres and the irrigation share of land revenue thereon was Rs. 99,880.

**RATNAGIRI DIVISION.**

There are only four tanks in this Division. The area irrigated was 1,379 acres and the irrigation share of land revenue was Rs. 7,655, the whole of which was realised during the year.

### SECTION III. RESEARCH WORK.

#### POONA IRRIGATION AND RESEARCH DIVISION.

In the Deccan, when a large perennial canal is opened, widespread water-logging is liable to ensue. Some of this water-logging dries out later, but the damage often extends rapidly into the valleys, and unless steps are taken to set matters right, the damage, consisting mainly of salt-efflorescence, becomes permanent. The seriousness of the menace was realised as early as 1888 and the controversy regarding the relative effect of channel losses and wasteful irrigation and the best methods to adopt to safeguard the land became yearly more acute. Various experiments were carried out at the instance of the Agricultural Department but by 1913, it was clear that all the methods tried so far had failed. It was eventually decided to open a Special Irrigation Division in order that the question of canal development, especially as regards safeguarding the soil, might form the subject of investigation. In June 1916, the Division (now called the Poona Irrigation and Research Division) was formed and the work entrusted to it was the contouring of the commanded areas, the carrying out of a careful survey and classification of the surface and sub-soil, the selection and marking out of definite areas suitable for "blocks" for perennial and other crops, the designing of the drainage works required, the indication of suitable lines of communication and centres for the establishment of crushing, grinding, and refining and other machinery for trade purposes and the study of the question of the reclamation of waste lands and areas damaged by water-logging and salt-efflorescence and the growth of useful timber in such tracts and along the main canal. In short, research and investigation into all the problems relating to irrigation by means of actual experiment has been the sphere of work of this Division.

The investigations coming within this sphere may be broadly grouped under four heads, viz. :—

- (1) Irrigation management,
- (2) Irrigation requirements or the inter-action of agricultural requirement and irrigation limitations,
- (3) Soil physics of irrigated tracts,
- (4) Drainage and reclamation.

The work done by this Division may be classified as under :—

- (1) Sub-soil survey and observation of sub-soil water levels,
- (2) Irrigation and blocks,
- (3) Sub-soil drainage construction,
- (4) Drainage schemes for allotted sugar factory areas,
- (5) Irricultural research.

A brief account of the work done during the year under each of these heads is given below :—

#### CONTROL OF DAMAGE.

There appears no reduction in the sub-soil water table in the deep soil area even after the reduction of concentration of cane area. This is due to the exceedingly slow movement of water in the deep soils. The rise of sub-soil water level is slow.

in such areas. In the deep soil area damage, should it occur, is more or less permanent due to exceedingly slow drainage. In drained catchment about 50 per cent of the water served to the catchment was utilized by the crops and as much was recovered in the drains. In undrained lands, water utilized is about 54 per cent and that recovered in drains about 55 per cent. There is thus an advantage in draining lands.

#### LAND DRAINAGE.

The attempts to manufacture paper from bulrush was carried out. The industry, if started, in canal tracts is likely to keep bulrush under check.

#### SEWAGE IRRIGATION.

Vegetables appeared to have suffered from concentrated doses of effluent both in quantity and quality.

#### SUGARCANE.

Seasonal dose experiment: Effluent applied during hotweather, is very beneficial. Adjali cane did not grow well. This was due to the long continual heavy application of effluent.

#### CULTURAL TREATMENT.

Complete and partial earthing up resulted in better yields due to the maintenance of proper aeration in the soil.

Sugarcane varieties CO-413 and CO-423 were better suited as early cane. CO-408 and CO-426 were suited for late plantations and CO-419 is suited for both plantations.

Certain varieties of perennial grasses have done exceedingly well under effluent. Papayas grown under effluent were twice as much superior in every respect to those raised under canal irrigation. The only precaution needed was not to allow effluent near the stems.

#### PERCOLATION WASTERS IN THE EFFLUENT ZONE.

The degree of purification attained by utilising sewage for irrigating crops is higher than that obtained by activated sludge plant. The soil at Hadapsar—near Poona—over which this sewage was used showed greater improvement in the process in course of time, the percolation waters are in no way injurious to crops from the point of view of salts in solution and reaction. Nalla water in the effluent zone compared favourably with that from the non-effluent or canal zone even from the bacterial point of view.

#### IRRIGATION AND BLOCKS.

Individual inspections of lands as regards the drainage and suitability of soil for fruit gardens for which applications were received were carried out during the year.

Area under vegetables was on the increase in the whole of the effluent zone, as a result of demonstrations and propaganda. About 10,000 to 15,000 lbs. of vegetables were supplied continuously throughout the year to the Military Depot at Hadapsar.

#### LABORATORY WORK.

Analytical work in connection with sewage, soils and drainage waters was carried out at the Research Laboratory. The laboratory dealt with also the technique of the manufacture of sodium sulphate from salt areas round about Baramati.

#### GENERAL.

The work of survey and preparation of drainage projects for allotted sugar factory areas and non-factory areas on all canals was in progress. Well observations and recording rise and fall of sub-soil water levels; collecting soil and drainage data for fixing sugarcane limits on various canals and observations to watch improvements of soils in drained catchments were carried out during the year.



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STATEMENT I-E.

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## STATEMENT

## Statement of Area irrigated by Irrigation Works in the

No.	Name of work.	Area irrigated.					Double cropped.	
		Kharif.	Rabi.	Total.	Flow.	Lift.	Area irrigated.	Percentage of total area.
1	2	3	4	5	6	7	8	9
<b>WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.</b>		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
<b>PRODUCTIVE.</b>								
<i>Southern Circle.</i>								
1	Godikeri Tank .. ..	*423	..	*423	*423	..	..	..
2	Mavinakop Tank .. ..	*493	..	*493	*430	..	..	..
<i>Central Circle.</i>								
3	Ekruk Tank .. ..	(2,958)	(3,828)	(6,586)	7,631	70	..	..
		3,446	4,255	7,701				
		(560)	(454)	(1,014)				
4	Shabada Chan el .. ..	560	454	1,014	1,014	..	67	8.09
		(561)	(1,680)	(2,231)	2,323	..		
		578	1,745	2,323			209	..
		4,584	6,454	11,038	10,968	70		
	Total, Productive ..	*916	..	*916	*916	..	..	..
<b>UNPRODUCTIVE.</b>								
<i>Northern Circle.</i>								
5	Hathmati and Khari Cut Canal ..	2,351	3,374	5,725	5,702	23	..	..
		12,885	455	13,290	13,063	227	..	..
6	Wangrolli Tank .. ..	728	628	1,356	1,334	22	..	..
7	Savli Tank .. ..	1,620	..	1,426	1,420	..	..	..
8	Tranra-Nagrama Tanks .. ..	66	..	66	56	10	..	..
9	Futeleo Tank .. ..	4	234	238	238	..	..	..
<i>Deccan Irrigation Circle.</i>								
10	Mira Left Bank Canal .. ..	(86,948)	(58,928)	81,299	81,089	200	1,539	1.89
		54,731	26,558					
	Shetphal Tank .. ..	(3,803)	4,556	8,094	8,000	24	110	1.36
		5,922	2,156					
11	Mira Right Bank Canal .. ..	(46,045)	(57,488)	94,627	94,086	538	1,905	2.01
		65,607	39,020					
12	Mutha Canals .. ..	(16,374)	(7,116)	20,474	20,274	199	59	..
		16,541	3,933					
		(2,028)	(2,270)					
	Matoba Tank (e) .. ..	2,729	35	2,764	2,764	..	8	8
	Lake Beals—Darna Dam .. ..	..	..	..	..	..	..	..
13	Godavari Right Bank Canal ..	(14,453)	(18,629)	30,007	27,260	3,038	619	2.6
		24,223	6,684					
		(8,740)	(11,314)					
	Godavari Left Bank Canal ..	15,978	3,658	19,636	16,958	3,678	647	8.0

I.E.

## Province of Bombay, during the year 1944-45.

Average discharges, cubic feet per second.				Area irrigated per cubic foot per second.				Base to which the duties of water are calculated.	
At Head.		Utilized.		Discharged at Head.		Utilized.		Kharif.	Rabi.
Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.		
10	11	12	13	14	15	16	17	18	19
				Acres.	Acres.	Acres.	Acres.		
..	..	..	..	..	..	..	..	15th February to 14th October.	15th October to 14th February.
..	..	..	..	..	..	..	..		
23.50	51.00	23.50	51.00	130	75	138	75	Do.	Do.
15.58	27.30	15.58	27.30	71	78	71	78	Do.	Do.
..	..	..	..	..	..	..	..		
1204	171	160	171	11.36	10.78	35.12	10.78	15th June to 15th November.	16th November to 14th February.
112	45	112	45	114.00	10.00	114.00	10.00		
68.91	53.72	68.91	53.72	10.56	11.60	10.56	11.60	Do.	Do.
98.91	..	98.91	..	15.12	..	15.12	..	Do.	Do.
8	..	8	..	8.25	..	8.25	..	Do.	Do.
.2	8.0	.2	8.0	20.0	20.25	20.0	20.25	Do.	Do.
421	484	210	222	62	122	138	202	15th February to 14th October.	15th October to 14th February.
26	27	20	27	146	160	146	160	Do.	Do.
544	611	316	50	85	94	146	125	Do.	Do.
140	114	108	86	117	62	162	88	15th February to 14th October.	15th October to 14th February.
11	23	11	23	184	60	184	90	Do.	Do.
..	..	..	..	..	..	..	..	Do.	Do.
200	227	131	151	60	62	110	128	Do.	Do.
124	132	97	112	70	86	90	101	Do.	Do.

## STATEMENT

No.	Name of work.	Area irrigated.					Double cropped.	
		Kharif.	Rabi.	Total.	Flow.	Lift.	Area irrigated.	Percentage of total area.
		3	4	5	6	7		
1	2	3	4	5	6	7	8	9
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
	<b>WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT—contd.</b>							
	<b>UNREPRODUCTIVE—contd.</b>							
	<b>Deccan Irrigation Circle—contd.</b>							
14	Chankapur Tank—Girna Canal	(4,523) 7,398	(6,362) 5,500	12,898	12,898	..	488	8.8
	Falkhed Canal	(1,008)	(1,169)	2,468	2,408	00	17	7
		1,676	862					
15	Kadwa River Works: Ofhar Tambat Canal	(536)	(717)	1,670	1,668	2	6	3
	Wadali Canal	1,032	638					
		(320)	(497)	845	845	..	9	1.0
		529	316					
16	Pravara Right Bank Canal ..	(8,214) 14,917	(9,212) 5,136	20,053	19,988	65	1,140	5.6
	Pravara Left Bank Canal ..	(27,220) 28,370	(29,511) 21,764	56,634	49,206	1,428	2,356	4.7
17	Bhatodi Tank (e) ..	(198) 218	(519) 559	770	776	..	81	10.5
	<b>Central Circle.</b>							
18	Shirsuphal Tank .. ..	(308) 318	(905) 949	(1,213) 1,262	1,262	..	..	..
19	Bhadalmadi Tank .. ..	(224) 228	(1,007) 1,178	(1,231) 1,406	1,406	..	..	..
20	Mhaswad Tank .. ..	(1,848) 1,838	(7,314) 7,732	(9,657) 9,270	9,262	8	..	..
21	Parani Tank (e) .. ..	(474) 474	(1,018) 1,018	(1,492) 1,492	1,492	..	..	..
22	Koregaon Tank .. ..	(56) 67	(962) 743	(718) 810	802	8	..	..
23	Ashti Tank .. ..	(266) 366	(3,330) 3,683	(3,602) 4,269	4,269	..	..	..
24	Pahri Tank .. ..	(208) 337	(1,118) 1,327	(1,386) 1,674	1,670	4	..	..
25	Jamda Canals .. ..	(1,417) 1,653	(3,862) 4,571	(5,279) 6,224	6,224	..	..	..
26	Mhaswa Tank .. ..	(108) 200	(707) 775	(800) 975	975	..	..	..
27	Lower Panjhra River Works ..	(932) 932	(345) 345	(1,277) 1,277	1,277	..	9.33	83.85
		(230) 241	(1,241) 1,294	(1,471) 1,535	1,535	..	10	

i-E—contd.

Average discharges, cubic feet per second.				Area irrigated per cubic foot per second.				Base to which the duties of water are calculated.	
At Head.		Utilized.		Discharged at Head.		Utilized.		Kharif.	Rabi.
Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.		
10	11	12	13	14	15	16	17	18	19
				Acres.	Acres.	Acres.	Acres.		
73	106	58	84	62	60	81	76	Do.	Do.
14	18	14	18	76	65	76	68	Do.	Do.
8	10	8	10	67	72	67	72	Do.	Do.
4	8	4	8	80	62	80	62	Do.	Do.
62	101	88	99	89	91	93	99	Do.	Do.
419	887	402	388	65	76	68	76	Do.	Do.
12	21	12	21	16	25	16	25	Do.	Do.
5.94	9.96	5.94	9.96	52	91	52	91	Do.	Do.
9.90	10.38	9.90	10.38	23	97	23	97	Do.	Do.
81	109	81	109	17	67	17	67	15th February to 14th October.	15th October to 14th February.
.89	1.52	0.89	1.52	533	670	533	670	Do.	Do.
0.55	2.69	0.55	2.69	102	246	102	246	Do.	Do.
2.65	9.15	2.65	9.15	100	365	100	365	Do.	Do.
1.23	9.16	1.23	9.16	218	122	218	122	Do.	Do.
25.00	59.00	25.00	59.00	67	65	67	65	Do.	Do.
.11	11.40	.11	11.40	1,755	62	1,755	62	Do.	Do.
1.26	.47	1.26	.47	922	8,374	922	8,374	Do.	Do.

## STATEMENT

No.	Name of work.	Area irrigated.					Double cropped.	
		Kharif.	Rabi.	Total.	Flow.	Lift.	Area irrigated.	Percentage of total area.
1	2	3	4	5	6	7	8	9
<b>WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.</b> <i>—contd.</i>								
<b>UNPRODUCTIVE—contd</b> <i>Southern Circle.</i>								
28	Krishna Canal .. ..	{ (1,930) 4,582	{ (1,388) 1,784	{ (3,327) 6,366	5,809	1,057	..	..
29	Bewari Canal .. ..	{ (75) 146	{ (343) 395	{ (418) 541	541	..	..	..
30	Upper Man River Works ..	{ (244) 288	{ (953) 953	{ (1,197) 1,248	1,237	0	..	..
31	Yeria river Irrigation Works ..	{ (396) 491	{ (3,430) 3,646	{ (3,826) 4,137	4,096	41	..	..
32	Chikhil Canal .. ..	{ (18) 54	{ (47) 57	{ (65) 111	108	3	..	..
33	Maini Tank .. ..	{ (58) 111	{ (995) 1,005	{ 1,053 1,116	1,102	14	..	..
34	Gokak Canal—First Section ..	7,783	5,685	13,468	13,304	164	2,546	18.00
35	Muchkund Tank .. ..	{ 7 279	{ 4 16	{ 11 295	11	..	..	..
36	Dambal Tank .. ..	{ *144 ..	{ .. ..	{ *144 ..	*144	..	..	..
37	Medleri Tank .. ..	148	23	171	171	..	..	..
38	Madag Tank .. ..	417	46	463	463	..	..	..
39	Asundi Tank .. ..	{ 38 ..	{ 42 *182	{ 75 *182	78	2	..	..
40	Dharma Canal .. ..	{ 606 *8,648	{ .. ..	{ 606 *8,648	606	..	..	..
Total, Unproductive		{ 2,68,905 *8,792	{ 1,59,022 *182	{ 4,28,017 *8,974	{ 4,16,606 *8,974	11,421	12,684	..
Grand Total, Productive and Unproductive		{ 2,73,579 *9,708	{ 1,66,476 *182	{ 4,30,055 *9,890	{ 4,37,664 *9,890	11,491	12,954	..

Note.—The bold figures in brackets represent areas actually irrigated during the respective seasons and the duties have crops are irrigated. To obtain correct duties therefore these crops have to be added to the rabi areas.

(c) There is generally no supply in the Bhatodi Tank in the hot weather season. Even during the monsoon and rabi the channel was in flow has therefore been taken for purpose of calculating average discharge and duties.

(d) Fixed as 1st November to end of February vide Government Letter (P. W. D.) No. 3004/36-1, dated the \*Area under consolidated assessment.

†Includes 33 areas of Hot weather season.

†138(204—66=138) cuses were supplied to the Khari Cut Canal through Bhujwa Channel to Bokh Reservoir.

(e) Hartala tank was transferred to Revenue Department for management from 1st October 1944 and hence

I-E—concl'd.

Average discharges, cubic feet per second.				Area irrigated per cubic foot per second.				Base to which the duties of water are calculated.	
At Head.		Utilized.		Discharged at Head.		Utilized.		Kharif.	Rabi.
Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.	Kharif.	Rabi.		
10	11	12	13	14	15	16	17	18	19
				Acres.	Acres.	Acres.	Acres.		
08	3-54	08	3-54	110	110	110	110	Do.	Do.
1-08	4-84	1-08	4-84	220	197	220	197	Do.	Do.
2-55	12-10	2-55	12-10	180	201	180	201	Do.	Do.
30	5-51	30	5-51	50	98	50	98	Do.	Do.
94	5-48	94	5-48	62	182	62	182	Do.	Do.
50-28	53-50	50-28	53-50	124	122	124	122	15th February to 14th October.	15th October to 14th February.
4-13	0-61	4-13	0-61	67-55	26-23	67-55	26-23	16th January to 15th October.	16th October to 15th January.
1-94	2-63	1-94	2-63	76-29	8-75	76-29	8-75	Do.	Do.
3-00	4-94	3-00	4-94	113-94	9-31	113-94	9-31	Do.	Do.
2-33	4-35	2-33	4-35	14-16	9-66	14-16	9-66	Do.	Do.
25-04	15-74	25-04	15-74	24-20	..	24-20	..	Do.	Do.
..	..	..	..	..	..	..	..		
..	..	..	..	..	..	..	..		

been calculated on these figures. In the rabi season in addition to pure rabi crops, perennial and eight months seasons the channels are closed for days together due to rainfall and other causes. The actual number of days on which 24th June 1943.

Information given for the same.

## STATEMENT I-F.

Statement showing water-rates per acre in force during 1944-45 on  
Irrigation Works in the Province of Bombay

No.	Name of Work.	Water-Rates.							Single watering.	Occupier's rate.	Owner's rate.	Water advantages.
		Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon, four months.	Rabi, four months.	Hot weather.	Miscellaneous.				
	<b>Works for with Capital and Revenue Accounts are kept.</b>	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
	<b>PRODUCTIVE.</b>											
	<i>Southern Circle.</i>											
1	Gadikeri Tank <sup>a</sup> .. ..	..	..	..	..	..	..	..	..			
2	Mavinkop Tank <sup>a</sup> .. ..	..	..	..	..	..	..	..	..			
	<i>Central Circle.</i>											
3	Ekrak Tank <sup>a</sup> .. ..	..	{ A 35 B 17½	8	3	5	7	..	(e) 2			
4	Shahada Channel <sup>a</sup> .. ..	..	{ A 28 B 14	8	3	5	6	..	(e) 2			
	<b>UNPRODUCTIVE.</b>											
	<i>Northern Circle.</i>											
5	{ Hathmati Canal <sup>a</sup> .. ..	..	(b <sup>o</sup> )	..	D 3 E 1	3	6	..	2			
	{ Khari Out Canal <sup>a</sup> .. ..	..	(b <sup>o</sup> )	..	D 5 E 1	5	6	..	{ 1 **2			
6	Wangroli Tank <sup>a</sup> .. ..	..	..	..	D 5 F 2½	4 43	(b <sup>o</sup> ) 6	..	1½			
7	Savli Tank <sup>a</sup> .. ..	..	..	8	D 5 F 4	4 L 3	(b <sup>o</sup> ) 6	..	1½			
8	Tranza Nagrama Tanks, a <sup>2</sup> .. ..	..	..	..	D 4 F 2	4 L 3	(b <sup>o</sup> ) 6	..	1			
9	Futelao Tanks <sup>a</sup> .. ..	..	..	..	{ D 4 F 2	{ a <sup>2</sup> 3 4 (b <sup>o</sup> ) a <sup>2</sup> 2	5	..	a <sup>2</sup> 1			
	<i>Deccan Irrigation Circle.</i>											
10	{ Nira Left Bank Canal { Shetpbal Tank .. ..	19	{ M 45 C 66 B 22½ K 60	8	3	5	7	} 4	2			
11	Nira Right Bank Canal..	19	{ M 45 C 66 B 22½ K 60	8	3	5	7	} 4	2			



## STATEMENT I-F—contd.

No.	Name of Work.	WATER RATES.								Occupier's rate.	Owner's rate.	Water advantage.
		Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon. four months.	Rabi, four months.	Hot weather.	Miscellaneous.	Single watering.			
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
	Works for which Capital and Revenue Accounts are kept—contd.											
	UNPRODUCTIVE—contd.											
	Deccan Irrigation Circle—contd.											
12	Mutha Canals and Matoba Tank— Sugarcane under the Mutha Canals within the Poona City and Suburban Municipal and Cantonment limits or within one mile of those limits. ... On all remaining land commanded by both the canals. Pan gardens ... Perennial crops other than sugarcane and pan gardens. ...	...	50									
		...	M 45	8	3	5	7	...	2	Nil.	Nil.	Nil.
		...	C 66									
		...	B 22½									
13	Godavari Right Bank Canal ... Godavari Left Bank Canal ...	19	M 45 C 66 B 22½ K 60	8	3	5	7	4	2			
14	Chankapur Tank— Girna Canal ...	...	M 28 B 22½	8	3	5	7	4	2			
15	Kadwa River Works ... Waghad Tank ... Palkhed Canal ... Ojhar-Tambat Canal ... Wadali Canal ...	...	M 28 B 14	8	3	5	6	4	2			
16	Pravara Canals ...	19	M 45 C 66 B 22½ K 60	8	3	5	7	4	2	Nil.	Nil.	Nil.

## STATEMENT I-F—contd.

No.	Name of Work.	WATER-RATES								Occupier's rate.	Owner's rate.	Water advantage.
		Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon, four months.	Rabi, four months.	Hot weather.	Miscellaneous.	Single watering.			
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
	Works for which Capital and Revenue Accounts are kept— concd.											
	UNPRODUCTIVE—contd.											
	Deccan Irrigation Circle —concd.											
17	Bhatodi Tank ... Central Circle.	...	M 28 B 14	8	3	5	6	4	2			
18	Parsul Tank a ...	...										
19	Koregaon Tank a ...	...										
20	Ashti Tank a ...	...	A 28	8	3	5	6	...	(e) 2			
21	Path Tank a ...	...	B 14									
22	Mhaswad Tank a ...	...										
23	Jamda Canals a ...	...	A 28 B 13	7	3	4	6	...	(e) 2			
24	Mhasva Tank a ...	...	A 12 B 9	5	2	3	4	...	(e) 1			
25	Lower Panjhra River Works a ...	...	A 28 B 14	8	3	5	6	...	(e) 2			
26	Krishna Canal a ...	...	A 32 B 16	8	3	5	8	...	(e) 2			
27	Revani Canal a ...	...	A 28 B 14	8	3	5	6	...	(e) 2			
28	Upper Man River Works a ...	...	A 28 B 14	8	3	5	6	...	(e) 2			
29	Yerla River Irrigation Works a ...	...	A 28 B 14	8	3	5	6	...	(e) 2			
30	Chikhli Canal a ...	...	A 28 B 14	8	3	5	6	...	(e) 2			
31	Maini Tank a ...	...	A 28 B 14	8	3	5	6	...	(e) 2			
32	Shirsuphal Tank a ...	...	A 28 B 14	8	3	5	6	...	(e) 2			
33	Bhadaiwadi Tank a ...	...	A 28 B 14	8	3	5	6	...	(e) 2			

## STATEMENT I-F—concl'd.

No.	Name of Work.	WATER-RATES							Single watering	Occupier's rate.	Owner's rate.	Water advantage.
		Irrigation in blocks.	Perennial.	Two Seasonal.	Monsoon, four months.	Rabi, four months.	Hot weather.	Miscellaneous.				
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.				
Works for which Capital and Revenue Accounts are kept—concl'd.												
UNPRODUCTIVE—concl'd.												
Southern Circle.												
34	Gokak Canal, 1st Section and Storage Works (u).	...	(b <sup>1</sup> ) 27½ a <sup>8</sup> (b <sup>2</sup> ) 20	8	3	5	15	...	2			
35	Muchkundi Tank(s)	...	(b <sup>1</sup> ) 10 (b <sup>2</sup> ) 5	...	2	2	5	...	1	Nil.	Nil.	
36	Dambal Tank (w)	...	(x) 14	(y) 6 (z) 7½	(m) 4 (n) 4½	(l) 7	...	(j) 1 (k) 2				
37	Modleri Tank (w)	...	(x) 14	(y) 6 (z) 7½	(m) 4 (n) 4½	(l) 7	...	(j) 1 (k) 2				
38	Madag Tank (w) a <sup>9</sup>	...	(x) 12	(y) 6 (z) 7½	(m) 4 (n) 4½	(l) 7	...	(j) 1 (k) 2				
39	Asundi Tank (w)	...	(x) 14	(y) 6 (z) 7½	(m) 4 (n) 4½	(l) 7	...	(j) 1 (k) 2				
40	Dharma Canal (a <sup>10</sup> )	...	...	...	(o) 4½	...	...	(j) 1 (k) 2				

NOTE.—(1) The general water rates are sanctioned under G. R. P. W. D. No. 2488/36, dated the 23rd March 1939 and 929/36, dated the 17th May 1940.

- (2) For lift irrigation half the ordinary rates are charged for all crops if water is taken by Motand ½th rate if it is taken by power pumps.
- (3) Double or treble the ordinary rates are charged as ponal rates for taking water without permission.
- (4) Leakage or percolation rates are the same as ordinary rates.
- (5) Water-rates for non-irrigational purposes are charged at the rates sanctioned by Government in each case.

(1) For food and fodder crops, the following concessional rates were in force during the year 1944-45 vide G. L. No. 6854/36-I, dated the 13th July 1944.

- (1) Wheat Rs. 8 per acre.
- (2) Monsoon seasonal food and fodder crops Re. 1 per acre.
- (3) Early seven rabi crops Re. 1 per acre provided no water is taken after 15th October.
- (4) Free use of pajar water for food and fodder crops.
- (5) Rabi food crops taking water before 30th September Rs. 3 per acre.
- (6) Rice Rs. 4 per acre.
- (7) Follow on crop after rice Re. 1 per acre.
- (7) A reserve rate of Rs. 3 per acre as a minimum rate has been sanctioned for lands let out for cultivation in the basin of Lake Beale—vide G. R. No. 2484, dated 12th June 1925.
- (8) A flat rate of Rs. 2-8-0 per acre of cultivable area has been sanctioned for the supply of water from the irrigation channel of Sangvi village near Bhatgar—vide G. R. No. 1849/27, dated 5th January 1932.
- (9) The supply of water to the road side trees, etc., is charged as follows:—  
Rs. 5 per 100 Nos. per annum.  
Monsoon season Re. 1 per 100 Nos.  
Rabi season Rs. 1-8-0 per 100 Nos.  
Hot weather season Rs. 2-8-0 per 100 Nos.  
Minimum charge Re. 1 per 100 Nos.

Short bins, cane and other perennials in case of the following works are as under *vide* G. R. No. 929/36, dated the 6th December 1941—

	Monsoon.		Cold weather.		Hot weather.	
	Sugarcane.	Other perennials.	Sugarcane.	Other perennials.	Sugarcane.	Others perennials.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Jamda Canals .. .. .	6	3	9	4	13	6
Ekrak Tank .. .. .	7	3½	12	6	10	8
Mhaswa Tank .. .. .	3	2	4	3	5	4

A—For sugarcane and pan gardens.

B—For perennial crops other than sugarcane.

C—For pan gardens for the whole year.

D—For rice.

E—For crops other than rice.

F—For other kharif crops.

K—For cane on Form VII.

L—For wheat.

M—For sugarcane..

(e) The single-watering rate applies to one pre-seasonal or post-seasonal watering to a sanctioned crop. If more than one such watering is taken, the full seasonal rate will be charged unless specifically ordered otherwise. The single-watering rate is not applicable to seasonal irrigation.

(f) For sugarcane the short-term cane rates as per scale sanctioned in G. R. No. 8070, dated 13th January 1927 (which may be in force on major irrigation works), for pan gardens the same rates as on the Mutin Canals and for other perennials single medium seasonal rates will be charged—*vide* G. R. No. 5602/27, dated 9th December 1931.

(j) From 15th June to 14th October.

(k) From 15th October to 14th June.

(l) From 15th February to 14th June.

(m) From 15th June to 14th October or 15th July to 15th November.

(n) From 15th October to 14th February.

(o) For four months from 15th June to 15th October or 15th July to 15th November.

(p) In force up to 15th February 1945—*vide* G. R. No. 5994/36, dated the 8th December 1941.

(q) In force up to 14th February 1945—*vide* G. R. No. 1604/36, dated 12th September 1941.

(r) Rates sanctioned in G. L. No. 3934/30, dated 15th November 1930 to be in force up to 14th February 1945.

(s) For sugarcane, betel leaves, etc., for 12 months.

(t) For eight months from 15th June to 14th February.

(u) For eight months from 15th October to 14th June or 1st August to 31st March.

a Rates to be in force up to 14th February 1945—*vide* G. R. No. 929/36, dated 6th December 1941.

a<sup>1</sup> Rates sanctioned in G. R. No. 4752/36, dated 26th February 1944, to be in force up to 14th February 1945.

a<sup>2</sup> Rates sanctioned as per G. R. P. W. D. No. 3494/36, dated the 2nd March 1944, continued up to the 14th February 1945.

a<sup>3</sup> Rates to be in force up to 15th February 1945—*vide* G. R. No. 2704/36, dated 16th April 1943.

a<sup>4</sup> In the case of pomegranates (perennial 8 months) if water is supplied during the period from 15th June to 31st December, it shall be charged for at the rate of Rs. 8 per acre.

a<sup>5</sup> When sugarcane is grown along with maize, the water rates for the fixed crop for the monsoon season should be Rs. 2 per acre when sugarcane is grown for manual purposes only the water rate therefore should be Re. 1 per acre. These concessional rates should continue until further orders.

Tur when sown as mixed crop with any kharif crop in the monsoon season shall be charged the monsoon season rate plus the single watering rate for post seasonal watering that may be required in cold weather season. For irrigation by lift by mols worked by bullocks and for irrigation by lift by power pumps, the water rates should be half and ¾ of the low rates respectively.

a<sup>6</sup> In case of Madua Tank, the period of cold weather season which was fixed for four months *viz.* 1st November to end of February for three years—*vide* G. R. P. W. D. No. 3994/36-I, dated the 14th October, has since been fixed as a permanent measure *vide* G. L. No. 3994/30-I, dated the 24th July 1943.

a<sup>7</sup> For ordinary crops other than wheat.

a<sup>8</sup> For restorative crops grown after rice.

a<sup>9</sup> Rates sanctioned in G. R. No. 4906/36, dated the 9th March 1942, are to be in force up to 31st March 1945.

(b<sup>1</sup>) Rate for perennial 12 months.

(b<sup>2</sup>) Rate for perennial 8 months from 15th June to 14th February.

(b<sup>3</sup>) Concessional rate of Rs. 3 for wheat crop sanctioned in G. R. P. W. D. No. 5854/36-I, dated the 20th April 1943.

(b<sup>4</sup>) Concessional rate of Rs. 2 for wheat crop sanctioned in G. L. No. 5854/36-I, dated the 24th January 1944.

(b<sup>5</sup>) Single seasonal rate for the season as for crops other than rice during which water is taken shall be levied.

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*Statement showing expenditure on establishment in the Roads and Buildings and the Irrigation Branches of the P.W.D. from the year 1921-22 to 1944-45 and the percentage on the total outlay on works and repairs during that period in both the Branches.*

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*Statement showing expenditure on establishment in the Roads and Buildings and the Irrigation total outlay on works and repairs*

**Expenditure on Establishment in the Roads and Buildings Branch**

*Checked 1998-9*

Year.	50—Civil Works—Provincial	81—Civil Works	50—Civil Works—Central	8—Military Works	Deposit Works	Total Establishment Charges	Percentage on the total outlay on work and repairs in the Roads and Building Branch
1	2	3	4	5	6	7	8
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
1921-22	29,06,955	....	1,98,683	45,268	2,84,992	34,35,888	10.20
1922-23	20,14,640	8,94,460	1,78,163	71,481	77,149	31,75,877	20.79
1923-24	15,84,486	8,10,645	67,802	38,560	6,88,854	31,80,939	19.88
1924-25	16,89,892	12,25,682	1,19,721	27,302	2,53,556	33,15,603	19.07
1925-26	18,89,417	12,05,078	1,01,870	69,040	2,58,535	35,23,955	20.66
1926-27	25,30,280	5,97,486	1,08,806	5,882	8,04,380	30,96,939	23.76
1927-28	21,90,448	5,59,107	1,49,132	5,042	2,97,270	33,00,999	24.96
1928-29	22,40,393	6,56,718	2,29,540	2,240	2,56,180	33,85,006	25.03
1929-30	22,45,450	7,33,867	1,56,773	3,638	2,34,897	33,74,625	25.26
1930-31	26,51,711	1,80,139	1,73,103	2,415	85,444	29,91,872	32.85
1931-32	25,93,104	2,82,929	1,23,790	3,182	44,132	29,96,146	38.70
1932-33	23,74,603	71,081	85,143	3,334	17,156	25,82,217	39.79
1933-34	22,73,945	81,807	71,866	3,810	30,502	24,11,930	37.97
1934-35	21,88,729	38,278	02,472	2,693	47,094	23,30,800	35.82
1935-36	20,51,807	808	80,934	1,639	54,693	21,98,731	35.76
1936-37	23,14,593	619	61,859	1,124	57,879	24,35,874	31.66
1937-38	23,01,828	990	58,862	998	47,310	23,47,689	24.46
1938-39	20,85,355	....	10,118	709	65,701	21,61,038	25.28
1939-40	19,38,596	....	17,245	810	63,725	20,09,191	23.37
			—11,702	*547			
1940-41	17,79,944	66,927	....	....	79,560	19,26,437	20.98
1941-42	17,06,300	1,25,314	....	....	28924	18,60,598	15.41
1942-43	16,15,825	1,23,070	....	....	25,586	17,63,901	13.16
1943-44	19,50,549	54,204	....	....	55,187	20,59,940	10.06
1944-45	26,11,051	4,53,745	....	....	26,044	32,19,061	20.00

*Note.*—The percentage of the establishment charges on the cost of works and repairs in the Irrigation Branch that the establishment charges in the Irrigation Branch include the cost of Special Revenue Establishments employed works and repairs, and that these charges also include cost of part of the line of Irrigation establishment spent on management and not to execution of works and repairs. If these establishment charges debited in the accounts to on the cost of works and repairs will not be so divergent. The increase in the rate per cent. in the R. & B in the same ratio in which expenditure on works is reduced. A mere overall percentage on expenditure on works is

The figures from the year 1921-22 to 1934-35 pertain both to the Province of Bombay and Sind.

\*Represents the difference between the Establishment charges debited on to end of March final kept under suspense.

†minus expenditure due to the write off of previous year's expenditure

Branches of the P.W.D. from the year 1921-22 to 1944-45 and the percentage on the during that period in both the Branches

Expenditure on Establishment in the Irrigation Branch								Total Establishment charges in the Roads and Buildings and Irrigation Branches.	Percentage on the Total outlay of works and repairs in the Roads and Buildings and Irrigation Branches.
8—Construction of Irrigation, Navigation, Embankment and Drainage Works.	XVII—Works for which capital accounts are kept.	18—Other Revenue Expenditure financed from Ordinary Revenue.	XII—Receipts from Electricity schemes, Hydro-Electric Schemes.	53—Capital outlay on Electricity schemes, Hydro-Electric Schemes.	Deposit Works.	Total establishment charges.	Percentage on the total outlay on works and repairs in the Irrigation Branch.		
0	10	11	12	13	14	15	16	17	18
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
11,53,734	13,85,960	6,68,651	....	....	2,770	32,11,115	33-59	60,47,003	24-20
14,20,751	13,44,901	5,34,327	..	..	1,993	33,01,972	32-22	64,77,940	25-86
21,87,793	14,43,222	4,32,013	....	....	2,056	40,65,084	33-39	72,55,023	25-67
29,10,785	17,37,724	5,26,361	....	....	402	51,75,802	28-78	84,91,025	24-35
32,21,047	17,90,343	5,19,228	....	....	2,681	55,42,899	21-02	90,06,854	21-23
35,56,959	18,03,385	5,04,989	....	....	3,207	59,68,540	30-56	96,09,470	27-54
36,98,956	19,20,773	7,80,312	....	....	3,847	64,03,888	26-00	93,13,837	25-64
39,04,670	21,35,939	6,16,901	....	....	2,750	66,59,960	25-51	1,00,45,026	25-35
42,20,873	21,08,302	6,18,312	....	....	1,012	69,54,499	23-26	1,03,29,124	23-88
42,88,966	18,31,149	5,99,621	....	....	1,734	67,21,470	21-00	97,18,342	24-00
40,37,972	16,34,011	5,18,027	....	....	86	61,90,696	22-40	91,86,842	23-97
22,70,427	23,58,971	4,01,829	....	....	680	56,26,407	23-54	81,78,624	31-30
17,00,000	29,83,531	5,14,407	....	....	48,060	63,00,988	40-41	77,18,916	39-61
15,36,830	30,98,255	4,55,037	....	....	441	60,00,563	42-89	74,30,429	40-38
1,37,301	8,66,476	1,73,501	....	....	61	11,77,339	89-46	33,76,070	46-21
74,021	8,24,868	1,63,507	....	....	620	10,63,016	88-73	34,98,590	39-04
68,679	7,70,784	1,27,939	....	....	78	9,66,575	82-27	33,14,264	30-77
53,922	8,22,086	1,39,881	....	....	..	10,15,881	92-85	31,77,827	32-05
37,392	7,77,209	1,14,778	1,422	89,598	317	10,20,686	82-02	30,29,877	30-82
52,969	7,90,102	43,795	3,740	4,452	1,109	9,02,236	107-88	28,28,073	30-08
26,314	7,47,287	42,317	1,884	1,091	1,360	8,20,672	88-78	20,31,271	20-63
4,851	7,62,592	45,730	2,234	221	—063	8,15,588	104-51	25,79,459	18-17
4,697	7,12,336	47,375	2,269	....	24	7,06,701	80-75	23,26,941	24-18
4,332	9,72,069	80,965	1,721	82	223	10,68,422	74-94	42,97,483	24-47

(column 14) is generally higher than that in the Roads and Buildings Branch (column 8). The rest-on is largely entirely on "revenue management" work on certain canal systems which has no connection with the execution of revenue management "including the control and distribution of water," which is debited in the accounts to "revenue management" are deducted from the total cost of establishment in the Irrigation Branch the percentage Branch is mainly due to decrease in outlay on "works" and "repairs." Establishment charges cannot be reduced inaccurately.

the basis of estimated figures and those on the basis of actuals

on which establishment charges were levied.