



Government of Bombay  
Public Works Department

# A Combined Irrigation Administration Report, Bombay State

Part I

*For the Years 1949-50 and 1950-51*

S



BOMBAY

ED AT THE GOVERNMENT CENTRAL PRESS

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# PROVINCE OF BOMBAY DIAGRAM

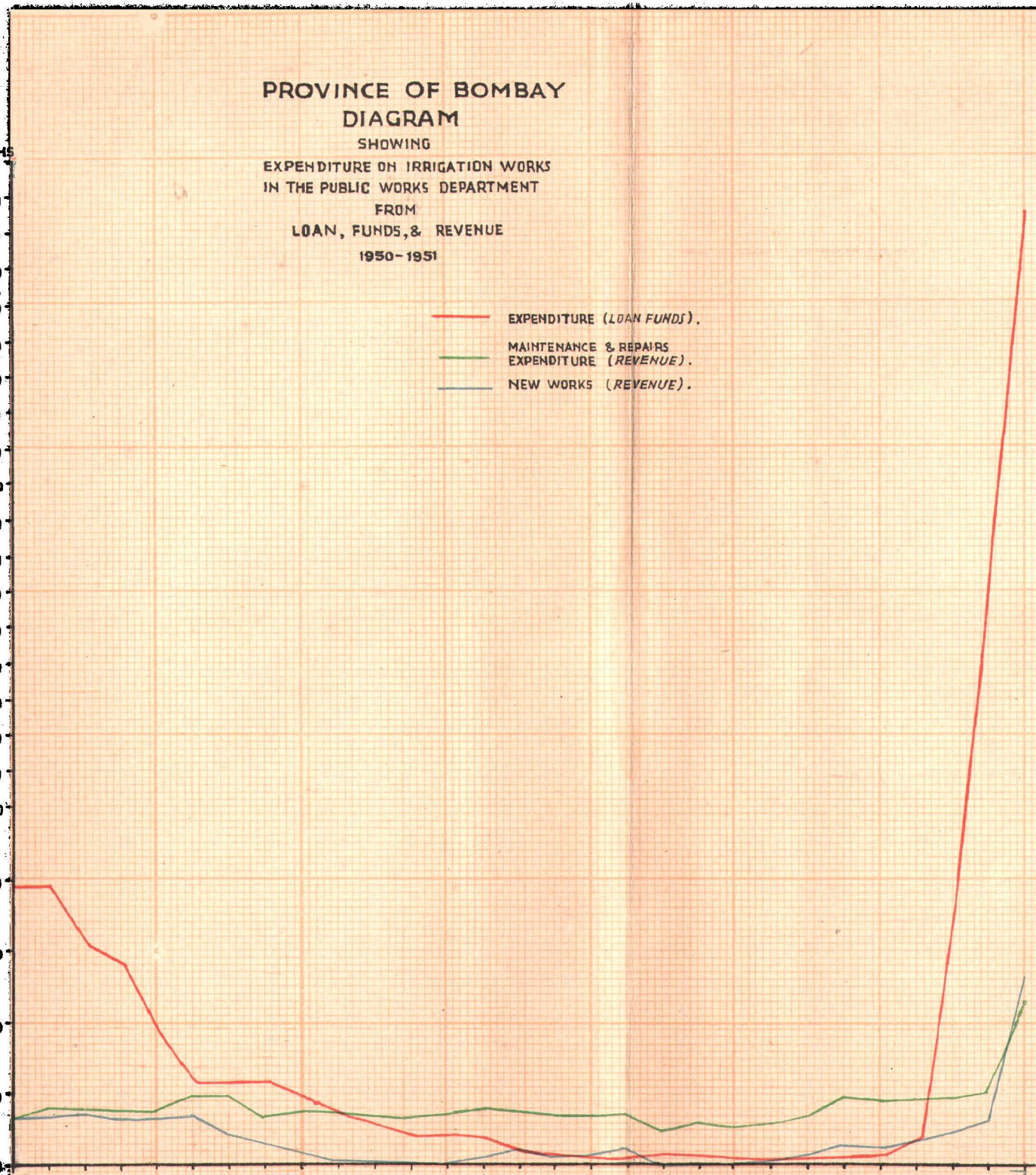
SHOWING  
EXPENDITURE ON IRRIGATION WORKS  
IN THE PUBLIC WORKS DEPARTMENT  
FROM  
LOAN, FUNDS, & REVENUE  
1950-1951

LAKHS

230  
220  
210  
200  
190  
180  
170  
160  
150  
140  
130  
120  
110  
100  
90  
80  
70  
60  
50  
40  
30  
20  
10  
0

— EXPENDITURE (LOAN FUNDS).  
— MAINTENANCE & REPAIRS  
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1922-1923  
1923-1924  
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1929-1930  
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1940-1941  
1941-1942  
1942-1943  
1943-1944  
1944-1945  
1945-1946  
1946-1947  
1947-1948  
1948-1949  
1949-1950  
1950-1951





## A COMBINED IRRIGATION ADMINISTRATION REPORT, BOMBAY STATE, PART I, FOR 1949-50 AND 1950-51.

### PHYSICAL FEATURES-GENERAL DESCRIPTION OF IRRIGATION

The area under irrigation in the State 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 State 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 State.

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 the 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 irrigates the area between itself and the river.

## SECTION I.

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

## GENERAL REMARKS.

4. The following list includes all the works in operation (41 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 cusec.	Whether supply is reliable or dependent on local rain.	Whether storage works completed or proposed.	Remarks.
1	2	3	4	5	6
		Acres			
1	Hathmati and Khari Cut Canal.	24,000	Dependent on local rain.	No storage work Bokh reservoir Chandola tank and Wasai reservoir completed.	The catchment of the Hathmati river is hilly, covered partly with forest and that of the Khari is undulating ground with cultivated fields. The supply depends upon the flow in the rivers, and the contents of the Bokh reservoir, Chandola tank and Wasai reservoir.
2	Vijapur Tube Wells Scheme.	4,294	Reliable	.....	This is a tube well scheme. There were 5 Tube Wells working during the year under report 19 pumps were working with electric energy and 6 with oil engines.
3	Jojwa and Wadhvana Irrigation System.	7,035	More or less reliable.	No storage work above the Jojwa Head Works and Wadhvana Irrigation tanks on downstream.	The river harnessed the Orsang Rivers, the catchment of which is hilly with medium forest.
4	Wangroli Tank ...	3,400	Dependent on local rains.	Completed ...	The catchment is ordinary plain ground and cultivated fields.
5	Savli Tank ...	3,000	Do.	Do.	Ordinary catchment on undulating ground.



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.
1	2	3	4	5	6
6	Tranza Nagrama Tanks.	Acres 800	Dependent on local rains.	Completed.	The Tranza tank has no independent catchment. The Nagrama has a catchment of 1.5 square mile. Both are fed by the Mata drainage channel which is not reliable as it seldom flows.
7	Futelao ...	800	Do.	Do.	Hilly catchment.
8	Nira Left Bank Canal including Shetphal tank.	100,000	Reliable. ...	Lake Whiting (Lloyd Dam) Completed.	Ghat catchment.
9	Nira Right Bank Canal.	180,000	Do.	Do.	Do.
10	Mutha Canal including Motoba Tank.	49,000	Do.	Lake Fife completed.	Do.
11	Godavari Right Bank Canal.	44,000	Do.	} Lake Beale completed. }	} Do.
	Godavari Left Bank Canal.	26,000			
12	Girna Left Bank Canal.	9,000	Do.	Chankapur tank completed.	Do.
13	Kadwa River Works { Palkhed 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			
15	Bhatodi Tank ...	1,461	Dependent on local rains.	Completed	Deccan Catchment,
16	Parsul Tank ...	1,440	Do.	Do.	Dq.
17	Shirsuphal Tank ...	1,150	Do.	Do.	Dq.
18	Bhadalvadi Tank	1,123	Do.	Do.	Do.

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.
1	2	3	4	5	6
19	Ekrak Tank ...	13,070	Dependent on local rains.	Completed.	Deccan catchment.
20	Mhaswad Tank ...	14,000	Do.	Do.	Do.
21	Ashti Tank ...	3,382	Do.	Do.	Do.
22	Pathri Tank ...	3,094	Do.	Do.	Hilly catchment.
23	Jamda Canals.	42,000	Girna river Supply not reliable.	Water is issued from the Chankpur Dam.	Ghat catchment for a small part and for the rest Deccan catchment.
24	Mhaswa Tank ...	3,256	Do.	Do.	Do.
25	Shahada Channel.	2,000	Reliable ...	No storage work.	Hilly catchment supply is perennial.
26	Lower Panjhara River Works.	8,173	Panjhara river supply not reliable.	Mukti Tank completed.	Ghat catchment for one part and Deccan catchment for the rest.
27	Krishna Canal ...	6,412	Reliable ...	Proposed	Ghat catchment.
28	Rewari Canal ...	439	Dependent on local rains.	No storage work.	Deccan catchment.
29	Upper Man River Works.	373	Do.	Pingli tank completed.	Do.
30	Yerla River Irrigation Works.	1,182	Do.	Nehr Tank completed.	Do.
31	Chikhli Canal ...	358	Do.	No storage work.	Do.
32	Maini Tank ...	455	Do. ...	Completed	Do.
33	Gokak Canal ...	17,627	Reliable (fed by the Ghataprabha river).	Do.	Ghat catchment.
34	Gadikeri Tank ...	423	Dependent on local rains.	Do.	Deccan catchment.

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.
1	2	3	4	5	6
35	Muchkundi Tank.	750	Dependent on local rains.	Completed.	Deccan catchment.
36	Dambal Tank ...	531	Do.	Do.	Do.
37	Medleri Tank ...	443	Do.	Do.	Do.
38	Madag Tank ...	1,345	Reliable	Do.	Ghat and Forest catchment.
39	Asundi Tank ...	526	Dependent on local rains	Do.	Deccan catchment.
40	Dharma Canal ...	9,100	Fairly reliable.	Completed as also proposed.	Ghat catchment.
41	Mavinkop Tank ..	755	Dependent on local rains.	Completed.	Forest catchment.

Ekruk tank, Gadikeri tank, Mavinkop tank and Shahada Channel are the only productive works and the rest are unproductive.

5. The interest account for the years under report was as follows :—

	Productive works.	Unproductive works.	Total.
1	2	3	4
	Rs.	Rs.	Rs.
Total interest charges during { 1949-50 ...	46,361	43,39,341	43,85,702
{ 1950-51 ...	46,361	45,65,217	46,11,578
Net Revenue realised during { 1949-50 ...	1,24,524	31,91,710	33, 16,234
{ 1950-51 ...	2,27,170	26,19,920	28,47,090



Net loss i. e. difference between interest and net revenue is as under :—

					Rs.
1949-50	...	...	...	...	10,69,468
1950-51	..	...	...	...	17,64,488

6. The financial results of the years under report by main heads were as under :—

Year.	Area irrigated.	Revenue realised.			Working expenses.	Net revenue.
		Direct receipt.	Share of land revenue.	Total.		
	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.
1949-50—						
Productive	9,275	2,84,222	10,439	2,94,661	1,70,137	1,24,524
Unproductive	4,59,487	61,36,434	34,608	61,71,042	29,79,332	31,91,710
Total	4,68,762	64,20,656	45,047	64,65,703	31,49,469	33,16,234
1950-51—						
Productive	9,278	2,87,739	10,439	2,98,178	71,008	2,27,170
Unproductive	4,64,124	65,90,253	34,516	66,24,769	40,04,849	26,19,920
Total	4,73,402	68,77,992	44,955	69,22,947	40,75,857	28,47,090

The gross revenue and the net revenue during the year 1950-51 show increase of Rs. 4,57,244 and decrease of Rs. 4,69,144 respectively, as compared with the figures for the previous year respectively.

7. The figures of the area irrigated, the revenue assessed and realised and the working expenses during the year 1950-51 as compared with those of the previous three years, are given below :—

Year.	* Area irrigated.	Revenue		Working expenses.
		Assessment.	Realisations.	
	Acres.	Rs.	Rs.	Rs.
1947-48	4,36,232	66,84,303	65,54,594	28,33,307
1948-49	4,08,780	66,40,147	65,84,730	32,18,022
1949-50	4,68,762	66,50,109	64,65,703	31,49,469
Average	4,37,924	66,58,186	65,35,009	30,66,932
1950-51	4,73,402	70,55,732	69,22,947	40,75,857

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

8. The gross area under command was 15,45,345 acres during the year 1950-51 against 16,84,354 acres during the previous year. The area irrigable was 6,25,324 acres during 1950-51 as compared with 6,14,841 acres, for the previous year.

9. The State of Revenue collections was as follows :—

1949-50		Rs.	Rs.
Balance of demands unrealised at the commencement of the year 1949-50		.....	13,07,273
Demands of the year 1949-50—			
Rabi	1948-49	...	10,87,984
Kharif	1949-50	...	39,27,060
Miscellaneous receipts ...		...	8,60,037
Total		...	71,82,354
Deduct—			
Remission	...	.....	1,51,543
Net Total		...	70,30,811
Amount unrealised at the close of the year 1949-50		...	13,78,698
Actual receipts of the year 1949-50		...	64,21,098
Add—			
Share of land revenue	...	45,047	64,66,145
Deduct—			
Refunds of revenue	...	...	442
Revenue realised		...	64,65,703
1950-51			
Balance of demands unrealised at the commencement of the year 1950-51.		...	13,67,236
Rs.                      Rs.			
Demands of the year 1950-51—			
Rabi	1949-50	...	14,94,066
Kharif	1950-51	...	39,86,632
Miscellaneous receipts ...		...	6,90,290
Total		...	61,70,988
Deduct—			
Remissions	...	...	3,15,653
Net total		...	72,22,571
Amount unrealised at the close of the year		...	17,01,843
Actual receipts of the year 1950-51		...	69,08,760
Add—			
Share of land revenue	...	44,955	69,53,715
Deduct—			
Refunds of revenue	...	...	30,768
Revenue realised		...	69,22,947

The remissions and refunds together amounted to Rs. 3,46,421 during the year 1950-51 as compared with Rs. 1,51,985 during the previous year.

Unrealised irrigation revenue at the close of the years 1950-51 and 1949-50 amounted to Rs. 17,01,843 and Rs. 13,78,698 respectively.

	1950-51 Rs.	1949-50 Rs.
Ekrak tank	1,62,083	28,512
Hathmati and Khari Cut Canals	...Not available.	4,462
Bhadalwadi Tank	4,432	1,348
Krishna Canal	15,527	52,617
Ashti Tank	27,148	10,828
Lower Panjhra River Works	435	586
Yerla River Irrigation Works	1,437	2,926
Parsul Tank	2,340	3,313
Mutha Canals and Matoba Tank	98,971	1,06,078
Shahada Channel	2,231	2,194
Mhaswad Tank	59,377	37,735
Jamda Canals	12,017	7,994
Nira Left Bank Canal and Shetpal Tank	4,73,323	3,74,706
Girna Canal	91,434	68,187
Kadwa Canals	48,951	27,136
Godavari Canals	35,822	37,276
Nira Right Bank Canal	4,15,807	4,19,262
Pravara Canals	48,882	69,307
Other Works	2,01,726*	1,24,231
<b>Total</b>	<b>17,01,843</b>	<b>13,78,698</b>

\* Includes unrealised irrigation revenue of Hathmati and Khari Cut Canals.

10. The working expenses of the year 1950-51 amounted to Rs. 40,75,857 as compared with Rs. 31,49,469 during the previous year. The following table compares the charges under the principal heads during the year 1950-51 with those of the previous three years.

	1947-48	1948-49	1949-50	1950-51
	Rs.	Rs.	Rs.	Rs.
Works	2,45,123	2,13,443	3,26,521	7,54,619
Repairs	9,85,948	9,34,229	9,67,641	9,98,766
Establishment	15,46,511	20,23,478	18,06,883	22,72,642
Tools and Plant	19,124	17,151	19,365	25,142
Post-War Reconstruction-Programme	11,854	4,969	7,485	.....
<b>Total in Public Works Department</b>	<b>28,08,660</b>	<b>31,93,270</b>	<b>31,27,895</b>	<b>40,51,169</b>
Collection charges	12,224	13,254	8,574	12,045
Indirect charges	12,423	11,498	13,000	16,901
<b>Total working expenses</b>	<b>28,33,307</b>	<b>32,18,022</b>	<b>31,49,469</b>	<b>40,75,857</b>



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

Name of work.	Year.	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.
1	2	3	4	5	6	7
		Rs.	Rs.	Rs. a. p.	Rs.	Rs.
Nira Left Bank Canal and Shetphal Tank.	1949-50	11·9	4,996	0 0 11	1,859	5·48
	1950-51	12·4	3,876	0 0 9	1,322	3·9
Pravara Canals	1949-50	18·3	7,924	0 1 6	1,922	5·79
	1950-51	16·1	7,844	0 1 6	1,749	5·3
Girna Canal	1949-50	15·0	1,896	0 1 7	3,388	6·97
	1950-51	14·0	2,078	0 1 8	3,018	7·4
Godavari Canals	1949-50	19·6	9,388	0 2 8	1,197	4·97
	1950-51	19·2	12,610	0 3 8	1,841	7·8
Mutha Canals including Matoba Tank.	1949-50	26·8	2,105	0 1 8	1,597	13·51
	1950-51	30·8	2,364	0 1 11	1,112	10·2
Kadwa River Works	1949-50	25·4	438	0 1 6	1,023	8·31
	1950-51	23·3	501	0 1 6	1,475	10·5
Nira Right Bank Canal	1949-50	11·6	7,958	0 1 5	1,335	6·67
	1950-51	18·4	6,437	0 1 3	1,834	10·2
Mhaswad Tank	1949-50	5·95	1,202	0 2 3	1,424	3
	1950-51	6·48	1,761	0 3 3	1,346	2·00
Krishna Canal	1949-50	8·35	4,681	0 11 2	6,190	32·46
	1950-51	7·15	5,008	1 3 11	30,895	248·04
Yerla River Irrigation Works	1949-50	4·85	2,420	0 8 7	745	5·53
	1950-51	6·67	341	0 6 8	786	5·82
Upper Man River Works	1949-50	4·93	332	0 3 10	1,04	13·32
	1950-51	5·76	464	0 5 3	42	5·32
Mayani Tank	1949-50	5·21	548	0 5 5	920	5·30
	1950-51	5·85	513	0 5 6	631	3·92
Ekruk Tank	1949-50	5·48	668	0 2 2	987	9
	1950-51	5·71	775	0 2 2	901	7·00

Name of work.	Year.	Average incidence of wafer rate per acre.	Cost of measurement.		Working expenses in the public Works Department.	
			Total cost.	Per Acre.	Per mile of canal.	Per acre irrigated
1	2	3	4	5	6	7
		Rs.	Rs. a. p.	Rs. a. p.	Rs.	Rs.
Gokak Canal 1st Section and Storage Works.	1949-50	7.28	3,502 4 0	0 3 9	1253.05	4.33
	1950-51	7.24	2,775 0 0	0 3 0	758.00	2.63
Dharma Canal	1949-50	4.88	800 0 0	1 0 5	881.43	2.86
	1950-51	4.69	750 0 0	0 14 0	282.18	2.54
Hathmati and Khari Cut Canals	1949-50	2.68	No extra establishment was maintained		1,887	497.9
	1950-51	4.57	Do.		2,370	534.
Dambal Tank	1949-50	3.66	.....	.....	581.96	4.12
	1950-51	2.53	.....	.....	769.72	3.09
Medleri Tank	1949-50	6.38	.....	.....	266.13	10.00
	1950-51	6.55	.....	.....	287.24	11.00
Madag Tank	1949-50	4.28	.....	.....	268.44	3.31
	1950-51	4.26	.....	.....	483.56	6.81
Asundi Tank	1949-50	8.80	.....	.....	256.79	2.40
	1950-51	7.25	.....	.....	206.38	2.33

12. The gross assessed revenue, direct and indirect, amounted to Rs. 70,55,732 Gross assessed revenue during 1950-51 as compared with Rs. 66,50,109 in the previous year. The details of the gross assessment are as under :—

	Direct revenue.			Indirect revenue	Total	
	Water rate	Other receipts	Total			
1	2	3	4	5	6	
	Rs.	Rs.	Rs.	Rs.	Rs.	
Productive	1949-50	41,801	3,48,819	3,90,620	10,439	4,01,059
	1950-51	50,839	2,50,100	3,00,939	10,439	3,11,378
Unproductive	1949-50	56,92,717	5,21,725	62,14,442	34,608	62,49,050
	1950-51	60,06,446	7,03,392	67,09,838	34,516	67,44,354
Total	1949-50	57,34,518	8,70,544	66,05,062	45,047	66,50,109
	1950-51	60,57,285	9,53,492	70,10,777	44,955	70,55,732

The net assessed revenue of the year 1950-51 after deducting working expenses (Rs. 40,75,857) amounted to Rs. 29,79,875 as compared with Rs. 35,00,640 during the previous year.

13. The following table gives the percentage return earned during the years 1949-50 and 1950-51 on capital outlay on the principal works in operation :—

Name of work.	Year	Total Capital outlay (direct and indirect)	Gross receipts (direct and indirect)	Working expenses (direct and indirect)	Net revenue	Percentage return on Capital Outlay.
1	2	3	4	5	6	7
		Rs.	Rs.	Rs.	Rs.	
Ekruk Tank	1949-50	13,40,386	2,69,340	1,33,357	1,35,983	10.15
	1950-51	13,40,386	2,77,359	43,275	2,34,084	17.46
Hathmati and Khari cut Canals.	1949-50	13,18,729	11,690	98,102	-86,412	...
	1950-51	13,18,729	62,981	1,23,258	-60,277	...
Nira Left Bank Canal and Shetphal Tank.	1949-50	1,48,17,728	10,02,627	4,44,734	5,57,893	3.76
	1950-51	1,49,06,936	10,27,225	3,16,114	7,11,111	4.77
Nira Right Bank Canal ...	1949-50	4,20,92,449	12,04,632	6,05,287	5,99,345	1.42
	1950-51	4,22,99,811	15,13,492	8,30,784	6,82,708	1.61
Mutha Canals and Matoba Tank.	1949-50	70,19,168	5,44,346	2,74,651	2,69,695	3.84
	1950-51	70,19,168	6,09,749	2,01,427	4,08,322	5.81
Godavari Canals	1949-50	1,82,86,130	11,03,995	2,80,131	8,23,864	4.55
	1950-51	2,30,57,182	10,83,762	4,30,991	6,52,771	2.83
Chankapur Tank Girna Canal.	1949-50	20,79,541	2,87,986	1,33,509	1,54,477	7.43
	1950-51	20,79,541	2,41,796	1,47,710	94,086	4.52
Kadwa River Works ...	1949-50	10,35,876	1,18,871	38,867	80,004	7.72
	1950-51	10,35,876	98,025	56,062	41,963	4.05
Pravara River Works ...	1949-50	1,51,32,351	13,66,053	4,89,197	8,76,856	5.79
	1950-51	1,52,60,472	13,90,291	4,44,257	9,46,034	6.20
Mhaswad Tank ...	1949-50	20,96,016	54,358	54,749	-391	...
	1950-51	20,96,016	67,784	33,581	34,203	1.63
Lower Panjhra River works	1949-50	4,68,621	21,839	22,339	-500	...
	1950-51	4,68,621	31,639	48,589	-16,950	...
Krishna Canal ...	1949-50	9,49,807	68,112	2,25,469	-1,57,357	...
	1950-51	9,49,807	79,319	9,96,368	-9,17,049	...
Gokak Canal ...	1949-50	15,79,513	1,43,502	65,008	78,494	4.99
	1950-51	15,79,513	1,51,643	17,203	1,34,440	8.51



14. The average water rates per acre of land actually irrigated during 1949-50 and 1950-51 were as under :—

	1949-50	1950-51
	Rs.	Rs.
Productive works	5.02	4.83
Unproductive works	6.11	7.80

15. The water rate assessments and other receipts during 1950-51 compared with those of the previous year were as under :—

	1949-50	1950-51
	Rs.	Rs.
Water rates	57,34,518	60,57,285
Other Receipts—		
Plantations	21,893	11,863
Water power	1,77,893	3,94,833
Miscellaneous	6,70,758	5,46,796
Total	8,70,544	9,53,492
Share of land revenue	45,047	44,955
Grand Total	66,50,109	70,55,732

16. The principal crop acreage irrigated during 1949-50 and 1950-51 are given below :—

Crop Acreages	1949-50	1950-51
	Acres	Acres
Gerden and orchards	15,743	14,199
Sugarcane	58,849	62,381
Wheat	33,100	40,212
Rice	26,264	50,106
Jowar	1,26,997	1,20,551
Bajri	48,576	38,741
Gram etc.	30,785	36,944
Groundnut	8,884	10,123
Cotton	1,091	6,261
Condiments	5,972	7,494

The total estimated value of the crops irrigated was Rs. 1395.27 lakhs during the year 1950-51 as compared with Rs. 1469.58 lakhs during the previous year.

*A brief general estimate of the work done during the period under report, viz., for the years 1949-50 and 1950-51.*

### **NORTH GUJARAT CIRCLE.**

An expenditure of Rs. 927 was incurred towards the Special Repairs such as silt clearance and jungle cutting in the Saiat tank in Kaira Collectorate. Besides, a sum of Rs. 1,012 was spent on making good the damages done to Timba tank in Sabarkantha District due to heavy rains in 1950-51. The tank Badi Padwa in Amreli District, an Ex-Baroda Government tank, was constructed by the Bombay Government as an emergency irrigation work and was completed mostly in 1949-50.

### **SOUTH GUJARAT CIRCLE.**

No original work was carried out during the years under report but necessary repairs to old tanks and drainage channels were carried out at an aggregate cost of Rs. 1,38,909 during the year 1950-51 as against Rs. 1,54,194 during the previous year.

### **GUJARAT IRRIGATION CIRCLE.**

The Meshwa Canal Project, one of the Major Irrigation Projects started under the Development Programme of the Bombay State, was completed and water was admitted into the canal during monsoon of 1950-51 for the first time, thus effecting direct irrigation to the extent of about 1,861 acres of rice crops. Another project viz., Mahi Right Bank Canal Project, estimated to cost Rs. 425 lakhs, is under execution. The project is anticipated to be completed in 1959 and to irrigate 90,000 acres in Kaira District. Preliminary works such as construction of buildings, approach roads, acquisition of lands, purchase of machinery, etc. were in full swing during the years under report.

As regards Vijapur Tube Wells Scheme in Mehsana District, 25 tube wells were working during the year 1950-51, 19 on electric power and 6 on oil engines. A notable feature of the period was the opening up of the Bahadarpur distributory which was out of use for about 30 years, on the Wadhvana and Jojwa Irrigation System in Baroda District, by carrying out necessary repairs. An amount of Rs. 3,02,296 was spent on construction works of Fatewadi Canal in Ahmedabad District and the canal functioned for the first time during 1950-51.

### **DECCAN IRRIGATION CIRCLE.**

The designed discharging capacity of 1,500 cusecs on the Nira Right Bank Canal was never attained in the past and the maximum that could be passed safely was only 1,100 cusecs at the time of peak demand. In order to remedy this defect, a project amounting to Rs. 20 lakhs for raising the banks by 2½ feet for a discharging capacity of 1,500 cusecs was sanctioned and the work of remodelling the canal from miles 0 to 40 is in progress. Earth work in miles 0 to 40 was practically completed and masonry works in miles 21 to 25 were completed. Masonry works in miles 0 to 20 and 26 to 40 are in progress and the amount spent to end of March 1951 was 9.12 lakhs.

The Gangapur Storage Project, estimated to cost about Rs. 334 lakhs is under execution. The project is anticipated to be completed in 1957 and to irrigate about 45,000 acres in Nasik and Ahmednagar Districts. The construction of the proper dam is in progress. Detailed survey of the left bank for a length of 15 miles was Completed and the project was finalised. Detailed survey of the lower portion of the Right Bank Canal was continued and the economic study of the distribution of irrigation between the two canals was undertaken. The design of the bridge across the River Godavari was finalised. The expenditure on the project to end of March 1951 amounted to Rs. 100.17 lakhs.

In the Deccan, when a large perennial canal is opened, wide-spread water logging is liable to ensue and unless steps are taken to arrest and set it right, the damage consisting mainly of salt efflorescence becomes permanent. There is a Special Division, viz., Irrigation Development Division in this Circle and research and investigation into all the problems relating to irrigation by means of actual experiments, has been the sphere of work of this Division. A number of drainage schemes were carried out in the various sugar factory areas to save lands from damage due to cultivation of sugarcane by Sugar Companies. The detailed work done by this Division in this respect is given in Section III of the Report.

### **CENTRAL CIRCLE.**

During the high floods in the Krishna River in July 1950, the portion of Khodshi weir breached. After investigation both analytically and by model experiments carried out at Khadakwasla, it was found that the present section of the weir was unstable and it was proposed to strengthen the weir by providing buttresses and aeration on down stream face of the weir. The work of rebuilding the weir including the buttresses in the breached part of the weir was completed.

The Ranand Tank, estimated to cost about Rs. 22 lakhs, is under execution in this Circle. The scheme is expected to be completed in 1953 and to irrigate about 2,700 acres in North Satara District. The work was in full swing during the period under report.

### **KARNATAK IRRIGATION CIRCLE.**

The construction of the Ghataprabha Left Bank Canal miles 0 to 44 with two branches was started in June 1949 for additional food production. The project, estimated to cost about 545 lakhs, is a monsoon canal starting from Dhupdal Weir and is anticipated to be completed in 1957 and to irrigate about 1,00,000 acres in Belgaum and Bijapur Districts. The work of canal excavation was in progress during the year 1950-51 and an expenditure of Rs. 64,46,482 was incurred. During the period under report, improvements to the Dharma Canal (Dharwar District) were carried out.

### **SOUTHERN CIRCLE.**

The Kolchi Weir Scheme, estimated to cost about Rs. 21.41 lakhs, is under execution in this Circle. The project is expected to be completed in 1953 and to irrigate 3,700 acres in Bijapur and Dharwar Districts. The work was in progress during the period under report. The tank bed of the Muchkundi tank in Bijapur District was given on lease for cultivation as an experiment for a period of ten years to the Co-operative Joint Farming Society Limited, Bagalkot, in furtherance of the "Grow More Food Campaign".

## DETAILED REPORTS BY LOCAL OFFICERS.

## NORTH GUJARAT CIRCLE.

The years 1949-50 and 1950-51 were marked by a monsoon which broke out in the first week of July 1949 and 1950. The rainfall was not sufficient during the year 1949-50 with the result that it was inadequate for rice crops and for storage. During 1950-51, the rainfall was incessant and very heavy in the latter part of the season i. e. in September 1950 and hence the tanks were generally filled. There was practically no storage of the last year and therefore the hot weather irrigation was not possible during the year 1950-51.

The principal irrigation works in operation in this Circle are (1) the Wangroli Tank, (2) the Savli Tank, and (3) the Tranza-Nagrama Tanks. The three works are financially unproductive, as the annual revenue is not sufficient to cover the working expenses.

## First Class Irrigation Tanks in Gujarat.

The three first class tanks, viz., Wangroli, Savli and Tranza Nagrama were constructed between the years 1904 and 1917 at the aggregate cost of Rs. 8 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. All the three tanks are situated in Kaira Collectorate.

The area irrigated, the revenue assessed and the working expenses in connection with the tanks during the years 1949-50 and 1950-51 as compared with the average of the preceding three years are 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 ..	853	4,260	17	590	1,024	4,850	6,629
	1949-50	969	4,854	10	29	979	4,883	5,887
Savli ..	Average ..	1,547	7,701	15	60	1,562	7,761	7,786
	1949-50	1,814	9,226	..	..	1,814	9,226	7,010
Tranza Nagrama	Average ..	147	543	3	7	150	350	4,634
	1949-50	3	17	..	..	3	17	5,616
Wangroli ..	Average ..	615	3,072	18	59	633	3,131	6,260
	1950-51	1,208	6,057	809	3,202	2,017	9,259	9,321
Savli ..	Average ..	489	2,196	1	5	490	2,201	7,979
	1950-51	2,137	11,036	56	223	2,193	11,259	5,849
Tranza Nagrama	Average ..	..	..	1	3	1	3	5,263
	1950-51	220	817	..	..	220	817	2,404

## WANGROLI TANK.

The rainfall gauged at the site of the tank was 59·00 inches during 1950-51 against 21·45 inches last year. The tank was partially filled during 1949-50 and filled to Full Supply Level during 1950-51. The water was utilised in irrigating the Kharif crops mainly of rice. The remaining water was utilised in irrigating Rabi crops. The miscellaneous revenue realised during the year 1950-51 amounted to Rs. 1,104 compared with Rs. 4,483 received during the previous year. No remissions were granted during the years 1949-50 and 1950-51.

## SAVLI TANK.

The rainfall gauged at the site of the tank was 51·32 inches during 1950-51 against 21·53 inches during previous year. The tank was partially filled during 1949-50 and filled to Full Supply Level during 1950-51. The water was utilised in irrigating Kharif and Rabi crops comprising mainly wheat and rice. The miscellaneous revenue realised amounted to Rs. 2,203 compared with Rs. 1,934 received during the previous year. No remission was granted during the year 1950-51.

## TRANZA NAGRAMA TANKS.

The rainfall gauged at the site of the tank was 36·89 inches during 1950-51 against 24·79 inches last year. The tank was partially filled during 1949-50 but it was completely filled during 1950-51 due to good rainfall and there was good irrigation during 1950-51. The miscellaneous revenue realised amounted to Rs. 1,802 compared with Rs. 1,206 received in the previous year. No remission was sanctioned during the years 1949-50 and 1950-51.

The percentage returns obtained during the years 1949-50 and 1950-51 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	Percentage of return
1949-50	Rs.	Rs.	Rs.	Rs.	Rs.	
Wangroli ..	5,308	5,853	5,887	—34	2,93,295	—0·11
Savli ..	3,465	3,876	7,016	—3,134	2,55,210	—1·23
Tranza Nagrama ..	1,206	1,206	5,616	—4,410	2,80,635	—1·57
1950-51						
Wangroli ..	10,363	1,728	9,321	—7,593	2,93,295	—·026
Savli ..	13,462	2,993	5,849	—2,856	2,55,210	—·012
Tranza Nagrama ..	2,619	1,805	2,404	—599	2,80,635	—·002

## SOUTH GUJARAT CIRCLE.

The monsoon during the year 1949-50 and 1950-51 broke out in the last week of May 1949 and first week of June 1950 respectively. In comparison to irrigation of last two years, more acres of land have been supplied water for a pretty long time on account of fairly good rain and no difficulty in getting water for irrigation purposes was experienced by the cultivators.

The principal irrigation work in operation in this Circle is Futelao Tank. This work is financially unproductive as the annual revenue derived therefrom in ordinary years is not sufficient to cover even the working expenses of the tank. The Futelao tank was constructed on 30th November 1916. It rarely yields any return as the demand of water therefrom in year of good rainfall is scanty, while in the years of deficient rainfall, the tank itself does not get sufficient supply, it being dependent on local rainfall.

The rainfall gauged at the site of the tank was 48·49 inches during the year 1950-51 against 21·90 inches for the last year. The tank was filled up to R.L. 110·00 i.e. 3 feet more than that F.S.L. of 107·00 of the tank during the year 1950-51. The rainfall was timely and suitable for Kharif crops and hence there was very little irrigation in Kharif season. The available water was utilized in irrigating Rabi crops.

The rainfall for the year 1950-51 along with the previous two years is as under :—

	1948-49	1949-50.	1950-51
	Inches	Inches	Inches
Futelao Tank .. .. .	24·32	21·90	48·49

The annual average rainfall in the area of this tank is 29 inches and as such the above figures show that the rainfall during the year 1950-51 was above average and proved sufficient for irrigation whereas the rainfall during 1949-50 was less than the average.

This area is a backward one and as such the cultivators avail very little advantage of irrigation and hence there was no good demand of canal water during the years under report. However the irrigation during the year 1950-51 is as under, showing comparatively better progress than the average figures of last two years. \*

Name of season	Area irrigated	Amount	Average irrigation
	Acres	Rs.	Acres
1. Hot season .. .. .	.....	.....	.....
2. Rabi season .. .. .	246·16	857·10	220
3. Kharif season .. .. .	29·23	85·00	12
	275·39	942·10	232

The percentage return obtained during the years under report from the working expenses of the tank is as shown below:—

Name of tank	Gross assessment	Gross realization	Less working expenses	Net revenue	Capital outlay direct and indirect	Percentage of Return.
1	2	3	4	5	6	7
Year	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Futelao .. 1950-51	439	574	1,412	—838	1,16,461	—0.72
1949-50	600	285	1,492	—1,207	1,16,461	—1.03

### GUJARAT IRRIGATION CIRCLE.

The area under irrigation in Gujarat is not compact. Rainfall is often insufficient and sometimes ill distributed. Tanks and Canals help to tide over the unevenness of precipitation or insufficiency to enable to grow a successful rice crop and also other Kharif crops.

The monsoon in Gujarat generally starts in July. The year 1949-50 began with somewhat delayed rains with an absence of heavy intensity during first two months of the monsoon season and the monsoon first broke out in the last week of June 1949 ; but during the year 1950-51 it started just in time but heavily without a break for a duration of 3 weeks. Compared with the vigorous rain of July 1950 and the floods caused, the monsoon was very weak in August, with only a precipitation of 2 to 3 inches at some places. But it was more than compensated by a cloud burst in the middle of September 1950 causing very high floods almost nearing those of 1927 the highest on record. The total rainfall during the year 1950-51 was nearly 60 per cent above the average rainfall of the tract. Succeeding a cycle of 3 bad years, it was very intense (nearly three times the average of the past 3 years). Heavy rainfall damaged Bajri crop. The heavy floods of September 1950, damaged at places the newly constructed Meshwa Canal and Fatewadi Canal, indicating places where more cross drainage works are needed and where more protective pitching is necessary.

In the year 1949-50 the rain was much below normal and unequally distributed. There was no good run off from the catchments of the rivers due to less rain. Due to scanty rainfall, the transplanted area could not be fully protected. But during the year 1950-51 run off from the catchments of rivers was very good and all tanks and reservoirs were full of water even at the beginning of Rabi. The transplanted and late maturing fine quality rice was fully protected by Irrigation Tanks and Canals during Kharif Season by giving water in break period of August and the last watering in October.

The principal irrigation works in operation in this Circle are :

#### VIJAPUR TUBEWELLS SCHEM (MEHSANA DISTRICT)

During the year 1950-51, 25 tubewells were working, 19 on electric power and 6 on oil engines.



Water is sold on volumetric basis. The rate charged upto 14th February 1951 was Re. 1 per 14,000 gallons and afterwards at Re. 1 per 10,500 gallons. The discharge of tubewells varies from 8,000 gallons to 30,000 gallons per hour. The average discharge per tubewell comes to about 18,000 gallons per hour. Various types of crops are irrigated under the tubewells, the predominant ones being wheat, cheno, kang and commercial crops like Variali, Jiru, Tobacco etc.

The area irrigated and revenue assessed in connection with the tubewells scheme at Vijapur with average of the preceding three years are as under :—

Year						Area irrigated	Net revenue assessed.
						Acres	Rs.
Average	..	..	..	..	..	1,384	44,171
1950-51	..	..	..	..	..	2,202	57,729

No remissions were sanctioned during the year 1950-51.

#### HATHMATI AND KHARI CUT CANALS (AHMEDABAD IRRIGATION DIVISION).

This system includes a diversion weir on rock foundations across Hathmati River at Himatnagar and a Canal which feeds Bokh Reservoir of 300 million cubic feet formed in depression and bunded by an earthen dam. It also supplements the flow in the neighbouring Khari River across which a weir on permeable foundations exists at Raipur and a cut to divert the water into Motia Vehla and thence to a canal system meant to fill up a series of tanks and also to do direct irrigation.

This is an old system first opened in 1873-74. It irrigates a tract of land lying between the Sabarmati and Khari rivers. In addition to irrigating the area dependent on it, it is designed to pass surplus water, when available, first into the Bokh Reservoir (300 million cubic feet) and then into the Khari River direct via Bhujwa Channel. The Bokh Reservoir does not provide any direct irrigational supplies but only acts as a storage reservoir for supplementing the flow in the Khari river to be picked up at Raipur Weir. Further down stream on the Khari River is situated the irrigation system of Khari Sluices to utilise the natural flow of the river and also store any surplus water in local tanks for irrigational purposes. According to a High Court Decree, the surplus water from the Hathmati could only be diverted through the artificial canal called 'Khari Cut' system while riparian rights of Kalambandhi people claimed the natural flow in Khari River for the Khari Sluice System.

One important and noteworthy event during the year 1950-51 which has materially changed the arrangement stated in the preceding para is that the riparian rights of Kalambandhi area cultivators are taken over by the newly constructed Meshwa Canal. They get 70 cusecs of water during monsoon from the latter canal at Pinglaj as per the agreement between "Government of Bombay and the Kalambandhi Villages for waters of the Meshwa Canal" dated the 22nd January 1948. Thus the natural flow of Khari River could for the first time be diverted at Raipur into the Khari Cut Canal for irrigation. This change has supplemented the storage in Chandola Tank and the flow in Khari Cut Canal is so improved to benefit a large rice growing area under its command.

The rainfall gauged at Ahmedabad and Prantij was 48.71 inches and 47.49 inches respectively as compared with 14.34 inches and 12.10 inches respectively of the previous year. Similarly at Bareja which is situated at the tail of the Khari Cut Canal, the rainfall was 38.75 inches as compared with 19.99 inches of the previous year. At Himatnagar, where the head works of the Hathmati Canal are situated it was 47.49 inches as compared with 23.94 inches of the previous year.

The Hathmati river was four times in flood of moderate to good intensity due to good rainfall in the catchment of the river during the year 1950-51. But during the whole monsoon of the year 1949-50 there was no good flood of great intensity in the Hathmati river. The area irrigated under this Canal was 3,260 acres in the Kharif Season and 3,959 acres in the Rabi Season during 1950-51 against 196 acres and nil acres respectively during the previous year. The average daily discharge admitted into the canal at its head during the Kharif season of 1950-51 was 124 cusecs of which quantity only 57 cusecs were utilised for irrigation carried out under this canal, the balance being let down into the Bokh Reservoir as compared with the average daily discharge of only 27 cusecs during the year 1949-50 which was utilized for irrigation carried out under this canal. During the Rabi Season of 1950-51 the average daily discharge admitted into the canal at its head was 57 cusecs, which was utilised for irrigation carried out under this canal only.

The Khari river rose in floods 3 times during the monsoon season of 1950-51 but there was no flood in 1949-50. The floods were of fair duration and the flood of September 1950 was of abnormal volume. This year the old arrangement for distribution of water between 'Khari Cut' and Khari Sluices ceased to operate from 15th August 1950 and all water in Khari river was diverted into 'Khari Cut' as per agreement with the Kalambandhi people after construction of the Meshwa Canal. Under the Khari Cut Canal the area irrigated during the year 1950-51 was 13,514 acres in the Kharif Season and 2,329 acres in Rabi Season. There was no irrigation under the Khari Cut Canal during 1949-50 due to the shortage of water.

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

Year	Kharif		Rabi		Total	
	Area irrigated	Assessment	Area irrigated	Assessment	Area irrigated	Assessment
	Acres	Rs.	Acres	Rs.	Acres	Rs.
Average ..	1,183	3,117	262	581	1,442	3,698
•1950-51 ..	16,774	79,612	6,288	25,975	23,062	1,05,587
Average ..	4,319	15,929	838	2,145	5,157	18,074
1949-50 ..	197	528	—	—	197	528

Remissions amounting to Rs. 847 were sanctioned during the year 1950-51 for failure of crops due to excess of water.

**WADHWANA AND JOJWA IRRIGATION SYSTEM**  
(BARODA DISTRICT).

There is a shallow diversion weir at Jojwa founded on rock across the Orsang river, The Jojwa feeder canal channel takes off from the Jojwa Head Works with a small, direct irrigation system near Bahadarpur. It feeds the artificial Wadhvana Tank of about 453 million cubic feet capacity. Due to damage noticed in the Darjipura Outlet of this tank, the tank was not allowed to be filled up completely. Timely repairs were done to the outlet and the irrigation thereunder was not allowed to suffer. Water levels in the tank was maintained at a safe level.

The rainfall at Wadhvana and Jojwa, during the year 1950-51 was 59.23 inches and 55.09 inches respectively against 30.46 inches and 35.60 inches respectively, the average of the past three years.

Due to the ill distributed rainfall in the monsoon season of 1950-51 there was quite a good demand for the last watering in the Kharif Crops. Even crops like cotton and Jowar which otherwise do not need any irrigation in this area, were well protected by one watering in October 1950. The demand for irrigation water is commendably on the increase, particularly for the Rabi crops.

A notable feature during the year 1950-51 on this system was the opening up of the Bahadarpur distributary which had been closed for a long time in the past, taking off from the Jojwa Main Canal in mile 6. This distributary was out of use for about 30 years. Some minor repairs were done and the distributary was put to function. This was a boon to the otherwise failing crops for want of a late shower in the season and about 306 acres were thus protected. This was a very encouraging indication to start direct irrigation annually under the defunct Bahadarpur Distributary.

Water was being given free of cost for irrigation of food crops, from the Wadhvana Tank from 1943-44 upto 15th June 1950, in furtherance of the "Grow More Food Campaign". The water rates were reintroduced since 15th October 1950. The figures of area irrigated and the assessment are given as under :—

Year	Kharif		Rabi		Total	
	Area irrigated	Assessment	Area irrigated	Assessment	Area irrigated	Assessment
	Acres	Rs.	Acres	Rs.	Acres	Rs.
Average ..	1,974	*	547	*	2,521	*
1950-51 ..	2,160	11,390	2,680	14,607	4,840	25,997

\*The tanks were received incharge from 16th May 1950 and hence figures of assessment for the previous years are not available.

It may be mentioned that two other sources of revenue viz. grass and tank bed cultivation were considerably increased during 1950-51 from Rs. 1,821 and Rs. 4,506 to Rs. 3,500 and Rs. 9,591 respectively because of better competition in auctions. The area under tank bed cultivation was 164 acres.

The gross revenue actually realised during the year 1950-51 from all sources was Rs. 10,104 (Rs. 4,113 direct receipts and Rs. 5,991 indirect receipt credited to the head 7 Land Revenue) and the working expenses were Rs. 48,787.

#### MESHWA CANAL PROJECT.

This is a direct canal from the Meshwa River with a pick-up-weir in the river at Raska in Mehmedabad Taluka of Kaira District. This scheme comprises of a weir across the Meshwa River 14 feet high founded on permeable foundations to elevate and divert the monsoon supplies of the Meshwa River for purposes of irrigation. The canal taking off from the weir on the right bank goes in a deep cutting (Maximum 25 feet) till the water comes above ground level in Mile 7 from where the commanded area stops.

The main purpose of the scheme is to give a discharge of 70 cusecs during the monsoon at Pinglaj for the Kalambandhi areas and thus enable Government to divert the natural flow of the Khari River into Khari Cut Canal System. The Kalambandhi people had riparian rights over the natural flow of the Khari river across which the Raipur weir was built for the Khari Cut System. The riparian rights have been the cause for awkward situation almost every monsoon and were mainly responsible for the restrictions of expansion of irrigation in the Khari Cut commanded area.

In addition to supply of water to the Kalambandhi people, the Meshwa Project aimed at filling Galki and Goblej Tanks which were not filling up annuayll and also during direct irrigation from such supply in excess of the above two requirements. During Rabi all the flow in the river will be put to use for direct irrigation.

The project was brought to such a stage of completion that water could be admitted into the canal during monsoon of 1950-51 for the first time. All the works stood the test of a very heavy monsoon in the very first year. The September 1950 flood recorded almost the maximum floods for which the head works were designed. The damages caused in the monsoon were trivial except that it revealed the necessity of 2 superpassages and the diversion of canal alignment in the last mile.

Necessary discharge was given to the Kalambandni people according to agreement Galki and Goblej Tanks were filled and direct irrigation to the extent of 1,861 acres of rice crops was also possible. Rabi had to be restricted to enable completion of incomplete works, repairs to damages and construction of two super passages.

The total amount of irrigation revenue assessed comes to Rs. 10,974 for drierct irrigation.

#### DECCAN IRRIGATION CIRCLE.

The year 1949-50 began with a surplus of storage where as the year 1950-51 began with a small balance of storage in all lakes. The rainfall was generally satisfactory till the beginning of Rabi season in both these years and consequently all lakes filled and overflowed but the late rains completely failed in November and December of years 1949 and 1950. The post-monsoon addition to the water supply was therefore very low and there was a very high demand for water for Rabi seasonals and other crops also required more than normal quantity of water. This threw a great strain on all storage lakes.

The following 10 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.	Cane standing on 15th June 1950.	Crushing capacity in tons per day.
1	2	3.	4
	Acres	Acres	
1. The Belapur Company, Harigaon Pravara Left Bank Canal.	3,550	2,945	1,200
2. The Maharashtra Sugar Mills Limited near Belapur, Pravara Left Bank Canal.	4,250	3,013	1,000
3. Walchand Nagar Industries Limited: Nira Right Bank Canal Nira Left Bank Canal	3,500 N. R. B. C. N. B. L. C.	1,825 1,571	1,200
4. The Phaltan Sugar Works Ltd. near Tadavli, Nira Right Bank Canal.	2,500	2,030	650
5. The Saswad Mali Sugar Factory Limited near Akluj, Nira Right Bank Canal.	1,600	1,424	450
6. The Ravalgaon Sugar Farm Ltd., near Ravalgaon, Girna Canal.	1,505	1,505	650
7. Belwandi Sugar Farm near Visapur. Visapur Canal.	No guarantee in respect of area is given but 4th of the water available in the Visapur tank is guaranteed annually.	600	250
8. The Brihan Maharashtra Sugar Syndicate Limited, Borgaon, Nira Right Bank Canal.	2,000	2,000	300
9. The Godavari Sugar Mills Limited Godavari Right Bank Canal .. Godavari Left Bank Canal. ..	2,850 G. R. B. C. G. L. B. C.	944 G. R. B. C. 1,655 G. L. B. C.	650 950
10. Shri Changdev Sugar Mills, Ltd., Godavari Right Bank Canal.	1,000	995	350

The area of sugarcane standing on 15th June 1950 by the sugar factories was about 20,507 acres, as compared with 23,833 acres in the previous year. This reduction was mainly due to the fact that in the year 1949-50 Adsalu plantation had been allowed in the hot weather season as there was surplus of water in the lake.

A number of drainage schemes have been carried out in the various Sugar factory areas to save lands from damage due to intensive cultivation of sugarcane by Sugar Companies.

The total area irrigated in the Deccan Irrigation Circle during the year 1950-51 was 3,86,774 acres as compared with 4,04,919 acres during the previous year and the gross revenue amounted to Rs. 62.93 lakhs during 1950-51 as compared with the figure of Rs. 66.11 lakhs for the previous year.

As it was found in the past that the Nira Canals Division was too heavy and unmanageable, the work of the Poona-Irrigation and Research Division, the Nira Canals Division and the Water Resources Investigation Division in this Circle was therefore redistributed by forming three new Divisions from the first August, 1950 as shown below :—

- (1) Poona Irrigation Division ;
- (2) Nira Right Bank Canal Division ; and
- (3) Irrigation Development Division.

### POONA IRRIGATION DIVISION.

#### LLOYD DAM AT BHATGAR.

The Lloyd Dam at Bhatgar is 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 and was completed in 1928 at a cost of Rs. 172 lakhs to replace the old dam constructed in the eighties of the last century which stored about 5,300 million cubic feet. This new dam now supplies water to the Nira Left and Nira Right Bank Canals. This lake itself lies in the Poona District and hence is placed under the Executive Engineer, Poona Irrigation Division. This Dam is one of the largest masonry dams in India and contains  $21\frac{1}{2}$  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 24,200 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. Hydro-electric power is being generated with the help of turbines fixed for the purpose at the down stream of the Dam.

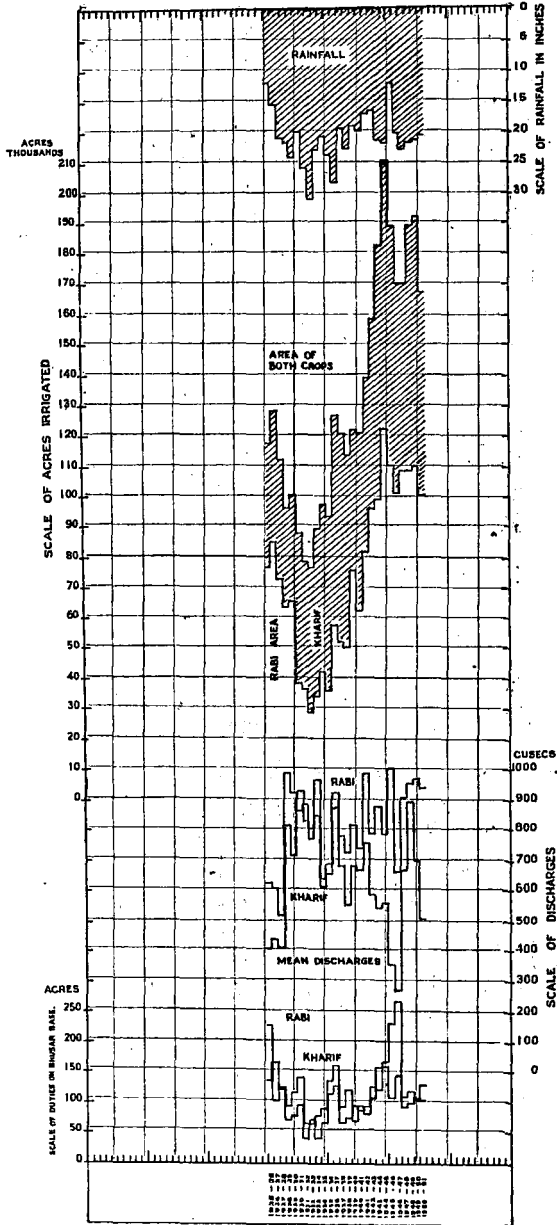
#### THE PICK-UP-WEIR AT VIR.

This is an old small bandhara at Vir across the Nira River. It is situated to the east of the Lloyd Dam at a distance of about 17 miles. This bandhara impounds only 232 million cubic feet of water. It cannot avail of water of monsoon floods of Nira River beyond 11 feet high, above which it begins to overflow. The two Nira Canals draw off water from this weir.

#### POSITION OF STORAGE IN THE LAKE WHITING AT BHATGAR.

On the 15th February 1950, the depth of water in the Lake Whiting at Bhatgar was 103.70 feet above sill of lowest outlet, the corresponding contents being 10,703 million cubic feet as against 115.55 feet and contents 14,304 million cubic feet of the last year. On the 1st April 1950, it came down to 90.50 feet, the corresponding contents being 7,139 million cubic feet. The water level was the lowest on the 7th July 1950 with a depth of 39.20 feet, the corresponding contents being 394 million cubic feet against 67.70 feet on the 3rd July 1949. The lake began to get replenishment from 8th July 1950 and reached its maximum F. S. L. of 143 feet on the 19th August 1950, i.e., 6 days earlier than that of the last year. The first draw off from the lake began on the 23rd August 1950 but the lake again filled in with the maximum height of 143 feet on the 5th September 1950. This level was

# WORKING RECORD FOR NIRA R.B. & L.B. CANALS, 1925-26 TO 1950-51



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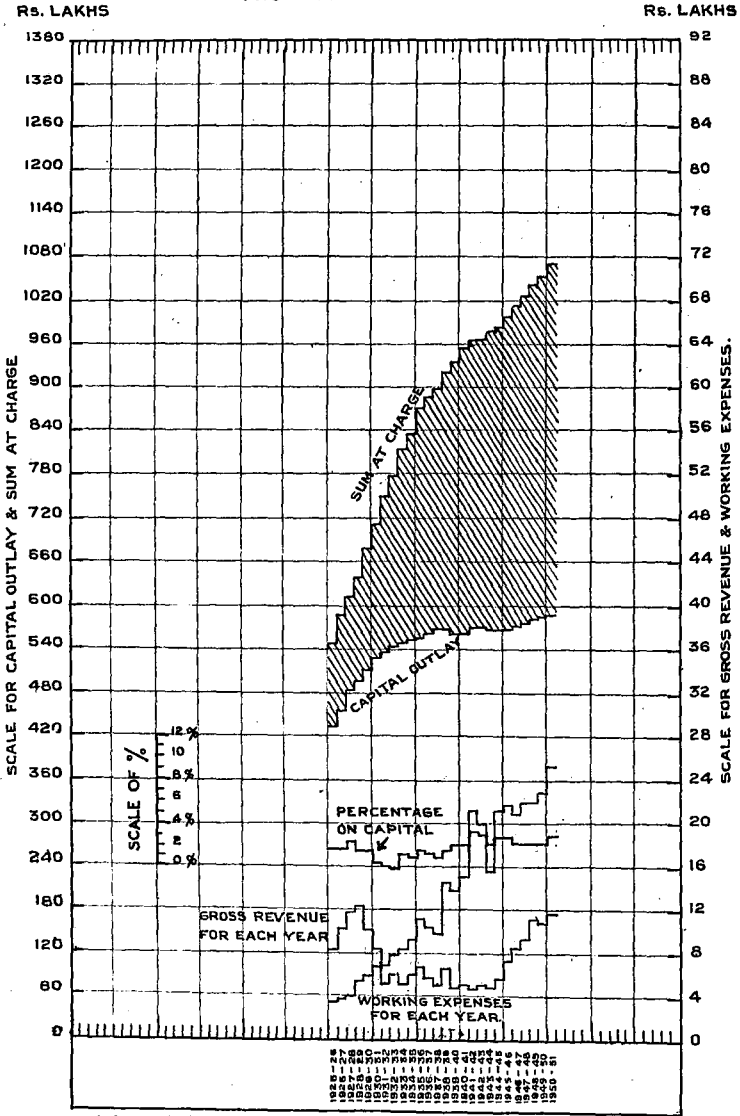
  
 12/1/54  
**EXECUTIVE ENGINEER**  
 P004 IRRIGATION DIVISION



# POONA IRRIGATION DIVISION

## FINANCIAL RECORD FOR NIRA R.B. AND L.B. CANALS.

FROM 1925-26 TO 1950-51



NOTE:-THE INTERCEPTS BETWEEN THE TWO RED LINES SHOW ARREARS OF INTEREST UNPAID YEAR WHICH BEING ADDED TO THE CAPITAL GIVE SUM AT CHARGE. THE INTERCEPTS BETWEEN THE BLACK AND RED LINES SHOW THE NET INCOME OF EACH YEAR.

*S. S. Desai*  
12-11-52

EXECUTIVE ENGINEER  
POONA IRRIGATION DIVISION

steady upto the 24th October 1950. During the rabi rush; it began to fall gradually and on the 14th February 1951 it was 106.42 feet, the corresponding contents being 11,499 million cubic feet.

#### 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 downstream 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 purposes of storing a portion of the surplus monsoon discharge.

The original masonry dam at Bhatgar 127 feet high has since been replaced by the 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 23,000 acres. The culturable area under the canal is 1,49,821 acres.

The Project was designed for the complete development of irrigation in the Nira Valley. It provided inter-alia for 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 with storage capacity of 8,000 million cubic feet designed to supplement the storage of 24,000 million cubic feet impounded by the Lloyd Dam at Bhatgar. The construction of Vir Dam estimated to cost about a crore of rupees which was shelved in 1928 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 for some years. This will, however, have to be reconsidered now owing to the development of irrigation by the opening of Sugar Companies in the Valley, and at present the demand had overtaken the supply available. It is now necessary to supplement the water supply and the Vir Dam Project should be taken up for construction for complete development of Nira Valley. The remodelling of Nira Left Bank Canal which was started in 1925-26 was practically completed by the end of 1942-43. The average rainfall in the irrigation tract of Nira Left Bank Canal in the year 1950-51 was 21.81 inches against 22.80 inches of the previous year. The level of water in the Shetphal tank (tail tank of the Nira Left Bank Canal) went down to a depth of 9.25 feet on 28th July 1950, the contents being 34 million cubic feet as against a depth of 23.10 feet on the 26th June 1949, the contents being 188 million cubic feet. The tank reached the full supply level of 37.51 feet on 5th October 1949 and 18th September 1950 and the entire discharge let down to Shetphal Tank was 612 million cubic feet during 1950-51 against 527 million cubic feet for the last year.

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

Year	Area irrigated	Water rates assessed	Gross assessed revenue	Working expenses	Realisation	Rain fall
	Acres	Rs.	Rs.	Rs.	Rs.	Inches
1949-50	81,073	11,23,126	11,44,887	4,44,734	10,02,627	22-80
Average	75,084	10,25,946	10,52,805	3,92,439	9,05,983	20-92
1950-51	80,859	11,41,155	11,73,260	3,16,114	10,27,225	21-81
Average	76,508	12,83,394	10,90,239	4,25,628	8,88,620	21-70

The area of sugar cane blocks was 13,964 acres on the Nira Left Bank Canal during the year 1950-51 as compared with 13,730 acres for previous year; while area under two seasonal and food and fodder crops was 26,025 acres in 1950-51 against 26,221 acres for the previous year. The area of fruit and garden blocks on the Nira Left Bank Canal was 418 acres during 1950-51 as compared with 384 acres for the previous year.

The area of sugarcane blocks was 762 acres on the Shetphal tank during the year 1950-51 as compared with 743 acres for the previous year; while area under two seasonal and food and fodder crops was 1,550 acres in 1950-51 against 1,535 acres for the previous year. The area of fruit and garden blocks on the Shetphal tank was 20 acres during 1950-51 as compared with 19 acres for the previous year. The cost incurred on the measuring establishment was 9 pies per acre during 1950-51 against 11 pies per acre of the previous year. Remissions sanctioned amounted to Rs. 35,909 during the year 1950-51 as compared with Rs. 66,293 during the previous year. The expenditure incurred on maintenance and repairs amounted to Rs. 1,51,220 against the expenditure of Rs. 1,92,955 for the last year.

The perennial limit of the Nira Left Bank Canal is upto mile 75 and that of the Shetphal tank is upto mile 10.

#### MUTHA CANALS AND MATOBA TANK.

This system came into operation in 1874-75. The canals were constructed at a cost of about 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 River. The system comprises of two canals, the Mutha Right and Left Bank Canals, 70 and 18 miles long respectively. The maximum designed discharges of the two canals at their heads were 412 and 38.5 cusecs but the present maximum discharging capacity due to constant running for town water supplies and consequent weed and silt growth is about 300 cusecs and 20 cusecs respectively. It is not possible permanently to improve the capacity of the Mutha Right Bank Canal until a separate pipe line is provided from the dam to the city from town water supply. 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 cannot be utilised on account of the Poona Water Supply System as 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 now restricted from Distributory 9 to Distributory 6 *vide* Government letter, Public Works Department, No. 6040/36-I.B. (I), dated the 14th June 1950. The Matoba Tank is the tail tank receiving the surplus water through the Mutha Right Bank Canal during the monsoon months. Due to inadequacy of water supply the block system has not been introduced in this canal and it cannot be introduced until the question of City Water Supply is solved independently.

On the 1st April 1950 the level of the water in Lake Fife was 19·35 feet, the corresponding contents being 1,309 million cubic feet against the level of 23·80 feet and contents 1,758 million cubic feet on the same date of the previous year.

The replenishment in the Lake commenced from 6th July 1950 when the lowest level was 8·95 feet (contents 485 million cubic feet) as against 15·70 feet (contents 986 million cubic feet) on 3rd July 1949. The full supply level of 34 feet was reached on 15th October 1950 as in the last year and a regular draw off commenced from 27th October 1949 and 25th October 1950 during the years 1949-50 and 1950-51 respectively. In 1949-50 the maximum flood occurred on 13th July 1949 for three hours from 6 a.m. to 9 a.m., discharge over waste weir being 28,628 cusecs with depth over crest of 4·80 feet. In the year 1950-51 the maximum flood occurred on 20th July 1950 for three hours from 3 p.m. to 6 p.m., discharge over waste weir being 61,041 cusecs with depth over crest of 7·40 feet. The Mutha Right Bank Canal was closed by compartments 8 times during each of the years 1949-50 and 1950-51 for weed and silt clearance. The rainfall at Khadakwasla was 39·84 inches in 1950-51 as compared with 23·80 inches during the previous year. The average rainfall in the canal tract was 25·37 inches in 1950-51 against 22·30 inches of the last year. The level in the Matoba tank was 16 feet (contents 25 million cubic feet) on 15th February 1950 as against 23·55 feet (contents 98·40 million cubic feet) on the same date last year. The replenishment from the Mutha Right Bank Canal was allowed from 28th July 1949 and 14th July 1950 during 1949-50 and 1950-51 respectively. The highest level recorded on 24th September 1950 was 29 feet and contents 184 million cubic feet as against 29·10 feet (contents 184 million cubic feet) on 8th September 1949, last year.

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

Year	Area irrigated	Water rate assessed	Gross assessed revenue	Working expenses	Realisations	Rainfall
	Acres	Rs.	Rs.	Rs.	Rs.	Inches
1949-50	20,325	2,15,461	6,55,770	2,74,651	5,44,346	22·30
Average	22,002	1,77,388	6,08,355	2,12,179	3,18,684	20·83
1950-51	19,257	2,12,078	6,24,920	2,01,427	6,09,749	25·37
Average	19,726	1,94,437	6,32,082	2,37,272	5,85,175	23·42

The decrease in area irrigated during 1949-50 and 1950-51 as compared with the average was due to less water in Lake Fife and increase in water rates was due to withdrawal of concessional rates for food and fodder crops from 15th February 1949, Cane Irrigation on these canals has been stopped altogether. The area under two seasonal blocks on the Mutha Canals was 617 acres during 1950-51 against 635 acres during the previous year. The area under two seasonal blocks on the Matobatanak was 1,708 acres in 1949-50 as well as in 1950-51. The quantity of water supplied to the Poona Cantonment and Poona City during the year 1950-51 was 3,667 and 3,825 million gallons, respectively, against 3,424 and 4,034 million gallons in the previous year. The revenue assessed during 1950-51 amounted to Rs. 2,04,765 and 2,03,999 respectively against Rs. 1,91,866 and 2,17,282 respectively of the last year. The cost of measuring establishment was 23 pies per acre during 1950-51 as against 20 pies per acre of the last year. The expenditure on maintenance and repairs amounted to Rs. 89,805 in the year 1949-50 against the expenditure of Rs. 60,092 for the last year.

### NIRA RIGHT BANK CANAL DIVISION.

This new Division was formed on 1st August 1950 with three Sub-Divisions viz. Phaltan Irrigation Sub-Division, Malsiras Sub-Division and Remodelling Sub-Division.

#### NIRA RIGHT BANK CANAL.

The Nira Right Bank Canal has its head works at Vir, 17 miles below the Lloyd Dam. The designed discharges of the canal at head and tail are 1500 and 400 cusecs respectively. The corresponding full supply depth are 8.5 feet and 6.5 feet respectively. The canal about 106½ miles in length commands lands situated in the South and North Satara and Sholapur Districts. Water was first supplied from the canal for irrigation of Rabi crops in 1924-25. There are three 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 are constructed on modern lines and the latest types of Standing wave Flume measuring devices are provided at distributary heads and on the channels.

The designed discharging capacity of 1500 cusecs was never attained on Nira Right Bank Canal and the maximum that could be passed safely was only 1100 cusecs at the time of peak demand. In order to remedy this defect a project amounting to Rs. 20 lakhs for raising the banks by 2½ feet for a discharging capacity of 1500 cusecs was sanctioned and the work of remodelling the canal from miles 0 to 40 has already been taken in hand since the last 3 years. Up to this period earth work in miles 0 to 40 is practically completed and masonry works for miles 21 to 25 are completed and for miles 0 to 20 and 26 to 40 are in progress. The amount spent on Remodelling work to end of March 1951 is 9.12 lakhs.

On the whole of the irrigation tract there were no rains at the beginning of the Monsoon season of the year 1950-51. In the months of July to October 1950 there was good rainfall. In the months of November and December 1950 there was no rainfall. The total rainfall in the irrigation tracts of the Nira Right Bank Canal was 20.21 inches during the year 1950-51 against the corresponding figure of rainfall of 20.44 inches for the previous year.

The following table gives the area irrigated, revenue assessed etc. during the years 1949-50 and 1950-51 as compared with the corresponding averages of the past three years :—

Year	Area irrigated		Water rates assessed		Gross assessed Revenue	
	During the year	Average	During the year	Average	During the year	Average
	Acres	Acres	Rs.	Rs.	Rs.	Rs.
1950-51	81,166	83,075	14,19,844	14,61,433	14,43,096	14,41,020
1949-50	90,814	80,517	14,98,183	12,81,631	15,21,435	13,12,887

Year	Working expenses		Realisations		Rainfall	
	During the year	Average	During the year	Average	During the year	Average
	Rs.	Rs.	Rs.	Rs.	Inches	Inches
1950-51	8,30,784	4,48,857	15,13,492	10,75,681	20.88	20.22
1949-50	6,05,287	5,23,658	12,04,632	11,74,199	20.44	22.70

The reason for decrease in the area irrigated during 1950-51 as compared with the average of the past 3 years was due to restricted sanction to Rabi crops according to supply available and the reason for increase in the area irrigated during 1949-50 as compared with the average of the past three years was due to high demand for bhusar crops in the canal.

The cost of measuring establishment employed during the year 1950-51 was 15 pies against 17 pies per acre of the last year. Remission amounting to Rs. 16,465- was sanctioned during the year 1950-51 as against Rs. 25,538 sanctioned during the previous year. Expenditure incurred on maintenance and repairs amounted to Rs. 1,25,843 during 1950-51 against Rs. 1,32,788 for the previous year. The perennial limit of the canal is up to mile 79.

## 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. This system comprises of—

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

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

(c) 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 catchment area is 156 square miles. The weir at Nandur-Madhmeshwar is 3,618 feet long inclusive of the Right and Left Bank Canals 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 and Left) are designed to discharge 384 and 228 cusecs at their heads respectively with full supply depth of 7 feet and 6 feet respectively.

On the 1st April 1950, the level of the water in the Lake was 50.9 feet, the corresponding contents being 3,839 million cubic feet as against the level of 54.65 feet (contents 4,701 million cubic feet) on the same date last year. The lowest level of 0.4 feet was reached on 7th July 1950, the contents being nil million cubic feet when the lake began to receive replenishment as against the lowest level of 30.25 feet (contents 2,042 million cubic feet) on 2nd July 1949. The draw-off for irrigation commenced from 8th November 1950 and 6th December 1949 with the water level at 63.9 and 64.20 feet, the corresponding contents being 7,384 and 7,487 million cubic feet respectively. The perennial limits of Godavari Right Bank Canal is up to mile 69 and that of the Godavari Left Bank Canal upto mile 44/4 miles (temporarily extended to mile 48). The average rainfall in the catchment area of the lake was 95.60 inches during the year 1950-51 against 91.33 inches of the last year.

The following table gives the figures of area irrigated, revenue assessed etc., during the year 1950-51 as compared with the corresponding figures of the previous year:—

Name of work	Area irrigated		Water rate assessed		Gross assessed revenue	
	During the year	average	During the year	Average	During the year	Average
	Year	Acres	Acres	Rs.	Rs.	Rs.
Lake Beale	....	....	....	....	....	....
Godavari Right Bank Canal.	1949-50	31,311	31,972	5,83,701	5,68,734	10,55,606
Godavari Left Bank Canal.	1949-50	25,018	23,391	4,41,148	4,62,076	10,58,122
Lake Beale	....	....	....	....	....	....
Godavari Right Bank Canal.	1950-51	31,000	29,091	5,70,106	5,64,071	10,58,680
Godavari Left Bank Canal.	1950-51	24,075	22,419	4,65,124	4,46,761	10,35,960



Name of Work	Year	Working expenses		Realisations		Rainfall	
		During the year	Average	During the year	Average	During the year	Average
		Rs.	Rs.	Rs.	Rs.	Inches	Inches
Lake Beale	.. ..	....	..	....	.....	91.33	89.62
Godavari Right Bank Canal.	1949-50	2,80,131	3,46,515	11,03,995	10,84,233	23.98	22.94
Godavari Left Bank Canal.	1949-50	.....	...	.....	.....	.....	.....
Lake Beale	.. ..	....	..	....	....	95.60	87.89
Godavari Right Bank Canal.	1950-51	4,30,991	3,29,977	10,83,762	10,25,438	16.91	23.69
Godavari Left Bank Canal.	1950-51	....	..	....	....	19.49	23.55

The area under sugar cane was 9,005 acres (exclusive of overlap), fruit and garden blocks 3,051 acres and two seasonal blocks 637 acres, during 1950-51 as compared with 9,801, 3,051 and 637 acres, respectively, during 1949-50. The cost of measuring establishment was 40 pies per acre during the year 1950-51 against 32 pies of the previous year. Total remission sanctioned during the year 1950-51 amounted to Rs. 17,138 against Rs. 40,638 during the previous year. The expenditure incurred on maintenance and repairs during 1950-51 amounted to Rs. 57,877 against the expenditure of Rs. 56,264 for the last year.

#### CHANKAPUR TANK.

##### *Girna Canal.*

This is a 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 1,550 million cubic feet of water. The dam and the canal (upto mile 13) were completed in 1909-10 and the canal has been in operation since then. This extension of this canal, designed to carry about 40 cusecs upto mile 19, was completed in 1920-21. The designed discharge of the canal at its head is 90 cusecs and its tail 15 cusecs, the corresponding full supply depth being 4½ feet and 2 feet respectively. The total area under command of the canal is 29,182 acres and the irrigable area is 8,500 acres. The canal has now been remodelled to increase the discharge to 155 cusecs at head and 43 cusecs at tail. The pick-up-weir at Thengoda was raised by 15 inches for a better supply to the canal.

On the 1st April 1949, the level of water in the tank was 75.45 feet, the corresponding contents being 776 million cubic feet. The lowest level of 43.5 feet was reached on 12th July 1949, the corresponding contents being 204 million cubic feet when the tank began to receive replenishment. The draw-off for irrigation purposes commenced on 7th December 1949 with water level at 92 feet, corresponding contents being 1,548 million cubic feet.

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

Name of Work		Area irrigated		Water rates assessed		Gross revenue assessed	
		During year	Average	During year	Average	During year	Average
	Year	Acres	Acres	Rs.	Rs.	Rs.	Rs.
Chankapur Tank ..	1949-50	19,158	18,481	2,49,650	2,64,243	2,63,245	2,75,343
Girna Canal ..	1950-51	19,950	18,445	2,68,632	2,58,837	2,80,863	2,71,776

Name of Work		Working expense		Realisations		Rainfall	
		During year	Average	During year	Average	During year	Average
	Year	Rs.	Rs.	Rs.	Rs.	Inches	Inches
Chankapur Tank ..	1949-50	1,33,509	1,42,709	2,87,986	2,31,162	26.54	26.35
Girna Canal ..	1950-51	1,47,710	1,35,783	2,41,793	2,45,044	23.60	26.51

The increase in area irrigated during the year 1950-51 was due to increase in area under food and fodder crops. The 1/3 sugarcane blocks were introduced on the Girna Canal with effect from 15th February 1946 and the area sanctioned under blocks during the year 1950-51 was 2,159 acres as against 2,169 acres during the previous year. The sanctioned area under the two-seasonal block was 112 acres during each of the years 1949-50 and 1950-51. The cost of measuring establishment during 1950-51 was Rs. 0-1-8 as compared with Rs. 0-1-7 per acre during the previous year. The remissions sanctioned during the year 1950-51 amounted to Rs. 2,739 against Rs. 10,787 during the previous year. The expenditure incurred on maintenance and repairs amounted to Rs. 10,711 during 1950-51 against the expenditure of Rs. 11,963 for the last year.

#### *Kadwa Canals.*

These works, which came into operation in 1868-69, consist of 3 small canals, viz., the Palkhed, the Ozar Tambat and the Wadali, taking off from weirs constructed across the Kadwa River and its tributary, the Bangānga. The system comprises 38 miles of canals and distributaries. The storage reservoir is at Waghad (a ghat fed storage) situated on the Kadwa River in the Nasik District. The catchment of the tank is 29.09 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 3½ feet and 2 feet. The designed discharges of the Ozar Tambat Canal at its head and tail are 33 cusecs and 5 cusecs respectively, the depths at full supply being 3½ feet and 2 feet respectively. The designed discharges of the Wadali Canal at its head and tail are 19 cusecs and 5 cusecs respectively and the depth at full supply being 2 feet and 1 foot respectively.

On the 1st April 1950, the level of water in the Waghad tank was 35·95 feet, the corresponding contents being 298 million cubic feet as against the level of 38·55 feet (contents 351 million cubic feet) on the same date of the previous year. The lowest level of 13 and 19 feet was reached on 3rd July 1950 and 7th July 1949 respectively with corresponding contents of 34 and 75 million cubic feet when the tank began to receive replenishment. The draw off for irrigational purposes commenced on 13th December 1949 and 14th November 1950 with the water level at 47·35 and 46·85 feet and the corresponding contents being 584 and 567 million cubic feet respectively during 1949-50 and 1950-51.

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

Name of work		Area irrigated		Water rates assessed		Gross revenue assessed.	
		During year	Average	During year	Average	During year	Average
	Year	Acres	Acres	Rs.	Rs.	Rs.	Rs.
Palkhed Canal	.. 1949-50	2,242	2,728	42,549	47,545	} 1,03,884	} 1,14,512
Ozar Tambat Canal	..	1,438	2,028	34,448	42,656		
Wadali Canal	..	997	1,111	20,535	21,976		
Palkhed Canal	.. 1950-51 ..	2,472	2,482	55,398	46,534	} 1,24,744	} 1,12,302
Ozar Tam.bat Canal	..	1,728	1,724	41,413	40,246		
Wadali Canal	..	1,144	1,014	20,605	21,533		

Name of work		Working expenses		Realisations		Rainfall	
		During year	Average	During year	average	During year	average
	Year	Rs.	Rs.	Rs.	Rs.	Inches	Inches
Palkhed Canal	.. 1949-50	38,867	43,225	1,18,871	1,00,586	26·59	29·37
Ozar Tambal Canal	..					29·31	27·05
Wadali Canal	..					27·74	25·93
Palkhed Canal	.. 1950-51	56,062	45,817	98,025	1,04,483	34·45	26·77
Ozar Tambat Canal	..					24·94	28·38
Wadali Canal	..					26·61	26·60

The increase in area irrigated and revenue assessed during 1950-51 was due to more demand for Rabi food and fodder and penal assessment in the case of Hot-weather onions raised unauthorisedly. The area of two-seasonal blocks during the

year 1950-51 was 421 acres against 423 acres for the last year. The expenditure incurred on maintenance and repairs amounted to Rs. 6,612 during 1950-51 against the expenditure of Rs. 4,683 for the last year. The cost incurred on measuring establishment was 18 pies per acre during 1949-50 and 1950-51. Remissions sanctioned during the year 1950-51 amounted to Rs. 92 against Rs. 497 during the last year.

#### PARSUL TANK.

As per Government Resolution, Public Works Department, No. 810/36 of 23rd October 1946, the Parsul Tank was transferred to this Circle from the Central Circle.

This system comprises of an earthen reservoir 2,270 feet in length, 6237 feet high and having useful capacity of 118.5 million cubic feet above lowest sluice across Parsul river. It has a pick-up-weir (Pucca bandhara) at Umarane and Soundani Villages and the three Channels viz. Umarane Left Bank, Umarane Right Bank and Soundani Right Bank channels. The last two channels take off from the pick-up-weirs (Bandharas) whereas the Umarane Left Bank Channel takes off direct from the tank. The tank was dry on the 1st April of 1949 and 1950 as well. The first replenishment was received on 5th June 1949 and 24th May 1950 and the tank filled up to full supply level on 10th September 1949 and 28th July 1950 respectively. The first draw off for irrigation purposes commenced on 11th July 1949 and 26th October 1950 with a discharge of 4.85 and 4.15 cusecs, respectively. The total rainfall in the catchment at the two stations, viz., Nandurtek and Umrana was 17.87 inches and 16.21 inches respectively during the year 1950-51 against 30.08 and 21.49 inches respectively for the last year. The average rainfall during the year 1950-51 worked out to 17.04 inches against 25.78 inches of the last year.

The figures of area irrigated and revenue assessed for the year 1950-51 as compared with the figures for the last year are as under :—

Year	Area irrigated acros.	Gross-assessed Revenue Rs.
1949-50 .. .. .	2,377	13,762
1950-51 .. .. .	2,349	12,053

#### 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 India 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, 23 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 2,28,729 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 9 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. The work of Remodelling Distributary 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 5·3/8 miles and (2) Completing the Musalwadi (Tail Tank of the Pravara Right Bank 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. 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 1950 the level of water in the lake was 208·20 feet, the corresponding contents being 3,759 million cubic feet as against the level of 236·90 feet (contents 8,507 million cubic feet) on the same date last year. The lowest level of 123·9 feet was reached on the 1st July 1950, the contents being 425 million cubic feet as against that of 191 feet (contents 2,650 million cubic feet) on the 3rd July last year. Replenishment commenced with effect from the 2nd July 1950 and 4th July 1949 and the full supply level of 265·70 feet was reached on the 26th July 1950 and 10th August 1949 respectively, the contents being 11,189 million cubic feet. The maximum flood occurred on the 11th August 1949 and 27th July 1950 when the level was 267 feet and 267·50 feet respectively during the years under report which lasted for about 12 hours. On the 27th October 1949 and 16th October 1950 the draw off for irrigation purposes was commenced during 1949-50 and 1950-51 respectively. The level of water gradually fell to 230·60 feet and 229 feet on the 15th February 1950 and 15th February 1951 respectively, the contents being 3,812 million cubic feet and 5,860 million cubic feet respectively. The average rainfall of the two rain gauge stations at Bhatghar and Bhandardara was 144·23 inches during 1950-51 against 97·74 inches of the last year.

The following table gives the figures of area irrigated revenue assessed, etc., during the year 1950-51 as compared with the figures of the previous year :—

Name of work.	Area irrigated.		Water rates assessed.		Gross Revenue assessed.	
	1949-50	1950-51	1949-50	1950-51	1949-50	1950-51
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Pravara Right Bank Canal	24,307	22,841	3,16,924	3,02,898	3,23,137	3,10,844
Pravara Left Bank Canal.	60,216	60,831	10,92,321	10,24,026	11,12,843	10,42,404

Name of work.	Working expenses.		Realisations.		Rainfall.	
	1949-50	1950-51	1949-50	1950-51	1949-50	1950-51
	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Pravara Right Bank Canal	4,89,197	4,44,257	13,66,053	13,90,2	21·41	18·19
Pravara Left Bank Canal					24·26	23·30

The total area of sugarcane blocks on Pravara canals during 1950-51 was 7,865 acres and the area under two-seasonal blocks was 5,463 acres as against 8,051 acres and 5,471 acres respectively during the previous year. The remissions sanctioned during the year 1950-51 amounted to Rs. 87,391 against Rs. 8,328 sanctioned last year. The cost of the measuring establishment was equivalent to 18 pies per acre during 1950-51 as compared with the same figure of the previous year. The expenditure incurred on maintenance and repairs amounted to Rs. 1,07,388 against the expenditure of Rs. 1,08,476 of the previous year.

#### BHATODI TANK.

This is a small tank situated on the Mehekari 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 3rd June 1950 and the level of water reached was 22·50 feet as against the same level reached on 5th June 1949 last year.

The following table gives the figures of area irrigated, revenue assessed, etc., during the year 1950-51 as compared with the figures of the previous year :—

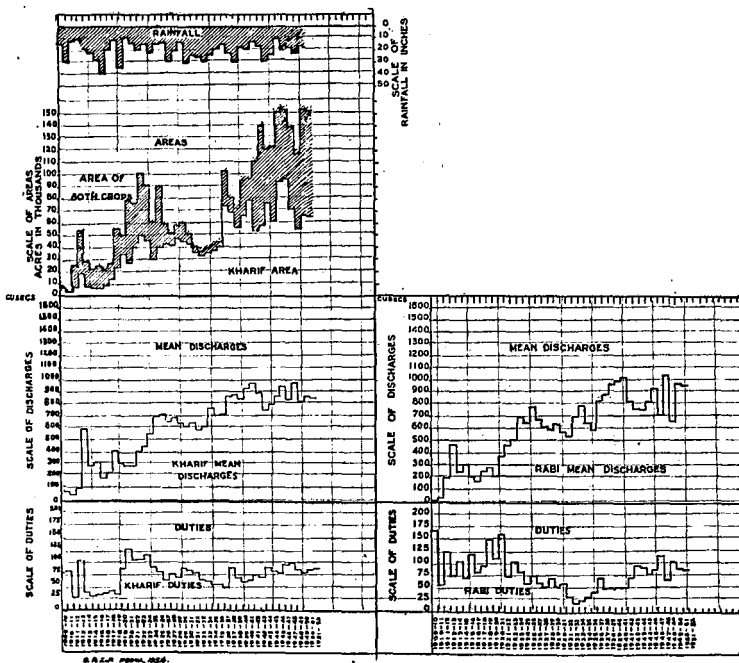
Area Irrigated.		Water rates Assessed.		Gross Assessed Revenue.	
1949-50.	1950-51.	1949-50.	1950-51.	1949-50.	1950-51.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
993	701	6,148	3,434	8,124	7,691

Working expenses.		Realisations.		Rainfall.	
1949-50.	1950-51.	1949-50.	1950-51.	1949-50.	1950-51.
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
16,224	20,906	4,947	9,804	28·98	22·13

## AHMEDNAGAR DIVISION GODAVARI AND PRAVARA CANALS. COMBINED WORKING RECORD UP TO THE YEAR 1950-51

- 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.

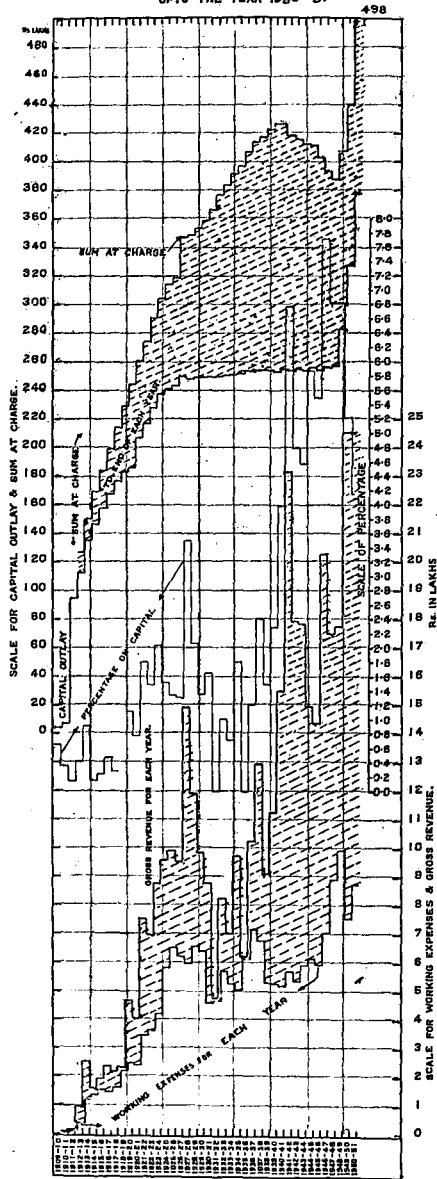


SUPERINTENDING ENGINEER  
DICTION REGULATION CANALS

*K. J. J. J.*  
EXECUTIVE ENGINEER  
AHMEDNAGAR DIVISION



**AHMEDNAGAR DIVISION  
GODAVARI & PRAVARA CANALS  
COMBINED FINANCIAL RECORD  
UP TO THE YEAR 1950-51**



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

N.B.

NAME OF CANAL	CONSTRUCTION COMMENCED IN	CANAL WAS OPENED IN
GODAVARI CANALS	1907	1911-1912
PRAVARA CANALS	1909	1909-1910

*K. S. P. Poonia, B.E.*  
EXECUTIVE ENGINEER,  
AHMEDNAGAR DIVISION.

The decrease in area irrigated and gross revenue assessed during 1950-51 was due to unfavourable conditions of storage and less area sanctioned. Due to uncertainty of water two seasonal blocks were not sanctioned on this tank. No remissions were sanctioned during the years 1949-50 and 1950-51. The expenditure incurred on maintenance and repairs during the year 1950-51 amounted to Rs. 5,304 against the corresponding expenditure of Rs. 3,489 for the previous year.

## CENTRAL CIRCLE.

### SHOLAPUR DIVISION

The area irrigated, the gross assessed revenue and the working expenses of the four irrigation works mentioned below as compared with the figures of the previous year are given in the following statement :—

Name of work.	Area Irrigated.		Gross Assessed Revenue		Working expenses.	
	1950-51.	1949-50.	1950-51.	1949-50.	1950-51.	1949-50.
	Acres.	Acres.	Rs.	R's	Rs.	Rs.
Ekruk Tank ...	6,533	5,448	2,87,067	3,78,489	43,275	1,33,357
Ashti Tank ...	7,881	6,846	43,627	33,064	33,943	18,149
Pathri Tank ...	1,537	1,545	21,604	25,856	6,475	7,642
Mhaswad Tank ...	13,745	13,360	92,687	81,561	33,581	54,749

### EKRUK TANK.

The Ekruk tank (situated near Sholapur) which came into operation in the year 1872-73, is an artificial reservoir formed by construction of a large earthen embankment 7,000 feet long and having a maximum height of 76 feet with a storage capacity of 2348·81 million cubic feet as surveyed in 1947. It supplies water not only for irrigational purposes but also for water supply purposes to the town of Sholapur, the Mills in Sholapur and the Great Indian Peninsula Railway (now the Central Railway). Under unfavourable conditions of replenishment which occur periodically the tank is not sufficient to meet all the demands which arise and the question of providing an independent Water Supply Scheme for Sholapur City and Mills in Sholapur from the Bhima River is under consideration of the Government.

On 1st April 1950, the level of water in the tank was 34·70 feet above the sill of the outlet against 31·61 feet on the same date last year. The first replenishment of 89·20 and 89·95 million cubic feet was received on 15th September 1950 and 21st June 1949 respectively during the years under report. The total replenishment of 874·10 million cubic feet was received in the tank during the year 1950-51 as against 1816 million cubic feet received during the previous year. The waste weir overflowed from 7th October 1950 to 28th October 1950 and from 17th July 1949 to 9th November 1949 during the years under report, respectively. The water available in the tank was utilized for Hot-Weather, Kharif and Rabi Seasons. The mean rainfall gauged at Hiperga in the catchment area of the tank, was 29·61 inches against 32·65 inches of the last year.

## ASHTI TANK.

On 1st April 1950 the level of water in the tank was 15.49 feet above the sill of the outlet as against 13.90 feet on the same date last year. The first replenishment of 26.17 million cubic feet was received on 25th August 1950 against 161.57 million cubic feet received on the 31st August 1949 last year. The total replenishment of 1008.88 and 867.70 million cubic feet was received during the years 1950-51 and 1949-50 respectively. The waste weir overflowed from 1st October 1950 to 5th October 1950 and from 23rd September 1949 to 1st October 1949 during the years under report respectively. The average rainfall gauged at two stations viz. Yeoti and Modnimb was 24.39 inches during 1950-51 as against 35.29 inches for the previous year.

## PATHRI TANK.

The tank supplies water to the town of Barsi and Mill Industries as well as for irrigation purposes. On 1st April 1950, the level of water in the tank was 25 feet as against 27.68 feet on the same date last year. The first replenishment of 30.337 million cubic feet was received on 25th August 1950 and some more replenishment was received due to heavy rains in September and October 1950. The total replenishment of 258.260 and 193.199 million cubic feet was received during the years 1950-51 and 1949-50 respectively. The tank went full on 14th September 1950 and 4th July 1949 during the years under report. The waste-weir overflowed from 15th September 1950 to 22nd October 1950 and from 5th July 1949 to 31st October 1949 during the years under report respectively.

The average rainfall gauged at two stations viz. Pathri and Ukadgaon in the catchment area of the tank during 1950-51 was 21.30 inches as against 31.19 inches for the previous year.

## MHASWAD TANK.

The tank is formed by the earthen dam built across the Man river. The dam is 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 irrigation of lands situated mostly in the Sholapur District. Owing to the precarious nature of the rainfall received in the catchment area, the supply is not reliable. 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 bank of the dam previously called Mhaswad Canal No. I and now termed Mhaswad Canal, Part I. The designed discharge of the canal is 180.8 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 No. 15 and the old Mhaswad Canal has been remodelled to function as Branch No. 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 Mhaswad tank which is always insufficient to meet the full demand and hence water from Nira Right Bank Canal has to be obtained to meet the demand of irrigators, if available.

On 1st April 1950, the level of water in the tank was 14 feet above the sill of the outlet against 16.65 feet on the same date last year. The first replenishment of 100.62 and 41.37 million cubic feet was received on 1st May 1950 and 22nd June 1949 during the years under report respectively. The total replenishment of 339

and 865·43 million cubic feet was received during the years 1950-51 and 1949-50 respectively. The waste weir overflowed from 1st October 1950 and from 22nd September 1949 during the years under report. Water from the Nira Right Bank Canal was obtained during the Kharif of 1950-51 to the extent of 2124 million cubic feet as against 235·44 million cubic feet obtained during the Kharif season of 1949-50 so as to supplement the Mhaswad tank supply to meet the demands of the irrigators. The average rainfall during the year 1950-51 gauged at five stations in the catchment area of Mhaswad tank was 20·28 inches against 25·51 inches for the previous year.

#### SATARA DIVISION.

The area irrigated, the gross assessed revenue and the working expenses of the five works mentioned below during 1950-51 as compared with the figures of the previous year are given in the following statement :—

Name of work.	Area Irrigated.		Gross assessed Revenue.		Working expenses.	
	1950-51.	1949-50.	1950-51.	1949-50.	1950-51.	1949-50.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Krishna Canal ...	8,007	9,801	57,251	81,839	9,96,368	2,25,469
Rewadi Canal ...	1,069	982	7,135	5,047	4,719	12,414
Upper Man-River Works	1,586	1,620	9,141	7,985	7,501	18,879
Yerla River Irrigation Works.	5,037	5,769	30,866	28,026	15,307	25,653
Mayani Tank ...	1,714	1,694	10,014	8,825	5,837	8,795

#### KRISHNA CANAL.

The total rainfall during the year 1950-51 gauged at Retre Budruk, which is situated in the centre of the canal tract was 33·20 inches as against 19·36 inches for the previous year. The Krishna Canal takes off from the left bank of the weir built across the river Krishna near the village Khodashi about two miles from Karad. There is no tank and no storage capacity with the result that the irrigation depends upon the natural flow of the river during the season. It passes through the boundary of 31 villages in Karad Walwa, and Tasgaon Talukas and irrigates lands in these villages. The supply of water to this canal mainly depends on the rainfall at Mhableshwar from where the river Krishna starts. The main canal is 35·25 miles in length and the distributaries 29 miles in length. During the high floods in the Krishna River in July 1950 the portion of weir at the Centre about 280 feet in length and about 9 feet in height breached on 20th July 1950. It was not however possible then to repair the damaged portion immediately owing to floods in the river and the water could not therefore be admitted into canal. The irrigation was therefore done by pumping plant to feed the canal and about 70 per cent of the normal irrigation was thus made.

After investigation both analytically and by model experiments carried out at Khadakwasla, it was found that the present section of the weir was unstable. It was therefore proposed to strengthen the weir by providing buttresses and aeration on down stream face of the weir. The work of rebuilding weir was taken up after the floods had subsided and was completed. The pumps were closed on 8th February 1951. The buttresses in the breached portion of the weir were completed and the remaining portion of the weir will be buttressed after the monsoon of 1951-52.

#### REWADI CANAL.

The rainfall gauged at Rewadi which is situated one mile below the bandhara, was 32.23 inches during the year 1950-51 as compared with 18.72 inches of the previous year. The area of 1069 acres was irrigated during the year 1950-51 as against 982 acres of the previous year.

#### UPPER MAN RIVER WORKS.

##### (Pingli Tank).

The tank received first replenishment on 26th May 1950 with 8.07 million cubic feet of water and the second on 30th May 1950 with 49.37 million cubic feet of water. During 1949-50, the tank received first replenishment with 35.49 million cubic feet on 18th June 1949 and the second on 28th August 1949 with 16.25 million cubic feet. Subsequent replenishments received were not so noteworthy.

The rainfall gauged at Pingli was 19.16 inches as against 21.18 inches of the previous year.

#### YERLA RIVER IRRIGATION WORKS.

##### (Nehr Tank).

On 1st April 1950, the tank was not dry. The water level was 14.80 feet (contents 49.89 million cubic feet) on 15th May 1950 as against 22.50 feet (contents 161.50 million cubic feet) on 14th May 1949 last year. The first replenishment was received on 1st June 1950 with water level of 18 feet (contents 86.79 million cubic feet) as against 23 feet (contents 172.24 million cubic feet) received on 18th June 1949 last year. The subsequent replenishments received were not so noteworthy. The maximum level of water in the tank reached on 22nd September 1950 with contents of 411.49 million cubic feet during the year 1950-51 as against 414.24 million cubic feet reached on 25th September 1949 last year.

The rainfall gauged at Nehr which is near the tank was 27.30 inches during the year 1950-51 as compared with 21.40 inches of the previous year.

#### MAINI TANK.

On 1st April 1950 the tank was dry. The first replenishment was received on 29th May 1950 with contents of 16.613 million cubic feet as against 11.667 million cubic feet received on 20th June 1949 last year. The maximum level was reached on 5th September 1950 during the year 1950-51 with contents 8060 million cubic feet. The waste weir overflowed with 2 feet height above crest during 1950-51 and with 3 feet height above crest during the previous year.

The total rainfall gauged at Maini near the tank was 24·75 inches during 1950-51 as against 15·0 inches for the previous year. The outlets on this canal have no locking arrangements and leak very badly. It is therefore not possible to check the water arrangement and to utilize every drop of water for irrigation purposes.

#### EAST KHANDESH DIVISION.

The area irrigated, the gross assessed revenue and the working expenses in respect of the two irrigation works mentioned below as compared with the figures of the previous year are given in the subjoined statement :—

Name of work.	Area irrigated.		Gross assessed revenue.		Working expenses.	
	1949-50.	1950-51.	1949-50.	1950-51.	1949-50.	1950-51.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Jamda Canals ...	6,622	10,418	53,155	76,232	42,171	49,389
Mhaswa tank ...	712	173	3,422	966	5,111	7,045

#### JAMDA CANALS.

These canals receive their supply from the Girna River and the supply is also supplemented from time to time by water obtained from the Chankapur tank in the Nasik Irrigation Division. The rainfall during the year 1950-51 was 18·73 inches against 33·63 inches for the previous year.

#### MHASWA TANK.

The tank derives its supply from local rains. At the beginning of the year, the contents in the reservoir were 54·88 and 41·22 million cubic feet during 1949-50 and 1950-51 respectively and it gradually diminished to 0 on 21st April 1949 and 12th March 1950 respectively. The first replenishment was received on 27th July 1950 with contents of 11·88 million cubic feet as against 42·61 million cubic feet received on 8th June 1949 last year. The maximum contents in the reservoir reached were 59·29 million cubic feet on 28th September 1950 during the year 1950-51 as against 170·37 million cubic feet reached on 27th February 1950 last year.

The rainfall gauged at the tank was 13·00 inches during 1950-51 against 36·45 inches for the previous year.

#### WEST KHANDESH DIVISION.

The area irrigated the gross assessed revenue and the working expenses in respect of the two irrigation works mentioned below as compared with the figures of the previous year are given below :—

Name of work.	Area irrigated.		Gross assessed revenue.		Working expenses.	
	1949-50.	1950-51.	1949-50.	1950-51.	1949-50.	1950-51.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Shahada Channel ...	2,884	3,298	18,213	19,719	35,457	23,818
Lower Panazara River Works.	3,267	4,094	3,1738	3,9,956	22,339	48,589

## SHAHADA CHANNEL.

The channel is fed by the river Gomai, which has a perennial flow. The rainfall gauged at Shahada during the year 1950-51 was 24·24 inches against 34·09 inches of the previous year. There was sufficient water in the Gomai river to meet the demands of irrigators during the years 1949-50 and 1950-51.

## LOWER PANZARA RIVER WORKS.

These works comprise of 8 bandharas and 9 channels between Dhulia and Betawad on the Panzara River and the Mukti tank, which is situated about 4 miles to the South-West of Dhulia. The channels obtain their supply from the Panzara River but when the supply is insufficient, it is supplemented by water obtained from the Mukti tank.

On 1st April 1950 the contents of the tank were 256·50 million cubic feet which gradually diminished to 145·35 million cubic feet as against 271·25 million cubic feet on the same date last year which gradually diminished to 199·00 million cubic feet. The maximum storage reached was 272·88 million cubic feet on 6th August during both the years 1949-50 and 1950-51. The years 1949-50 and 1950-51 closed with a storage of 263·00 and 116·42 million cubic feet respectively.

The rainfall gauged within the catchment area at Dhayana and Sadgaon during the year 1950-51 was 9·49 inches as against 20·48 inches of the previous year.

## POONA DIVISION.

The area irrigated, the gross assessed revenue and the working expenses in respect of the two irrigation works mentioned below as compared with the corresponding figures of the previous year are given in the Sub-joined statement :—

Name of work.	Area irrigated.		Gross assessed revenue.		Working expenses.	
	1949-50.	1950-51.	1949-50.	1950-51.	1949-50.	1950-51.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.
Shirsuphal tank ...	1,874	2,018	16,355	13,851	24,076	11,389
Bhadalwadi tank ...	1,668	2,141	9,149	14,290	5,449	12,601

## SHIRSUPHAL TANK.

On 1st April 1950 the water level in the tank was 26·30 feet (contents 188·94 million cubic feet) including silt deposit of 11·25 feet as against 23·55 feet (contents 151·26 million cubic feet) on the same date of the previous year. During the Hot-weather season of 1950-51, the level decreased to 15·55 feet. The first replenishment was received on 24th August 1950 raising the water level in the tank to 20 feet and subsequent replenishment was received on 30th September 1950 raising the water level to 25 feet. The highest level of 27·95 feet (contents 257·10 million cubic feet) was reached on 26th October 1950 during the year 1950-51.

The rainfall during the year 1950-51 was 16·00 inches as compared with 25·40 inches of the previous year.

## BHADALWADI TANK.

On 1st April 1950 the water level in the tank was 31·10 feet (including silt deposit of 23 feet) the contents being 137·64 million cubic feet as against 34·50 feet (contents 183·54 million cubic feet) on the same date of the previous year. The water level diminished to 25·35 feet (contents 73·77 million cubic feet) on 2nd June 1950. Due to heavy rains during the year 1950-51, water level in the tank increased to 31 feet (contents 136·37 million cubic feet) on 8th June 1950.

The rainfall gauged during the year 1950-51 was 9·50 inches as against 18·79 inches of the previous year.

## KARNATAK IRRIGATION CIRCLE.

## GHATAPRABHA LEFT BANK CANAL DIVISION.

## GOKAK CANAL.

The Gokak Canal is the important irrigation work in this Circle and in the Belgaum Collectorate, with its reservoir formed by a masonry weir across the river Ghataprabha at Dhupdal. It consists of 16·13 miles of main and branch canals and 35·43 miles of distributaries. Total commanded area under the system is 18,668 acres with an irrigable area of 17,627 acres. The management of this Canal system has been transferred to this Circle from the Southern Circle in July 1948, when the Ghataprabha Left Bank Canal Division was opened in this Circle for the work of constructing the Ghataprabha Left Bank Canal miles 0 to 44 from Dhupdal weir. The Dhupdal storage reservoir is mainly meant for irrigation, but a major quantity of water is supplied to the Gokak Mills Ltd in accordance with the agreement between Government and the Company. The Company pays an amount of Rs. 14,313-annually to Government in two instalments, one in January and the other in July, for the water supplied to it from the Reservoir, subject to a rebate in the event of supply falling short of the quantity of water contracted for. During the years 1949-50 and 1950-51 no rebate was allowed to the Mills. No water for irrigating Rabi maize after 31st December is to be let out as per standing orders of the Government. The irrigators, however, demanded extra waterings after 31st December 1949 and 1950 and therefore in accordance with the orders issued in Government Letter, Public Works Department, No. 3541-36-IX-I.B. (II), dated the 5th January 1951, single watering to an area of about 1,593 acres of Rabi maize was given after 31st December 1950 to bring the Standing Crop to maturity as against an area of 495 acres last year.

The Madras and Southern Mahratta Railway (now Southern Railway) authorities are allowed to pump water from the Gokak Canal for supplying water to the Ghataprabha Railway Station for the use of engines and passengers. No regular meter is provided to measure the actual daily consumption of water by the Railway. According to the data supplied by the Railway authorities the annual consumption of water comes to about 2·4 million cubic feet. The water rate charged at Rs. 122 per mensem sanctioned in Government Resolution, Public Works Department, No. 129/48, dated the 22nd February 1948 was continued *vide* Government Resolution, Public Works Department, No. 129/48, dated the 13th September 1950.

On the 1st April 1950 the water level in the Reservoir was 20·20 feet against 21·42 feet on the same date last year and the lowest level reached was 16·00 feet on 26th May 1950 as against 18·48 feet on 14th May 1949 last year. The tank received



full replenishment from 27th May 1950 to 4th June 1950, raising the level to 23'40 feet when the water overflowed. The highest flood level reached during the year 1950-51 was 26'50 feet on 23rd July 1950 and the maximum discharge corresponding to this height was 91,425 cusecs, as against the level of 24'80 feet and maximum discharge of 47,120 cusecs during the previous year. In order to store water for irrigation during the Rabi season 1950-51 from the post-monsoon floods, the work of raising the F.S.L. by 4 feet by providing a temporary wooden crest was started on 17th October 1950 and completed on 4th November 1950. There were heavy floods and work of raising by stages could not be taken up early. On completing the raising of the temporary crest, the level reached the Full Supply Level on 14th November 1950 and 1st December 1949 during 1950-51 and 1949-50 respectively. The level, thereafter, began to go down gradually and was 25'83 feet, 23'96 feet, 22'17 feet and 19'44 feet on 31st December 1950, 31st January 1951, 28th February 1951 and 31st March 1951, respectively, during the year 1950-51 as against 25'60 feet, 24'11 feet, 22'25 feet and 20'28 feet on the same date of the last year.

Cane irrigation in the Gokak Canal was completely stopped. The area of rice irrigated during the year 1950-51 was 1,446 acres against 1,046 acres irrigated last year. According to the policy of Government, long staple cotton was encouraged. The area of cotton irrigated during 1950-51 was 437 acres against 10 acres irrigated last year. The following table gives the information regarding the area irrigated and gross revenue assessed therein:—

	Area irrigated		Gross assessed revenue.	
	During year	Average	During year	Average
	Acres	Acres	Rs.	Rs.
1949-50	14,987	16,087	1,09,121	87,596
1950-51	14,855	15,779	1,06,433	94,926

There is no cane area guaranteed to any Sugar Factory.

#### GHATAPRABHA LEFT BANK CANAL (I SECTION)

The Ghataprabha Left Bank Canal Project is now under execution. The proposed canal runs on the ridge between the rivers Krishna and Ghataprabha and commands about 4.5 lakhs of acres of lands in the Belgaum and Bijapur Districts of the Bombay State.

The length of the main Canal (I Section) is 44 miles and its two branches have an aggregate length of 31 miles. The Canal will for the present function to irrigate only seasonal crops and is expected to irrigate about 1,00,000 acres during Kharif. The crops grown are maize, jowar and wheat. Government have sanctioned the construction of 44 miles of main canal and its distribution system. This canal takes off from the existing Dhupdal weir and is designed for capacity of 1500 cusecs. The construction of the canal is being carried out partly on piece-work system and partly on regular contracts. The canal excavation is in progress and the expenditure incurred during the year 1950-51 was Rs. 64,46,482.

### DHARWAR IRRIGATION DIVISION.

The Dharwar Irrigation Division was opened with effect from 1st April, 1950 for execution of minor irrigation works to promote the "Grow More Food Scheme" and also to complete the Village Water Supply Works already in progress. In addition the Division has to look after the maintenance and management of the following First Class Irrigation Works viz :—

- (i) Dharma Canal (ii) Asundi tank (iii) Medleri tank (iv) Madag tank and (v) Mavinkop tank transferred to this Division from Dharwar and Kanara Divisions.

#### DHARMA CANAL.

The canal gets its supply from the Dharma River and irrigates lands directly as well as through a number of tanks which are also fed by it. The canal was continuously flowing from 22nd June 1949 to 5th November 1949 during the year 1949-50 and from 9th July 1950 to middle of November 1950 during the year 1950-51 when it ceased to flow. The rainfall during the year 1950-51 was satisfactory with the result that the supply throughout the season was adequate. The canal began to function satisfactorily with full discharge and during 1950-51 the yield was more than that in the previous year. The canal is old and is dependent on the rains of its supply.

The lands commanded by this canal are assessed partly at Special water rates and partly at consolidated rates. The area irrigated and the assessment levied thereon at special water rates were 848- acres and Rs. 3,980- respectively during 1950-51 as compared with 781 acres and Rs. 3,813- respectively, during the previous year. The increase in the area irrigated and the assessed revenue during 1950-51 was mainly due to the following reasons :—

- (i) Improvements carried out of the canal ;
- (ii) Satisfactory heavy rains during the year ; and
- (iii) Grow More Food Campaign.

The area irrigated under the consolidated assessment and the irrigation share of land revenue thereon were 8,648 acres and Rs. 22,027- respectively during each of the years 1949-50 and 1950-51.

#### ASUNDI TANK.

On the 1st April 1950, the water level in the tank was at R.L. 103·07 i.e. 4·07 ft. above the sill of the outlet as against the water level at R.L. 104·05 i.e. 5·05 feet above the sill of the outlet last year. The tank was empty from 14th May 1950 to 31st May 1950 and received its first replenishment on 1st June 1950. The water level on that day was at R.L. 103·00. The highest level reached during the year 1950-51 was at R.L. 108·70 i.e. 9·70 ft. above the sill of the outlet on 14th October 1950, as against that at R.L. 109·20 on 23rd October, 1949 during the previous year. The supply of water from the tank was found satisfactory during 1949-50 and 1950-51 to meet the full requirement of the irrigators for Kharif and Rabi seasons in addition to 182 acres of land under consolidated assessment and hot weather season.

The lands under this tank are partly assessed at water rates and partly at consolidated rates. The area irrigated and the assessment levied thereon during 1950-51 were 249 acres and Rs. 1,804- respectively, as compared with 275 acres and

2,139- respectively, during the previous year. The decrease during 1950-51 was due to deficit rainfall. The area irrigated under consolidated assessment was 182 acres during the year 1950-51 as compared with the same number of acres irrigated during the previous year. The irrigation share of the revenue was Rs. 712- during each of the years 1949-50 and 1950-51.

#### MADAG TANK.

On the 1st April 1950, the water level in the tank was at R.L. 1877.45 i.e. 2.40 feet above the sill of the outlet as against the level at R.L. 1878.95 i.e. 5.70 feet above the sill of the outlet last year. The tank received its first replenishment on 10th June 1950 and on 15th July 1949 during 1950-51 and 1949-50 respectively. The highest level reached during the year 1950-51 was at R.L. 1890.40 on 24th July 1950 against that at R.L. 1886.45 on 24th October 1949 last year. The waste weir began to overflow from 10th June 1950 to 3rd March 1951 during the year 1950-51 and from 1st January 1949 to 31st December 1949 during 1949-50. The water supply in the tank was quite adequate for both the seasons during the years 1949-50 and 1950-51.

The area irrigated and the assessment levied thereon during 1950-51 were 639 acres and Rs. 2,720-, respectively, as compared with 675 acres and Rs. 2,946 respectively, for the previous year. The decrease in both the area and assessment during the year 1950-51 was mainly due to decrease in the area being irrigated under money crops such as chilly, garlic etc. and also under garden crops.

#### MEDLERI TANK.

On the 1st April 1950, the water level in the tank was at R.L. 169.24 i.e. 4.24 feet above the sill of the outlet against R.L. 171.30 i.e. 6.30 feet on the same date last year. The tank was replenished on 11th April 1950 at R.L. 171.40 during 1950-51 as against on 22nd May 1949 at R.L. 170.03 during 1949-50. The highest level of the tank reached during the year 1950-51 on 9th October 1950 was at R.L. 181.00 i.e. one foot over the Waste Weir as against on 24th October 1949 at R.L. 177.50 during 1949-50. The water in the tank was sufficient to meet the demand of the irrigators, throughout the years 1949-50 and 1950-51.

The area irrigated and the assessment levied thereon in the year 1950-51 were 148 acres and Rs. 970- respectively as compared with 147 acres and Rs. 939- respectively for the previous year.

#### MAVINKOP TANK.

The irrigation management of this tank has been entrusted to the Revenue Department. The tank is situated at a distance of 5 miles from Haliyal on Dharwar-Haliyal Road. Its size is 152 acres and 30 gunthas. The dam is 1300 feet long, 30.53 feet high and 8 feet wide at the top. It has two outlets from which two canals take off of total mileage of 2.79 miles. The supply of water to this tank is dependent on local rainfall. The area which is assessed at consolidated rates amounted to 521 acres and the irrigation share of land revenue was Rs. 2,013- during the year 1950-51 as against 520 acres and Rs. 2,013- for the previous year respectively. The total assessment for the year 1950-51 was Rs. 2,516 against the same amount for the previous year. The total area which could be irrigated was 677 acres against which only 521 acres were irrigated. This showed that the irrigators were not taking full use of the tank water. Therefore every effort is being made to induce the irrigators to make use of all the water available in the tank and bring all the area available for cultivation.

**SOUTHERN CIRCLE.****BELGAUM DIVISION.****GADDIKERI TANK.**

The lands under the command of the tank are all assessed at consolidated water rates. The area irrigated and the irrigation share of land revenue assessed, were 423 acres and Rs. 2,344- respectively, for both the years 1949-50 and 1950-51.

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

On the 1st April 1950, the water level in the tank was at R.L. 138.70 i.e. 2.5 ft. above the silted bed of the tank. Thereafter the water level gradually went down and the tank was completely dried up on the 17th May 1950. The tank received its first replenishment on 26th May 1950 at R.L. 137.40. The water in the tank reached its highest level on 4th June 1950 at R.L. 145.70. The water supply in the tank was adequate for the crops both during the Kharif and the Rabi seasons of the years 1949-50 and 1950-51 to cope up with the demands of irrigators.

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 669 acres and Rs. 1,697- respectively during the year 1950-51 as compared with 320 acres and Rs. 1,172, respectively, for the previous year. The irrigated area under consolidated assessment and the irrigation share of land revenue were 144 acres and Rs. 920- respectively during each of the two years for 1949-50 and 1950-51. The total assessed revenue during the year 1950-51 was Rs. 2,866- against Rs. 2,747 for the previous year.

**BIJAPUR DIVISION.****MUCHKUNDI 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 and the smallness of the catchment. The rainfall recorded during the year 1950-51 which was less than the average of the previous three years, was 23.70 inches against 26.73 inches for the previous year. The highest level of water during the year 1950-51 was at R.L. 1795.69 or 9.75 feet above the sill of the outlet on the 28th October 1950 against the R.L. 1799.11 or 13.17 feet above the sill of the outlet on the 22nd October 1949. The lowest level was at R.L. 1791.77 or 5.83 feet above the sill of the outlet on the 19th August 1950. The gross assessed revenue during 1950-51 was Rs. 1,132 against Rs. 825 for the previous year. The tank bed was given on lease for cultivation as an experiment, to the Co-operative Joint Farming Society Limited, Bagalkot, for a period of 10 years as approved in Government Letter (Public Works Department No. 5594/36-I.B. (II), dated the 29th April 1949 in pursuance of the "Grow More Food" Campaign.

## KOLHAPUR DIVISION.

## CHIKHALI CANAL.

On the 1st April 1950, there was no flow in the river Nandini from which the canal receives its supply. The 1st flood occurred on 2nd June 1950 and it was 5.30 ft. in depth and lasted for 6 hours. The highest flood occurred on 8th October 1950 and it lasted for 10 hours raising the depth of water to 7 feet.

The total rainfall gauged at Chikhali was 32.79 inches as against 16.46 inches of the preceding year. The area irrigated during the year 1950-51 was 390 acres as compared with 394 acres for the previous year.

## SECTION II.

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

## DETAILED REPORTS BY LOCAL OFFICERS.

## NORTH GUJARAT CIRCLE.

The works remaining in charge of this Circle are (1) Timba Tank at Harsol in Sabar Kantha District and (2) Saiat Tank in Kaira District. But owing to the merger of the Baroda State several irrigation works which have not been declared as either first class or second class tanks, have come in charge of this Circle and are maintained by this Department. They are (1) Mota Ankadia Tank, (2) Mota Bhandaria Tank, (3) Kumbhnath Tank, (4) Dhamel Tank, (5) Pichvi Tank, (6) Badi Padwa Tank and (7) Gomti Tank in Amreli District and (1) Shri Chimnabai Sarowar, (2) Thol Tank, (3) Ambali Ppardi Tank, (4) Chandrasar Tank and (5) Vatrasar Tank in Mehsana District.

## TIMBA TANK (SABAR KANTHA DISTRICT).

The rainfall gauged at the site of the tank was 54.50 inches during 1950-51 against 17.93 inches last year. Due to heavy rains, the tank was filled up to R.L. 109.0 on 31st July 1950 during 1950-51; but during 1949-50 the tank was not fully filled due to timely and scanty rain. There was no demand for water in the Kharif season during the year 1950-51. The water was utilised in irrigating an area of 305 acres of land during 1950-51 against 52 acres irrigated last year. The gross revenue assessed during 1950-51 was Rs. 918. Miscellaneous revenue realised in 1950-51 on account of tank bed cultivation and sale of grass was Rs. 563 as against Rs. 241 for the last year. The tank was maintained at a cost of Rs. 2,472 during 1950-51 against Rs. 2,500 for the previous year. Besides, a sum of Rs. 1,012 was spent on making good the damages due to heavy rains in 1950-51.

## SAIAT TANK (KAIRA DISTRICT).

The rainfall gauged at the site of the tank was 53.59 inches during 1950-51 against 25.02 inches for the previous year. The tank was completely filled up during the year 1950-51. There was constant and continuous rain in the catchment from 6th July 1950. The catchment was over saturated. On 13th July 1950 water suddenly

reached R.L. 173 and the tank breached.. Therefore no water could be stored up and no irrigation was done during 1950-51. Miscellaneous revenue realised during 1950-51 amounted to Rs. 168 against Rs. 243 in the previous year. No remissions were granted.

#### TANKS IN AMRELI DISTRICT.

The monsoon began by the 1st week of July 1950, was continuous till about a month, then there was practically no rain except few showers in September 1950. The rainfall was 18 to 20 inches on the average.

The area irrigated and the revenue realised are as under :—

TANK	IRRIGATION		TANK BED CULTIVATION	
	Area irrigated (in Bhigas)	Revenue realised	Area irrigated (in Bhigas)	Revenue realised
1. Mota Ankadia ...	34·13	Rs. a. p. 155 7 0	261·6	Rs. a. p. 2,697 8 0
2. Mota Bhandaria ...	No irrigation done		144·0	4,267 4 0
3. Kumbhnath ...	599·9	2,722 1 0	87·10	1,291 8 0
4. Dhamel ...	137·14	539 0 0	Nil	Nil.
5. Pichvi ...	312·14	1,443 0 0	318·19	1,764 15 0
6. Badi Padwa ...	Acres. 332·21	778 12 0	Nil.	Nil.
7. Gomati ...	Acres 90·0	51 6 0	Nil.	Nil.

The tanks at Serial Nos. 1 to 5 and 7 were constructed in the Famine years of 1901-02 by the Ex-Baroda Government. The tank at Serial No. 6 was constructed by Bombay Government as an emergency irrigation work and was completed mostly in 1949-50. It is proposed to classify it as a 1st Class irrigation work.

#### TANKS IN MEHSANA DISTRICT.

The monsoon began in the first week of July 1950 with some breaks at intervals. The rainfall was about 24 inches. There were breaches in the Thol tank and hence it remained practically empty. Ambali Pipardi Tank which is being filled after Thol Tank is completely filled to F.S.L., was also therefore empty.

The area irrigated and the revenue realised are as under :—

TANK	IRRIGATION		TANK BED CULTIVATION	
	Area irrigated (in Bhigas)	Revenue realised	Area irrigated (in Bhigas)	Revenue realised
1. Thol ...	1,151·7	Rs. a. p. 1,478 1 0	922·6	Rs. a. p. 4,643 0 0
2. Vatrasar ...	2283·19	8,137 12 0	81·17	859 0 0
3. Chinnabai Sarovar ...	2416·3	39,007 8 0	1872·4	22,980 6 0
4. Chandrasan ..	114·18	383 14 0	8·1	42 12 0
5. Ambali Pipardi	Nil	Nil.	5·0	29 3 0

## SOUTH GUJARAT CIRCLE.

## MUWALIA TANK.

This is an important tank situated in the vicinity of Dohad Town in the Panch Mahals collectorate and it has a catchment area of about 30 square miles. The tank was filled to R.L. 149.65 i.e. 2.50 more than the F.S.L. of 139.15 of the tank during the year 1950-51. The rainfall was timely and suitable for maturing Kharif crops in the year 1950-51.

There was good demand in Rabi season. The total area irrigated was 1,871 acres and the net assessment amounted to Rs. 4,548 during the year 1950-51 against 1,324 acres and the net assessment of Rs. 4,281 respectively during the previous year. Some special repairs were carried to an extent of Rs. 4,771 during the year 1950-51.

## OLD TANKS.

Repairs to old tanks and drainage channels were carried out at a total cost of Rs. 77,344 and Rs. 61,565 respectively during the year 1950-51 as compared with Rs. 80,862 and Rs. 73,332 respectively during the previous year. The details of repairs carried out to old tanks and drainage channels during the years 1949-50 and 1950-51 are as under :—

Name of Division.	Cost of Repairs.			
	Tanks.		Drainage Channel.	
	1949-50.	1950-51.	1949-50.	1950-51.
	Rs.	Rs.	Rs.	Rs.
1. Panch Mahals Division ... ..	8,694	21,433	.....	.....
2. Baroda Division ... ..	23,145	.....	.....	5,734
3. Broach Division ... ..	4,966	5,000	64,904	45,934
4. Surat Division ... ..	22,322	35,015	8,279	6,477
5. Navasari and Dangs Division ... ..	21,735	15,896	149	3,420
Total ... ..	80,862	77,344	73,332	61,565

*Merged States.*

On account of merger of various States with Bombay State, the following main Irrigation work is received in charge of this Department in this Circle.

## DOSWADA DAM AND CHIKHLI BANEHARA CANAL.

This work is in Vyara Taluka of Surat District. The tank was constructed between the years 1912 and 1913 at the aggregated cost of Rs. 2,40,387. The rainfall gauged during the year 1950-51 at the site was 82.60 inches against 86.92 inches

during the previous year. The catchment area is 24 square miles and the capacity of the tank is only 74 million cubic feet. The crest of the weir is at R.L. 395.00 and the side of the sluice gates is at R.L. 376.00. The work is financially unproductive as the annual revenue derived therefrom in ordinary years yields nearly 2.1 per cent. only. The area irrigated and the revenue realized during the years under report are as under :—

Year.	Area Irrigated.	Assessment.
	Acres	Rs.
1949-50 .. .. .	934	13,018 14 0
1950-51 .. .. .	1,030	15,463 0 0

Actual revenue realized during the year 1950-51 was Rs. 18,991 and the working expenses were Rs. 9,469.

No new original work was carried out during the years under report but the canals were maintained by carrying out necessary repairs and Bandhara pick-up-weir was cleared of silt etc.

### GUJARAT IRRIGATION CIRCLE.

#### FATEWADI CANAL (AHMEDABAD DISTRICT).

This is a fair weather canal taken off from the Sabarmati river without any diversion weir across the river and is meant to share the available supplies in the river. The canal is still under construction and an amount of Rs. 3,02,296 was spent on construction works during the year 1950-51. For only three miles, the canal goes in deep cutting and thereafter the ground is lower than the Sabarmati bed. This fact is taken full advantage of in this project.

The canal functioned for the first time during the year 1950-51, although it was partially completed. The September 1950 floods were 4 feet higher than the maximum flood level for which the head works were designed. Consequently the flood waters entered the canal at head and other places causing damage to side slopes and pitchings. Irrigation was carried on uninterruptedly by dredging silt by drag-lines buckets and clam shells where such silting obstructed the flow in the canal. The area irrigated under the canal was 2,081 acres and the assessment was Rs. 25,272 during the year 1950-51.

#### GOBLEJ TANK.

This tank is situated in Matar Taluka of the Kaira District. The tank filled in the July 1950 floods and was refilled by the September 1950 floods causing 3 breaches in the banks. The breaches were partially closed promptly without allowing damage to occur to its irrigation.

The area irrigated under this tank during 1950-51 was 1,500 acres 22 gunthas and the assessment was Rs. 7,819 as compared with 13 acres and Rs. 32-8-0 respectively during the previous year. An amount of Rs. 3,365 was spent on Special Repairs to this tank during the year 1950-51.

#### GALKI TANK.

This tank is situated in Mehmedabad Taluka of Kaira District. The tank filled in July 1950 and refilled in September 1950. The area irrigated under this tank was 932 acres, 32 gunthas and the assessment was Rs. 3,139 during 1950-51



as compared with 17 acres 4 gunthas and Rs. 25-15-0 respectively during the previous year. An amount of Rs. 1,135 was spent on Special Repairs to the tank during the year 1950-51 against Rs. 530 during the Previous year.

Both the Goblej and Galki tanks were maintained during the year 1950-51 at a cost of Rs. 6,310 against Rs. 7,852-1-0 for the last year. Both of these tanks are storage tanks depending on local rainfall and replenishment from Khari river and Meshwa Canal. The miscellaneous revenue derived from the Fatewadi Canal, the Goblej tank and the Galki tank amounted to Rs. 810-8-0 during the year 1950-51.

**HARIPURA, WADADLA, KARACHIA, JAVLA, MOVAL AND SARSI TANKS IN  
SAVLI TALUKA AND SIRPORE TIMBI TANK IN WAGHODIA TALUKA,  
DISTRICT BARODA.**

These are small tanks in Baroda District. The feeder channel of the Haripura tank had breached during the year 1950-51 and hence this tank could not be filled. All the rest were filled up and served well to protect the areas thereunder. The demand for irrigation water was considerably increased and the revenue during the year 1950-51 was nearly double the highest realisation during the past 3 years and treble the average of the past 3 years, as shown below:—

Year.					Area irrigated.	Revenue assessed.
					Acres	Rs.
1947-48	..	..	..	..	1,881	11,903
1948-49	..	..	..	..	271*	1,382
1949-50	..	..	..	..	1,824	9,564
					Total ...	3,976
					Average ...	1,325
					1950-51 ...	4,314
						22,849
						7,616
						22,220

In addition to the above, income from tank bed cultivation had also considerably increased from Rs. 6,555 to Rs. 25,200 due to keen competition in auctions. Other miscellaneous revenue was Rs. 1,075 during 1950-51. An amount of Rs. 27,706 was spent on maintenance and special repairs of these tanks during the year 1950-51. The rainfall at Savli and Sirpore Timbi was 47·58 inches and 43·37 inches respectively against 22·59 inches and 21·61 inches respectively, the average of the past three years.

**DECCAN IRRIGATION CIRCLE.**

**POONA IRRIGATION 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 5·36 square miles and its capacity is only 34·2 million cubic feet. The depth of this tank is 23 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 cusecs leaving sufficient margin for all losses in transit. An area of 248 acres was irrigated and the revenue assessed amounted to

\* The year 1948-49 was a famine year of scanty rainfall.

Rs. 2,138-14-0 as compared with 122 acres and Rs. 733-3-0 respectively during the previous year. The increase in the area irrigated and assessed revenue during the year 1950-51 was due to more demand for food and fodder crops on the tank. The rainfall during the year 1950-51 was 18.50 inches.

#### VICTORIA TANK.

This is an incomplete tank situated near mile 65 of the Mutha Right Bank Canal. It has no storage and there is no area under irrigation. This tank was handed over to the Revenue Department in 1942 and only maintenance is done by the Public Works Department.

#### KHAMGAON TANK.

This tank which is situated in mile 43 of the Mutha Right Bank Canal is only partially completed and receives replenishment during the monsoon from the Mutha Right Bank Canal Distributary No. 17. The supply available was issued for the irrigation of 638 acres and the irrigation revenue assessed was Rs. 4,139, the corresponding figures for the previous year being 629 acres and Rs. 4,019, respectively. The tank was raised by 6 feet increasing its capacity to 36 million cubic feet in the year 1944 and is expected to irrigate about 720 acres under normal conditions. The average of the gross assessed revenue for the past three years is Rs. 2,998.

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

The total area irrigated during 1950-51 was 3,677 acres as compared with 4,101 acres during the previous year. The average discharge pumped during the year 1950-51 was 12.45 cusecs against 12.30 cusecs of the previous year and whole discharge was utilised for purposes of irrigation. The assessed revenue amounted to Rs. 54,169 during 1950-51 as compared with Rs. 65,678 during the previous year. The rate for the supply of effluent for sugarcane was Rs. 125 per acre during the year 1950-51 as against Rs. 100 per acre for the previous year. The decrease in revenue in 1950-51 was due to less sanction under all kinds of crops and the decreased rate of unauthorised sugarcane irrigation from Rs. 195 to Rs. 180 per acre.

#### 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 Haveli Taluka of the Poona Collectorate during the years 1949-50 and 1950-51 as compared with the average of the past three years :—

Particulars.	Area irrigated.	Consolidated revenue.		
		Irrigation share.	Land share.	Total.
	Acres.	Rs.	Rs.	Rs.
1949-50	29	73	174	247
Average	29	73	174	247
1950-51	29	73	174	247
	119	839	404	1,243
Average	148	912	578	1,490

## NASIK IRRIGATION DIVISION.

## BANDHARAS (NASIK DISTRICT).

There are numerous bandharas situated in this District. There are in all 296 such bandharas on the list. The expenditure incurred on repairs to bandharas (50 in number) during the year 1950-51 amounted to Rs. 25,288 against Rs. 23,292 for the previous year. The following table gives the area irrigated and the consolidated assessed revenue during the years 1949-50 and 1950-51 under report :—

Particulars.	Area irrigated.	Consolidated revenue.		
		Irrigation share.	Land share.	Total.
		Acres.	Rs.	Rs.
1949—50	30,625	1,98,350	58,735	2,57,085
1950—1951	29,796	1,63,607	59,321	2,22,928

## - 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. There is no security of supply of water to last for full year and hence perennial irrigation is allowed by sanctioning water applications for each season. The irrigators maintain perennial crops on storage water as far as possible and then maintain on well water upto maturity when storage is found to be insufficient. Lucerne and fruit trees are also allowed in small areas.

On the 1st April 1950, the level of water was 12·9 feet, the corresponding contents being 36·90 million cubic feet as against the level of 12·05 feet (contents 31·65 million cubic feet) on the same date last year. Replenishment commenced on the 6th July 1950 and the water level rose to the level of 19·9 feet, on the 2nd of October 1950 and the draw off for irrigation purposes commenced on 5th October 1950 with a discharge of 1·60 cusecs. The area irrigated during the year 1950-51 was 867 acres as compared with 1,072 acres of the previous year. The assessed revenue during 1950-51 amounted to Rs. 9,453 as compared with Rs. 7,988 of the previous year. The average area irrigated for the last three years was 902 acres against 811 acres for the previous year 1949-50. The total rainfall was 20·60 inches during the year 1950-51 against 26·30 inches for the last year.

## 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 net 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. The 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 1950 the level of water in the tank was 29·75 feet above the sill of the outlet, the contents being 672 million cubic feet as against the level of 35·2 feet (contents 1012 million cubic feet) on the same date last year. The lowest level of 24·65 feet was reached on 1st June 1950, the corresponding contents then being 429 million cubic feet as against that of 30·75 feet (contents 727 million cubic feet) on 20th June 1949. Replenishment was received in the tank on the 2nd June 1950 and the level of water rose to 25·90 feet, the corresponding contents being 482 million cubic feet. The highest level of 41·90 feet was reached on the 1st October 1950 with a storage equivalent to 1,546 million cubic feet against that of 42·10 feet (contents 1563 million cubic feet) on 24th September of the last year. The tank overflowed during the years 1949-50 and 1950-51.

The area irrigated revenue assessed, etc., during the years under report were as follows :—

			Area irrigated.	Water rates assessed.	Gross assessed revenue.
			Acres.	Rs.	Rs.
1949-50	..	..	7,442	58,068	71,500
1950-51	..	..	6,131	49,977	59,595

The rainfall during the year 1950-51 was 16·27 inches against 24·33 inches for the previous year.

#### LIMJIWADI TANK.

Limjiwadi tank was constructed with the object of growing more food crops. The construction work was completed in 1946-47. This tank is situated in Shrigonda Taluka of the Ahmednagar District. Irrigation was first started on this tank for food and fodder crops in the Rabi Season of 1946-47. The area irrigated during the year 1950-51 was 574 acres against 534 acres of the previous year. This tank has been notified under section 5 of the Bombay Irrigation Act *vide* Notification No. 2038-F, dated the 26th October 1948.

#### CENTRAL C RCLE.

The area irrigated and the gross assessed revenue on small tanks and bandharas during the year 1950-51 was 14,799 acres and Rs. 1,09,940 respectively as compared with 14,118 acres and Rs. 1,10,958 respectively for the previous year.

## SHOLAPUR DIVISION.

The following table gives the figures of area irrigated and the gross assessed revenue on the minor irrigation works mentioned below as compared with the corresponding figures of the previous year :—

Name of work	Area irrigated		Gross assessed revenue	
	1950—51	1949—50	1950—51	1949—50
	Acres	Acres	Rs.	Rs.
Koregaon tank ...	719	721	3,865	3,731
Wadshivne tank ...	2,085	1,579	9,952	7,692
Gherdi tank ...	1,009	747	4,971	3,781
Hotgi tank ...	590	255	3,966	257
Parewadi tank ...	361	537	1,864	2,472
Sangvi tank ...	214	189	1,018	861
Waki Bandhara ...	45	28	47	28
Telsangi tank ...	477	298	2,931	2,368

## KOREGAON TANK.

The classification of this tank has been changed from the head "XVII-Irrigation Works—Works for which Capital and Revenue Accounts are kept" to the head "18-A-Civil-Irrigation Works—Works for which neither Capital nor Revenue Accounts are kept" from the year 1948-49 *vide* Government Letter, Public Works Department No. 5354/36, dated 10th March 1948.

On 1st April 1950, the level of water in the tank was 2·70 feet against 7·12 feet on the same date last year. The tank received its first replenishment of 2·81 and 4·65 million cubic feet on 2nd September 1950 and 23rd June 1949 respectively during the years under report. The tank was almost dry on 1st September 1950. The total replenishment received during 1950-51 in the tank was 136·79 million cubic feet against 73·28 million cubic feet of the previous year. The tank was full and the waste weir began to overflow from 30th September 1950 to 28th October 1950 and from 8th September 1949 to 6th November 1949 during the years under report. The average rainfall gauged at Koregaon during 1950-51 was 20·85 inches as against 23·66 inches of the previous year.

## WADSHIVNE TANK.

On 1st April 1950 the level of water in the tank was 13·80 feet compared with 15·06 feet on the same date last year. The first replenishment of 26·85 million cubic feet was received on 28th August 1950 during the year 1950-51 as against 24·82 million cubic feet received on 23rd June 1949 last year. The total replenishment

received in the tank was 136.79 and 124.11 million cubic feet during 1950-51 and 1949-50 respectively. The tank was full on 30th September 1950 and 22nd September 1949 and the waste weir overflowed from 30th September 1950 to 28th October 1950 and from 23rd September 1949 to 2nd November 1949 during the years under report respectively. The average rainfall gauged at Wadshivne was 23.86 inches during 1950-51 as against 29.25 inches of previous year.

#### GHERDI TANK.

This minor irrigation tank is formed by an earthen dam across the nalla Appurpa near Gherdi village about 3 miles upstream. The dam is 1,400 feet in length and 46 feet in height. The gross storage of the tank is 102.85 million cubic feet but only 86 million cubic feet of water is available for irrigation. The tank is provided with left bank canal of 4 miles 1 furlong and 220 feet in length and a distributory 2 miles, 2 furlongs and 370 feet. The designed discharge of the canal is 8.9 cusecs from head to tail to irrigate 1,020 acres when the tank is full.

The area irrigated during the year 1950-51 was 1,009 acres as compared with 747 acres, for the previous year.

#### HOTGI TANK.

The work is nearly completed. First 6 miles of the canal functioned during the year 1950-51. The area of 590 acres was irrigated during the year 1950-51 as compared with 255 acres for the previous year. The rainfall during the year 1949-50 was 29.52 inches. The gross assessed revenue during the year 1950-51 was 3,966 as compared with Rs. 257 for the previous year.

#### WAKI BANDHARA.

The area irrigated and the gross assessed revenue on this bandhara during the year 1950-51 were 45 acres and Rs. 47 respectively, as compared with 28 acres and Rs. 28 respectively for the previous year.

#### PAREWADI AND SANGVI TANKS.

These works are still in progress. Irrigation on these two works was started from the Rabi Season of 1947-48 and the area of 361 acres and 214 acres, respectively, was irrigated during the year 1950-51 as compared with 537 acres and 189 acres respectively during the previous year.

#### TELSANGI TANK.

This tank is in Mangalwedha taluka and was taken over by the Bombay Government from the merged Sangli State. The tank is at present in charge of the Revenue Department for management. During the year 1950-51, 477 acres were irrigated as against 298 acres irrigated during the previous year.

#### EAST KHANDESH DIVISION.

The old bandharas and channels are grouped as under :—

- (1) The Girna river group.
- (2) The Bori river group.

The subjoined table shows the area irrigated and the revenue derived from these works as compared with the figures of the previous year :—

Revenue							
Area irrigated		Irrigation share		Land share		Total	
1950-51	1949-50	1950-51	1949-50	1950-51	1949-50	1950-51	1949-50
Acres	Acres	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
635	605	6,366	4,629	1,737	1,737	7,103	6,366

No expenditure was incurred on these bandharas during the year 1949-50. An expenditure of Rs. 2,223 was incurred during 1950-51. An expenditure of Rs. 653 was incurred on river and rain gauge operations during the year 1949-50.

#### WEST KHANDESH DIVISION.

The old bandharas and channels are grouped as under :—

- (1) Upper Panzara River group.
- (2) The Kan River group.
- (3) Burai River group.

The subjoined statement shows the area irrigated and the revenue derived from these works as compared with the figures of the previous year :—

Revenue							
Area irrigated		Irrigation share		Land share		Total	
1950-51	1949-50	1950-51	1949-50	1950-51	1949-50	1950-51	1949-50
Acres	Acres	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
*8,664	†8,426	61,454	61,311	12,761	13,091	74,215	74,402

No expenditure was incurred on these bandharas during the years under report.

#### KARNATAK IRRIGATION CIRCLE.

##### DHARWAR IRRIGATION DIVISION.

This Division was newly opened from 1st April 1950 with a view to repairing the existing minor irrigation tanks and constructing new ones, where feasible, as a measure of "Grow More Food Campaign" from the Special Programme of one crore loan granted by the Government of India on popular contribution basis.

\* Includes area under Second crop of 62 acres.

† Includes area under Second crop of 390 acres.

The jurisdiction of this Division extends over the Malnad tract comprising of Hubli, Kalghatgi, Bankapur Hanagal, Haveri, Rane bennur and Kod Talukas and Bydgi Mahal in the Dharwar District and the upghat Talukas viz. Haliyal, Yellapur, Sirsi, Siddapur, Mundod and Supe Mahal in the North Kanara District.

*Dharwar District.*—There are in all 2931 Minor irrigation works comprising of small irrigation tanks and bandharas in Dharwar District. The area irrigated during the year 1950-51 was 83,334 acres and the irrigation share amounted to Rs. 2,15,374 as compared with 83,334 acres and Rs. 2,10,124 respectively during the previous year. The remission granted during 1950-51 was Rs. 635 against Rs. 7,252 for the last year. The direct and indirect receipts during 1950-51 amounted to Rs. 2,15,374 against Rs. 2,10,368 for the last year. Miscellaneous receipts during 1950-51 amounted to Rs. Nil against Rs. 244 for the previous year.

*Kanara District.*—In this District there are 106 second class Irrigation Tanks. In addition to this, there are about 3,120 undeclared tanks and some 4,253 Bandharas (Katcha). The area irrigated during the year 1950-51 was 35,358 acres and the Irrigation share of land was Rs. 73,661 against 34,040 acres and Rs. 70,764 respectively for the previous year. The remission granted during 1950-51 was Rs. 3,457 against Rs. 2,771 for the last year.

## SOUTHERN CIRCLE.

### BELGAUM DIVISION:

There are approximately 525 second class irrigation tanks situated in the Belgaum Division. During the year 1950-51, repairs to 64 tanks were carried out at a cost of Rs. 1,76,391 as against repairs to 35 tanks carried out during the previous year at a cost of Rs. 29,941. In addition to this sum, an expenditure of Rs. 5,129 and Rs. 12,238 was incurred during 1949-50 and 1950-51 respectively, on the work of surveying and preparing plans and estimates for repairs to second class tanks. The area irrigated during the year 1950-51 was 16,226 acres, the irrigation share of land revenue being Rs. 74,225. The area irrigated during the year 1949-50 was 13,309 acres, the irrigation share of land revenue being Rs. 81,524. The total direct and indirect receipts amounted to Rs. 93,427 as compared with 1,03,552 during the previous year.

### BIJAPUR DIVISION.

#### NANDARGI TANK.

The tank is solely dependent on local rains for its supplies. The rainfall recorded during the year 1950-51 was 19·27 inches and was more than the average of the past 3 years. viz., 18·04 inches. The highest level of water in the tank during the year 1950-51 was at R. L. 208·25 or 21·25 feet above the sill of the outlet on 21st October 1950 against the R. L. 209·50 or 22·50 feet above the sill of the outlet on 20th September 1949. The lowest level, was at R. L. 190·15 or 3·15 feet above the sill of the outlet on 19th August 1950 against R. L. 194·50 or 7·5 feet above the sill on the 26th August 1949. The area irrigated and the assessment thereon were 354 acres and Rs. 1,780 respectively during 1950-51 against 382 acres and Rs. 1,846 respectively of the previous year.



The Control and management of the tank has been transferred to the Public Works Department under Government Resolution (Revenue Department), No. 1747/39, dated the 19th January 1944 and although it is notified as a First Class Irrigation work-*vide* Government Letter (Public Works Department) No. 1657/36-I, dated the 6th November 1944, it has been classified under the head "18 Irrigation (P.W.D.)".

#### SECOND CLASS TANKS.

There are in all 12 second class irrigation works and four bandharas and only repairs to them are carried out by the Public Works Department at the instance of the Revenue Department. No. repairs to any of these tanks or bandharas were carried out during the years 1949-50 and 1950-51. The area irrigated during 1950-51 was 1,142 acres and the irrigation share of the land revenue amounted to Rs. 3,018 as against 1,144 acres and Rs. 3,018 respectively for the previous year. The total direct and indirect receipts during the year, 1950-51 were Rs. 5,700 against Rs. 5,924 of the previous year. No remission was granted during the year 1949-50 whereas a remission of Rs. 16-4-0 was granted during 1950-51.

#### KANARA DIVISION.

In this Division there are only 11 Second Class Irrigation Tanks. Besides these there are 1,367 non-declared tanks, 469 bandharas and 86 Springs. During the year 1950-51 an expenditure of Rs. 1,964 was incurred on repairs to Second Class and minor irrigation works, as against an expenditure of Rs. 19,746 during the previous year. A sum of Rs. 7,329 was spent on surveying and preparation of plans and estimates for repairs to Minor Irrigation Works during 1950-51 as against Rs. 10,993 during the previous year. The area irrigated during the year 1949-50 was 34,040 acres and the irrigation share of land revenue thereon was Rs. 70,764. The remissions granted during the year 1949-50 amounted to Rs. 2,771.

#### RATNAGIRI DIVISION.

There are only four second class irrigation tanks in the Division. The area irrigated during 1950-51 was 1,379 acres and the irrigation share of land revenue was Rs. 6,743 as compared with 1,379 acres and Rs. 7,355 respectively for the previous year. An expenditure of Rs. 4,929 was incurred on repairs to these tanks and Rs. 880 on surveying and preparing plans and estimates for improvements during 1950-51 as against Rs. 3,587 and Rs. 174 respectively for the previous year.

#### DHARWAR DIVISION.

There are only 24 minor irrigation tanks in this Division and are all situated in merged State areas of the Dharwar District. Only repairs to them were carried out during 1950-51 at the instance of the Revenue Department. There were no Contributions for repairs and hence no survey and preparation of plans and estimates were undertaken. The usual maintenance and repairs were carried out to the Meundi Bandhara during the year 1950-51. The area irrigated and the assesment thereon during 1950-51 were 61 acres and Rs. 429 respectively.

## SECTION III.

## IRRIGATION DEVELOPMENT DIVISION.

In the Deccan, when a large perennial canal is opened, widespread water-logging is liable to ensue. Some of this water-logging extends rapidly into the valleys and unless steps are taken to arrest and set it 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 method to adopt to safeguard the land, became yearly more acute. Various experiments were carried out at the instance of the Agriculture Department but by 1913 it was clear that all the methods tried then 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 matter of investigation. In June 1916, the Division (now called the Irrigation Development 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 making out of definite areas suitable for "Blocks" for perennial and other crops; the designing of the drainage works required, and the study of the question of the reclamation of waste lands and acres damaged by water-logging, the 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 the Special Irrigation Division which is now called Irrigation Development Division.

The investigation coming within this sphere may be broadly grouped under four heads, viz.,

- (i) Irrigation management;
- (ii) Irrigation requirements or the inter-section of agricultural requirements and irrigation limitations;
- (iii) Soil Physics of irrigated tracts; and
- (iv) Drainage and reclamation.

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

- (i) Sub-soil survey and observation of sub-soil water levels;
- (ii) Sub-soil drainage construction,
- (iii) Drainage Scheme for allotted factory areas;
- (iv) Agricultural Research.

The summary of the work done by this Division during the year 1950-51 is given below:—

- (1) *Survey and Preparation of Drainage works.*

## GODAVARI RIGHT BANK CANAL.

- (a) For Factory Areas.

- (i) No work was done in this respect during the period under report.

- (b) Survey and preparation of projects in the Non-factory areas.

- (i) Cholkewadi Area culvert 45 Nala on Godavari Right Bank Canal. The survey project has been completed.

(ii) Distributary 4-5 (Suregaon) on Godavari Right Bank Canal. The fixing of the nala position, cross sections for drain Nos. 1 and 2 and drain alignment of drain No. 1 and 2 were completed. Pit work of drain No. 1 and 2 was also completed.

(iii) Distributary 9 and Watercourse 25 (Pohegaon) on Godavari Right Bank Canal. The allotment for this project was placed at the end of February 1951. However the fixing of nala position was completed.

#### GODAVARI LEFT BANK CANAL.

(iv) Distributary 8 to Water-course 24 (Khirdi) on Godavari Left Bank Canal. The survey project was completed.

(ii) *Demarcating the damage and soil classification in the Factory area*:—The damage classification work of Godavari Left Bank Canal was taken in hand and will be completed by the end of June 1951. The damage and soil classification in factory area was also in hand.

(iii) *Well Observation*:—The well observation work on Godavari Left Bank Canal was taken simultaneously with damage classification work and same will be completed before 30th June 1951.

(iv). *Collecting Soil and Damage Data for fixing 'X' Limits*:—The work of fixing 'X' limit for period 1951-57 on Godavari Canals was started in 1948-49 and same was completed in year 1950-51.

(v). *Fixation of Soil Suitability etc. for Fruit Blocks and ¼th Mile Limit*:—There was no such case during the period under report and hence no such work was done.

(vi). *Observing progressive improvements in Drained Area*:—Due to shortage of establishment no work on this item was done during the year under Report.

(vii). *Construction of Drainage Schemes*:—The following two works were under progress:—

(a) Takli Brahmangaon Drainage Scheme on Godavari Left Bank Canal. The construction of drain No. 1 of the former one was completed upto chainage 9,050 and approximately Rs. 49,900 were spent during the year against the allotment of Rs. 55,000. The work is in full swing. The progress on this drain would have still been more but due to rock cutting in about 7 feet to 8 feet height and in length of about a mile the progress is enormously hindered. The total cost of project is 6.17 lacs with a total length of drains about 15 miles.

(b) Sonewadi Drainage Scheme on Godavari Right Bank Canal. The construction work of drain No. 1 (extension) was completed in length of about 1,800 feet and drain No. 4 in length of about 3,100 feet. The total amount incurred during the year under report was Rs. 14,960 against the allotment of Rs. 15,000.

(viii). *Research Work*: Two works (a) carrying out field allied experiments and (b) carrying out the observation in the drained catchment for judging the efficiency of drain were undertaken.

*Work on (a)*:—The experiments of rate of infiltration of different soils under natural conditions were undertaken. As regards (b) the following works were executed.

(i) Monthly collection of water samples of drains already constructed and those in progress.

(ii) Collection of soil samples from typical drained and undrained catchments. Two sites in completed Kopergaon Drainage Scheme and the other in the catchment of Takli Brahmangaon Drainage Scheme were selected.

(iii) Collection of silt samples from tank beds. The following tanks were selected.

(a) Khirdi Tank, (b) Palkhed Weir, (c) Darna Dam.

The collection of silt samples for item (b) and (c) above were collected.

(iv) Silting of reservoirs and earthen dam : The experiment on the Waghad Tank was carried out and a few cross section which were marked last year were repeated and the results of silt deposit in the tank bed were plotted.

(v) Effect of foundation on black cotton soil : The experiment on the Kopergaon Drainage Scheme near Drain No. 2 (Pipe Line) was carried out and the results obtained. The experiment is to be repeated next year.

### PRAVARA CANALS DRAINAGE SUB-DIVISION.

#### (I). Survey and Preparation of Drainage Works.

(A) *Factory Areas* :—(i) The survey work in the extension area of Maharashtra Sugar Mills Limited on distributary 4-5 of sub-project II was completed. The Survey work of S.P. III was also completed except levelling of L. Section.

(ii) AC Nallna below Undirgaon village :—The survey work of AC Nalla below Undirgaon village was completed.

(B) *Non-factory Areas* :—(i) Kolhar Drainage Scheme : The estimate of Rs. 1,308 was sanctioned for water course 21 to Distributary 3 on Pravara Left Bank Canal. Survey work of this scheme was completed and the drawings are under preparation.

(ii) Loni Drainage Scheme (between distributary 2 and water course 21 of Pravara Left Bank Canal.)

The scheme was sanctioned by Government. The allotment of Rs. 26,000 was sanctioned for expenditure during the current year up to March 1951. The construction work was completed upto chainage Drain No. 1 5,445, Drain No. 2 Ch. 3,850.

(iii) Matapur Drainage Scheme (Pravara Left Bank Canal between Distributary Nos. 10-11).

The scheme was sanctioned by Government. The allotment of Rs. 71,000 was sanctioned for expenditure during the current year upto the March 1951. The construction work was completed upto chainage Drain No. 1, ch. 12,400, Drain No. 2, ch. 5,225, Drain No. 3, ch. 3,583, Drain No. 3/1 ch. 1,080. Working drawings are under preparation.

(iv) Visapur Tank (between Sugar Farm) :—The survey work in the area of Belwandi Sugar Farm and Loni Venkanath area i.e. outside the factory areas was completed and the allotment for survey work was fully spent and drawing work is under preparation.

#### II. Demarcating soil and damage classification on the perennial and factory areas (1950-51) Pravara Left Bank Canal.

Description.				Damaged area Acres.	Wells.
				Acres.	
Belapur Factory	..	..	..	1,920	568
Non-perennial.	..	..	..	Nil	Nil
Perennial	..	..	..	3,400	45

(III). *Well Observation*.—The water samples No. 113 and soil samples 16 were collected for analysis in Belapur Factory, Maharashtra Sugar Mills Limited and Loni and Deolali Drainage Schemes on Pravara Canals.

(IV). *Collecting soil samples and damage data for fixing cross limits*.

(V). *Verified cases of fruit blocks*.—In all 14 cases were received, out of which 9 cases were disposed off, and 5 are under investigation.

(VI). *Research work (i) Rate of silting in reservoir basins (Bhatodi Tank)*.

(i) Five cross sections were taken at about 400 feet apart in the tank basin.

(ii) L. shape trench was taken in the basin to observe bed silt deposit.

(iii) Iron cylinders were fixed in the different sub-catchments of the basin to observe the suspended silt.

*Jute experiments*.—Jute seeds were planted in certain survey numbers on Pravara Left Bank Canal.

### NIRA CANALS DRAINAGE SUB-DIVISION.

The work carried out by the Nira Canals Drainage Sub-Division during the year under report was as under :—

(I). *Drainage Scheme in the non-factory areas on Nira Left Bank Canal to improve damaged lands to bring them under cultivation to grow more food crops*.

(A) Construction of the following Drainage Scheme is in progress as per the ten year's programme :—

(i) Distributary No. 5-6 : Murum Drainage Scheme on Nira Left Bank Canal.

The work of construction was taken in hand in the month of January 1950 and the construction work of drain No. 1 will be completed upto the ch. 13000 and on drain No. 3 upto ch. 1200 by June 1951. The progress of work is in full swing.

(ii) Distributary 22-24 Malegaon Khandaj Drainage Scheme on Nira Left Bank Canal.

The work of construction was in hand in the month of January 1950 and the construction work of Drain No. 1 will be completed upto ch. 12900 and on drain No. 2 upto ch. 2800 by June 1951.

The progress of the construction work 3 miles of length of each of the above two drainage schemes were completed and about 250 acres of damaged lands under each scheme are made fit for cultivation.

(II). *Survey project work of the following drainage schemes were carried out to put these schemes under execution next year*.

(i) Hol Drainage Scheme on Distributary 8 Nira Left Bank Canal.

The survey work of this project was completed.

(ii) Korhala Drainage Scheme on Distributary 13-15 Nira Left Bank Canal.

The survey work and preparation of plans is in progress.

(iii) Gunawadi Drainage Scheme on Distributary 29-30 Nira Left Bank Canal.

The survey of this project was completed.

(iv) Pimpali Drainage Scheme on Distributary 30-31 Nira Left Bank Canal.

The survey work and preparation of plans is in progress.

(v) Udhat Drainage Scheme on Distributary 35-36 Nira Left Bank Canal.

The survey work was completed and preparation of plans is in progress.

(vi) Tawashi Drainage Scheme on Distributary 35-36 Nira Left Bank Canal.

The survey work was completed and preparation of plans is in progress.

(vii) Bodhaniwadi Drainage Scheme. The survey work was completed.

(III). *Small Drainage Schemes to be executed on the strength of popular contribution for early improvement of land.*

The following two drainage schemes were sanctioned for execution with 25 per cent. popular contribution of cost of works :

(1) Distributary 2-3 Nimbut Drainage Scheme on Nira Left Bank Canal.

(2) Distributary 4-4A Nimbut Drainage Scheme on Nira Left Bank Canal.

These will be executed next year in addition to the drainage scheme of S. Nos. 5, 6 and 7 under (B) above proposed to be excavated on the same basis.

(IV). *Organisation work done for effecting an early execution of drainage scheme works and the rapid reclamation of the land under them under grow more food drive :—*

Besides carrying out the drainage scheme works as per the ten years' programme and ordinary routine works, this Division has made vast voluntary efforts to create drain reclamation—consciousness among the cultivators to take early energetic action firstly in their own interest, and secondly in the interest of the Nation as a whole. Accordingly many cultivators are doing efforts to excavate trenches in their damaged fields to reclaim their lands and even to contribute part for the expenditure of large drainage schemes. Systematic guidance and advice is being given in all such cases.

*Drainage Schemes in allotted factory areas.*

(1) Phaltan Sugar Works, Distributary 7-17 original area on Nira Right Bank Canal : Some drains are constructed by the factory and for the remaining drains the factory has been expedited.

(2) Phaltan Sugar Works, Distributary 19-26 extension area.

(3) Gaswad Mali Sugar Factory on Distributary 21-22, 25, 27, 29 on Branch No. 1 Nira Right Bank Canal.

(4) Saswad Mali Sugar Factory, 1st Extension area on Distributary 9 of Branch No. 1.

In all the factories, some drains are constructed by the factories and for the remaining drains factories have been expedited.

(5) Saswad Mali Sugar Factory 2nd Extension area on Distributary 32, 32-A, 35 and 38 of Branch No. 1. The Project is under scrutiny.

(6) Brihan Maharashtra Sugar Syndicate on Distributary 19-24 of Branch No. of Nira Right Bank Canal. The project is sanctioned by Government but the factory has not constructed any drain due to land acquisition.

(7) Chitale Agricultural Products Limited. Gul Area on Distributory 52-58 Nira Right Bank Canal: The factory has not constructed any drain for want of land acquisition though the project is sanctioned long ago.

(8) Messrs. Boravake Kudale Gul Area on Distributory 9 of Branch No. 1 Nira Right Bank Canal: No drains are yet proposed; it is necessary to survey and construct drains in this area, as the damaged area is appreciable and nallas are being heavily silted due to the cane of this gul area.

(9) Walchandnagar Industries Limited—Distributory 39 1st Extension area on Nira Right Bank Canal: Most of the drains are constructed and the few remain to be constructed.

(10) Walchandnagar Industries Limited—2nd Extension area on Nira Right Bank Canal—The drainage project is under scrutiny.

(V). *Damage demarcation work on Krishna Canal in the Satara District.*

During the year the demarcation of damaged lands and marking out nallas and depressions were done in the perennial section of the Krishna Canal. The damage is mostly salt and little waterlogged in the deep areas.

(VI). *Experimental works.*

Experiments on the rates of infiltration of water in different soils and sub-soils were carried out. Information of Mayani and Pingali Tanks in Satara District which have been heavily silted was collected and silt samples collected for analysis.

RIVER GAUGING WORKS.

River gauging work which was discontinued since the year 1926 was again revived in compliance with the Govt. letter, No. 7374/36-E (I), dated the 14th April 1945 and the River Gauging Sub-division, Poona, was formed on 26th April 1945 under the Poona Irrigation and Research Division. With a view to establish a Water Board for the State, Irrigation Officer, Special Duty was appointed under Government Resolution, No. 8184/36, dated 4th June 1943 and who looked after this work acting under the direction of the Technical Committee appointed under Government Resolution, No. 8181/36, dated the 23rd August 1948. The work carried out by that Officer was further handed over to the Water Resources Investigation Division and the Irrigation Development Division, the latter having assumed this work as per Government Resolution, No. 2100/48-E (III), dated the 22nd April 1950. The work consists of measuring discharges of rivers, rainfalls in their catchment and collecting all the necessary data regarding hydrological resources of the State. The progress of the work carried out so far for the Deccan Region is tabulated below:—

Year	Number of river gauging Stations installed	Number of rain Gauging Stations installed	Number of self recording rain gauges installed	Number of automatic level recorders installed	Number of current meters in operation
1945-46	11	3	.....	.....	.....
1946-47	22	22	.....	.....	.....
1947-48	31	40	.....	.....	.....
1948-49	46	83	.....	.....	.....
1949-50	50	88	.....	.....	.....
1950-51	53	96	9	1	4

So far, the valley reports for the following rivers were submitted to Government along with proposals for additional river gauging and rain-gauging stations :

- |                              |                           |
|------------------------------|---------------------------|
| 1. Narbada river valley.     | 5. Tapti river valley.    |
| 2. Sabarmati river valley.   | 6. Bhima river valley.    |
| 3. Mahi river valley.        | 7. Godavari river valley. |
| 4. Tungabhadra river valley. | 8. Krishna river valley.  |

During the year under report, 3 river gauges and 8 rain-gauges were installed, the observations for which will be commenced from the next season. Similarly realising the necessity of ascertaining the intensity of rainfall, 8 self recording gauges have been purchased and put into operation and the erection work for an automatic water level recorder has also been completed so that a flood chart can be obtained from the next season. Also observations of floods at places where there are wire rope ferry crossings, have been taken at 8 places during the year under report.

#### A SHORT NOTE ON MAJOR IRRIGATION PROJECTS UNDER EXECUTION IN THE BOMBAY STATE.

##### *Major Irrigation Works.*

Providing additional irrigation facilities to step up food production is one of the first concerns of the Government and so of the Department. In addition to the existing ones, provision has therefore been made for the construction of the following eight Major Irrigation Schemes :—

- (1) Meshwa Canal Project.
- (2) Gangapur Storage Project.
- (3) Ghataprabha Left Bank Canal Scheme (Stage I).
- (4) Mahi Right Bank Canal Project (Stage I).
- (5) Ranand Tank Project.
- (6) Kolchi Weir Scheme.
- (7) Kakrapar Weir and Canal Project.
- (8) Radhanagari H. E. Project.

*The Meshwa Canal Project.*—The Meshwa Canal Project was the first one to be put into commission under the Development Programme for Major Irrigation Works in the State of Bombay. The project comprises of a pick-up-weir across the river Meshwa near Raska village and envisages utilisation of the waters of Meshwa river for irrigation in Kharif season to the extent of 18,000 acres of land in Kaira District. There would be some Rabi irrigation also, depending upon the post-monsoon flow and rainfall during the year. The project estimated to cost about Rs. 53 lakhs, has been practically completed and irrigation has started on it since June 1950.

*The Gangapur Storage Project.*—The project consists of an earthen dam at Gangapur on the Godavari river upstream of Nasik Town to store 5,500 M.c.ft. of water in the Stage I and 7,200 m.c. ft. in the Stage II. The dam will be 12,500 feet long and 123 feet high above the river bed. Two canals will take off directly from the dam, one on the right bank and the other on the left bank. Both canals will irrigate 45,000 acres of land in Nasik and Ahmednagar Districts. The project



is estimated to cost Rs. 334 lakhs and the target date of completion is 1957. The project is expected to yield about 8,100 tons of additional foodgrains. The construction work on the project with the aid of machinery is in full swing.

*The Ghataprabha Left Bank Canal Project.*—This project envisages the construction of a monsoon canal of 1,500 cusecs capacity taking off the weir at Dhupdal to command 4.5 lakhs of acres on the left bank of the Ghataprabha and right bank of the Krishna river. Accordingly the construction of the Ghataprabha Left Bank Canal 1 to 44 miles in length, at an estimated cost of Rs. 545 lakhs was taken up and the first 8 miles of the scheme have been completed and irrigation started since June 1951. The scheme is expected to irrigate 1,00,000 acres in Belgaum and Bijapur Districts and will add 24,000 tons of extra food grains. The project is expected to be completed in 1957.

*Mahi Right Bank Canal Project (Stage I).*—The Project consists of a pick-up-weir, 2,450 feet long and 73 feet high at Wanakbori across the Mahi river in Kaira District and a Right Bank Canal of 44.32 miles in length. The project is expected to irrigate 90,000 acres in Kaira District at an estimated cost of Rs. 425 lakhs and will add 21,000 tons of additional food grains. Preliminary works such as construction of buildings, approach roads, acquisition of lands, purchase of machinery, etc. is in full swing. The project is anticipated to be completed in 1959.

*Ranand Tank Project.*—The project comprises of an earthen dam of 3,580 ft. long and 63 ft. high and an overflow waste weir 1,085 feet long to discharge the monsoon floods. The project is expected to irrigate 2,700 acres in Satara District at an estimated cost of 21.5 lakhs and will yield 648 tons of additional food grains. The work is in progress since 1949 and is expected to be completed in 1953.

*Kolchi Weir Scheme.*—This scheme consists of a submersible weir across the Malaprabha river near Ramdurg and a canal about 10 miles long. It is estimated to cost Rs. 20.41 lakhs and irrigate 3,700 acres in Bijapur and Dharwar Districts. The work is in progress and is expected to be completed in 1953. The project will add 888 tons of extra food grains.

*Kakrapar Weir and Canals Project.*—The project consists of a diversion weir at Kakrapar about 50 miles upstream of Surat together with a system of canals commanding a gross area of 8,00,000 acres estimated to cost Rs. 626 lakhs. The scheme is expected to irrigate 6,52,000 acres in Surat District and yield about 1,56,480 tons of additional food-grains. The work is being carried out by the Central Water and Power Commission. The necessary investigation and other preliminaries such as construction of buildings, earth work, procurement of plant and machinery are in progress. The project is expected to be completed in 1954.

*Radhanagari Dam Project.*—The project consists of construction of a masonry dam, about 140 ft. high across river Bhogavati at Radhanagari a taluka town, having a capacity of 8,450 m.c. ft. It is expected to provide by lift irrigation for an area of 12,000 acres of cane and 10,000 acres of food crops with a further possibility of additional 10,000 acres of food crops. The scheme envisages 400 m.c. ft. of water for Kolhapur City Supply Scheme. Power expected to be generated will be 1,640 kilowatts on an average and 5,000 kilowatts at Peak Load. Estimated cost of the project is Rs. 2,45,78,275.

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STATEMENTS

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## STATEMENT

Statement of Area irrigated by Irrigation Works in the

S. No.	Name of work	Area irrigated				
		Kharif	Rabi	Total	Flow	Lift
1	2	3	4	5	6	7
<b>WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.</b>						
<b>PRODUCTIVE.</b>						
1	Gadikeri Tank .. .. .	423*	...	423*	423*	...
2	Mavinkop Tank .. .. .	520*	...	520*	520*	...
3	Ekruk Tank .. .. .	(1,800)	(3,099)	(4,899)	5,435	13
4	Shahada Channel. ..	2,161	3,287	5,448		
		(966)	(1,819)	(2,785)	2,884	...
		988	1,896	2,884		
	Total—Productive ..	3,149	5,183	8,332	8,319	13
		*943		*943	*943	
<b>UNPRODUCTIVE.</b>						
5	Hathmati and Khari Cut Canals.	197	...	197	195	2
6	Wangroli Tank .. .. .	175	...	175	156	19
7	Savli Tank .. .. .	324	...	324	298	26
8	Tranza-Nagrama Tanks ..	...	...	...	...	...
9	Futelao Tank .. .. .	13	217·25	230·25	...	...
		(36,881)	(53,637)	(90,518)		
	{ Nira Left Bank Canal ..	50,656	24,584	75,240	74,826	414
10	{ Shetphal Tank .. .. .	(3,168)	(3,811)	(6,974)	5,833	...
		3,284	2,549	5,833		
		(39,997)	(54,117)	(94,114)		
11	Nira Right Bank Canal ..	49,682	41,132	90,814	90,431	383

I-B.

State of Bombay during the year 1949-50.

in acres.		Average discharges, Cubic Feet per Second.			
Double cropped		At Head		Utilized	
Area irrigated	Percentage of total area	Kharif	Rabi	Kharif	Rabi
8	9	10	11	12	13
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	25.6	24.01	25.6	24.01
59	2	20.88	33.09	20.88	33.09
59	.....	.....	.....	.....	.....
.....	.....	28	.....	28	.....
.....	.....	11.57	.....	11.57	.....
.....	.....	29.85	.....	29.85	.....
.....	.....	.....	.....	.....	.....
.....	.....	12	.....	12	.....
.....	.....	415	522	266	380
.....	.....	20	34	20	34
1,372	1.30	490	684	390	559

## STATEMENT

S. No.	Name of work.	Area irrigated per Cubic Foot per Second			
		Discharged at Head		Utilized	
		Kharif	Rabi	Kharif	Rabi
1	2	14	15	16	17
	<b>WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.</b>				
	<b>PRODUCTIVE.</b>				
1	Gadikeri Tank .. ..	....	....	....	....
2	Mavinkop Tank .. ..	....	....	....	....
3	Ekruk Tank .. ..	70·31	129·07	70·31	129·07
4	Shahada Channel. ..	46·26	54·97	46·26	54·97
	<b>Total—Productive ..</b>	....	....	....	....
	<b>UNPRODUCTIVE.</b>				
5	Hathmati and Khari Cut Canals.	7	....	7	....
6	Wangroli Tank .. ..	15·16	....	15·16	....
7	Savli Tank .. ..	10·85	....	10·85	....
8	Tranza-Nagrama Tanks ..	....	....	....	....
9	Futelao Tank .. ..	1·08	18·14	1·08	18·14
10	{ Nira Left Bank Canal .. ..	89	103	139	141
	{ Shetphal Tank .. ..	158	112	158	112
11	Nira Right Bank Canal ..	82	79	101	97

I-E—contd.

Base to which the Duties of Water are calculated.		Remarks.
Kharif	Rabi.	
18	19	20
.....	.....	*Area under consolidated assessment.
.....	.....	
15th February to 14th October .	15th October to 14th February	
Do.	Do.	
.....	.....	
15th June to 15th November	15th October to 14th February	In the Central Circle, the figures shown in brackets denote the actually irrigated area and those without brackets denote the area assessed. Duties have been calculated on the figures of area actually irrigated.
16th June to 15th November	16th November to 14th February	
Do.	Do. ..	
Do.	Do. ..	
15th June to 15th November	16th November to 14th February	
5th February 1949 to 14th October 1949.	15th October 1949 to 14th February 1950.	

## STATEMENT

S. No.	Name of work	Area irrigated					
		Kharif	Rabi	Total	Flow	Lift	
1	2	3	4	5	6	7	
12	Mutha Canals .. ..	(12,223)	(7,122)	(19,355)	17,342	326	
		3,435	4,233	17,668			
	Matoba Tank † .. ..	(2,342)	(2,005)	(4,347)	2,657	...	
13	Shirsuphal Tank .. ..	2,486	171	2,657	1,874	...	
		(705)	(1,046)	(1,751)			
14	Bhadalwadi Tank .. ..	828	1,046	1,874	1,668	...	
		(537)	(1,042)	(1,579)			
15	Lake Beale—Darna Dam ..	537	1,131	1,668	28,990	2,331	
		(13,609)	(17,543)	(31,152)			
		19,594	11,717	31,311			
16	Godavari Right Bank Canal ..	(11,266)	(14,127)	(25,393)	21,920	3,098	
		17,568	7,450	25,018			
17	Chankapur Tank—Girna Canal.	(7,389)	(7,792)	(15,181)	19,158	...	
		11,366	7,792	11,958			
17	Kadwa River Works	Waghad Tank .. ..	.	.	2,217	25	
		Palkhed Canal † .. ..	(720)	(828)			(1,548)
		Ojhar Tambat Canal † ..	1,444	798			2,242
		Wadali Canal † .. ..	(605)	(609)			(1,214)
			999	439			1,438
	(446)	(484)	(930)	984	13		
		554	443	997			

I-E--contd.

in acres.		Average discharges, Cubic Feet per Second			
Double cropped		At Head		Utilized	
Area irrigated	Percentage of Total Area	Kharif	Rabi	Kharif	Rabi
8	9	10	11	12	13
217	1	155	117	105	72
30	1	14	21	14	21
....	....	8.25	8.6	4.42	5.10
....	....	7.24	8.24	4.20	4.94
1,570	5	197	232	123	143
850	3.4	138	138	102	110
413	2.7	180	117	66	100
84	3.7	16	21	16	21
45	3.1	8	9	8	9
15	1.6	5	6	5	6



## STATEMENT

S. No.	Name of work	Area irrigated per Cubic Foot per Second				
		Discharged at Head		Utilized		
		Kharif	Rabi	Kharif	Rabi	
1	2	14	15	16	17	
12	Mutha Canals .. ..	79	61	117	99	
	Matoba Tank† .. ..	167	95	167	95	
13	Shirsuphal Tank .. ..	85.45	121.63	159.50	205.1	
14	Bhadalwadi Tank .. ..	74.17	126.46	127.85	210.95	
15	Lake Beale—Darna Dam ..					
	Godavari Right Bank Canal ..	69	76	111	123	
	Godavari Left Bank Canal ..	82	102	110	128	
16	Chankapur Tank—Girna Canal.	92	67	112	78	
17	Kadwa River Works	Waghad Tank ..				
		Palkhed Canal† ..	45	39	45	39
		Ojhar Tambat Canal.†	76	68	76	68
		Wadali Canal† ..	89	80	80	80

I-E- *contd.*

Base to which the Duties of Water are calculated.		Remarks.
Kharif	Rabi.	
18	19	20
15th February 1949 to 14th October 1949.	15th October 1949 to 14th February 1950.	
15th February to 14th October.	15th October to 14th February.	
15th February to 14th October.	15th October to 14th February.	In the Deccan Irrigation Circle, the figures in brackets in columns 3, 4, and 5 represent the areas actually irrigated in the respective seasons and include all perennial and two seasonal crops irrigated in these seasons.
Actual number of days in each	season, on which the canal was	flowing

## STATEMENT

No.	Name of work.	Area irrigated in acres				
		Kharif	Rabi	Total	Flow	Lift
1	2	3	4	5	6	7
18	Pravara River Works.	(10,922)	(16,367)	(27,289)	24,081	226
		16,119	8,188	24,307		
		(29,618)	(41,110)	(70,728)	59,346	870
19	Bhatodi Tank† .. ..	(203)	(619)	(822)	993	.....
		283	710	993		
20	Mhaswad Tank .. ..	(3,620)	(4,928)	(8,548)	13,360	.....
		6,470	6,890	13,360		
21	Parsul Tank† .. ..	(1,012)	(1,247)	(2,259)	2,377	.....
		1,130	1,247	2,377		
22	Ashti Tank .. ..	(1,225)	(4,278)	(5,503)	6,846	.....
		1,708	5,138	6,846		
23	Pathri Tank .. ..	(237)	(1,095)	(1,332)	1,542	3
		274	1,271	1,545		
24	Jamda Canals .. ..	(1,187)	(4,042)	(5,229)	6,622	.....
		1,558	5,064	6,622		
25	Mhaswa Tank .. ..	(36)	(588)	(624)	712	.....
		37	675	712		
26	Lower Panjhra River Works ..	(1,430)	(1,601)	(3,031)	3,267	.....
		1,441	1,826	3,267		
27	Krishna Canal .. ..	(4,304)	(2,413)	(6,722)	8,096	1,705
		6,901	2,900	9,801		

I-E—contd.

Double cropped		Average discharges, Cubic Feet per Second			
		At Head		Utilized	
Area irrigated	Percentage of Total Area	Kharif	Rabi	Kharif	Rabi
8	9	10	11	12	13
1,402	5.8	107	128	106	123
3,248	5.4	383	479	373	478
....	....	4	4	4	4
....	....	122	100	122	100
703	29.6	6.7	7.7	6.7	7.7
....	....	19	25	19	25
....	....	0.56	10.51	0.56	10.51
....	....	55	88	55	88
....	....	16.91	16.34	16.91	16.34
735	23	0.88	0.99	0.88	0.99
....	....	40.10	52.51	40.10	52.51

## STATEMENT

No.	Name of work.	Area irrigated per Cubic Foot per Second				
		Discharged at Head		Utilized		
		Kharif	Rabi	Kharif	Rabi	
1	2	14	15	16	17	
18	Pravara River Works.	Pravara Right Bank Canal.	102	128	103	133
		Pravara Left Bank Canal.	77	86	78	86
19	Bhatodi Tank* .. ..	51	155	51	155	
20	Mhaswad Tank .. ..	29.67	49.28	29.67	49.28	
21	Parsul Tank* .. ..	151	162	151	162	
22	Ashti Tank .. ..	64.49	171.12	64.49	171.12	
23	Pathri Tank .. ..	423.21	104.19	423.21	104.19	
24	Jamda Canals .. ..	21.58	45.93	21.58	45.93	
25	Mhaswa Tank .. ..	2.13	35.98	2.13	35.98	
26	Lower Panjhra River Works ..	1625.00	1617.17	1625.00	1617.00	
27	Krishna Canal .. ..	107.46	45.95	107.46	45.95	

I-E—contd.

Base to which the Duties of Water are calculated.		
Khariif	Rabi	Remarks.
18	19	20
15th February to 14th October. Actual number of days in each flowing.	15th October to 14th February. season, on which the canal was	†In the case of Matoba tank, Palkhed Canal, Ozar tambat canal, wadali canal, Parsul tank and Bhatodi tank, the actual number of days on which the canals were flowing in each season, has been taken into account for the purpose of calculat- ing average discharge and duties.
15th February to 14th October. Actual number of days in each flowing.	15th October to 14th February. season, on which the canal was	
15th February to 14th October.	15th October to 14th February.	
15th February to 14th October.	15th October to 14th February.	

## STATEMENT

No.	Name of work	Area irrigated in acres				
		Kharif	Rabi	Total	Flow	Lift
1	2	3	4	5	6	7
28	Revari Canal .. ..	(156) 233	(716) 749	(872) 982	982	.....
29	Upper Man River Works ..	(447) 559	(929) 1,061	(1,376) 1,520	1,610	10
30	Yerla River Irrigation Works ..	(470) 1,101	(4,020) 4,668	(4,490) 5,769	5,701	68
31	Chikhi Canal .. ..	(256) 298	(76) 96	(332) 394	384	10
32	Maini Tank .. ..	(98) 121	(1,506) 1,573	(1,604) 1,094	1,676	18
33	Gokak Canal—First Section and Storage Works.	8,944	6,043	14,987	14,703	284
34	Muchkundi Tank ..	22	5	27	27	.....
35	Dambal Tank .. ..	274 } *144 }	46	320 } *144 }	320 } *144 }	.....
36	Medleri Tank .. ..	147	3	150	148	2
37	Madag Tank .. ..	566	163	729	729	.....
38	Asundi Tank .. ..	209	129 } *182 }	338 } *182 }	328 } *182 }	10
39	Dharma Canal .. ..	781 } *8,648 }	.....	781 } *8,648 }	781 } *8,648 }	.....
	Total, Unproductive. }	2,59,153 } *8,792 }	1,75,529 } *182 }	4,34,682 } *8,974 }	4,24,844 } *8,974 }	9,838 } ..... }
	Grand Total, Productive and Unproductive. }	2,62,302 } *9,735 }	1,80,712 } *182 }	4,43,014 } *9,917 }	4,33,163 } *9,917 }	9,851 } ..... }

I-E—contd.

Average discharges, Cubic Feet per Second					
Double cropped		At Head		Utilized	
Area irrigated	Percentage of Total Area	Kharif	Rabi	Kharif	Rabi
8	9	10	11	12	13
....	....	3.28	2.95	3.28	2.95
....	....	1.6	8	1.6	8
....	....	4.3	31.9	4.3	31.9
....	....	....	.65	....	.65
....	....	1.1	8.6	1.1	8.6
....	....	109.9	100.0	109.9	100.0
....	....	....	....	....	....
....	....	4.59	5.10	4.59	5.10
....	....	1.38	2.31	1.38	2.31
....	....	13.39	19.83	13.39	19.83
....	....	1.69	2.65	1.69	2.65
....	....	60.88	14.78	60.88	14.78
10,684	....	....	....	....	....
10,743	....	....	....	....	....



## STATEMENT

No.	Name of work.	Area irrigated Cubic Feet per Second.			
		Discharge at Head.		Utilized.	
		Kharif.	Rabi	Kharif	Rabi
1	2	14	15	16	17
28.	Revari Canal .. .. .	47·56	242·71	47·56	242·71
29	Upper Man River Works ..	279·38	116·13	279·38	116·13
30.	Yerla River Irrigation Works ..	109·3	126·01	109·3	126·01
31	Chikhli Canal .. .. .	....	116·92	....	116·92
32	Maini Tank .. .. .	89·09	175·11	89·09	175·11
33	Gokak Canal—First Section and Storage Works.	73·2	77·2	73·2	77·2
34	Muchkundi Tank .. .. .	....	....	....	....
35	Dambal Tank .. .. .	91·07	9·04	91·07	9·04
36	Medleri Tank .. .. .	106·52	1·3	106·52	1·30
37	Madag Tank .. .. .	42·27	8·22	42·27	8·22
38	Asundi Tank .. .. .	123·66	117·36	123·66	117·36
39	Dharma Canal .. .. .	154·80	....	154·80	....
	Total, Unproductive ..	....	....	....	....
	Grand Total, Productive and Unproductive.	....	....	....	....

I-E—contd.

Base to which the duties of water are calculated.		Remarks
Kharif	Rabi	
18	19	
15th February to 14th October.	15th October to 14th February.	
15th June to 14th October 119 days. (A)	15th October to 14th February 101 days. (B)	(A) & (B) No. of days for which the canal was in flow.
15th February to 14th October.	15th October to 14th February.	
15th February to 14th October— 242 days.	15th October to 14th February— 123 days.	
.....	.....	
.....	.....	

## STATEMENT

Statement of Area irrigated by Irrigation Works in the

No.	Name of Work	Area irrigated in acres				
		Kharif	Rabi	Total	Flow	Lift
1	2	3	4	5	6	7
<b>WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.</b>						
<b>PRODUCTIVE.</b>						
1	Gadikeri Tank .. ..	*423	..	*423	*423	..
2	Mavinkop Tank .. ..	*521	..	*521	*521	..
3	Ekruk Tank .. ..	(1,976)	(3,680)	(5,656)	..	..
		2,535	3,998	6,533	6,489	44
4	Shahada Chanrel ..	(885)	(2,293)	(3,178)	..	..
		910	2,388	3,298	3,298	..
	<b>Total, Productive ..</b>	<b>3,445</b>	<b>6,386</b>	<b>9,831</b>	<b>9,787</b>	<b>44</b>
		<b>*944</b>	<b>*—</b>	<b>*944</b>	<b>*944</b>	<b>*—</b>
<b>UNPRODUCTIVE.</b>						
5	Hathmaci and Khari Cut Canals.	3,260	3,959	7,219	7,219	..
6	Wangroli Tank .. ..	1,208	809	2,017	1,990	27
7	Savli Tank .. ..	2,137	56	2,193	2,193	..
8	Wadhvana and Jojwa Irriga- tion System.	2,160	2,680	4,840	4,840	..
9	Tranza-Nagrama Tanks ..	220	..	220	220	..
10	Futelao Tank .. ..	30	246	276	276	..
		(32,777)	(54,570)	(87,347)	73,641	1,154
11	{ Nira Left Bank Canal ..	49,532	25,263	74,795	..	..
	{ Shetphal Tank .. ..	(2,200)	(4,203)	(6,403)	..	..
		3,231	2,833	6,064	6,064	..
		(30,900)	(42,886)	(73,786)	..	..
12	Nira Right Bank Canal ..	40,866	40,300	81,166	80,777	389

I-E—contd.

State of Bombay during the year 1950-51.

Double cropped		Average discharges, Cubic Feet per Second			
		At Head		Utilized	
Area irrigated	Percentage Total Area	Kharif	Rabi	Kharif	Rabi
8	9	10	11	12	13
....	....	....	....	....	....
....	....	....	....	....	....
....	....	19.51	18.6	19.51	18.6
33	1.%	19.24	33.80	19.24	33.80
33	.....	.....	.....	.....	.....
Nil	....	124(A)	85(B)	57	73
....	....	75.04	82.17	75.04	82.17
....	....	97.71	4.93	97.71	4.93
1,300	....	64	....	....	....
....	....	30	....	30	....
....	....	12.25	....	12.25	....
733	.84	348	519	204	385
4	....	15	33	15	33
1,198	1.47	462	698	295	523

## STATEMENT

No.	Name of Work	Area irrigated per Cubic Foot per Second			
		Discharged at Head		Utilized	
		Kharif	Rabi	Kharif	Rabi
1	2	14	15	16	17
	<b>WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.</b>				
	<b>PRODUCTIVE.</b>				
1	Gadikeri Tank .. .. .				
2	Mavinkop Tank .. .. .				
3	Ekrak Tank .. .. .	01·28	19·78	101·28	19·78
4	Shahada Channel .. .. .	46·00	67·84	46 00	67·84
	<b>Total, Productive .. .. .</b>	.....	.....	.....	.....
	<b>UNPRODUCTIVE.</b>				
5	Hathmat and Khari Cut Canals.	26	47	57	54
6	Wangroli Tank .. .. .	16·10	90·84	16·10	9·84
7	Savli Tank .. .. .	21·87	11·35	21·87	11·35
8	Wadhvana and Jojwa Irrigation System.	.....	.....	.....	.....
9	Tranza-Nagrama Tanks .. .. .	7·33	.....	7·33	.....
10	Futelao Tank .. .. .	2·38	20·09	2·38	20·09
	{ Nira Left Bank Canal .. .. .	114	105	243	142
11	{ Shetphal Tank .. .. .	215	127	215	127
12	Nira Right Bank Canal .. .. .	88	61	139	82

I-E—contd.

Base to which the Duties of Water are calculated.		Remarks.
Kharif 18	Rabi. 19	
15th February to 14th October. Do.	15th October to 14th February. Do.	*Area under consolidated assessment.
.....	.....	
15th June to 15th November ... Do. ... Do. ...	16th November to 14th February Do. ... Do. ...	(A)—67 cusecs of water were brought down for irrigation on Khari Cut Canal Via Bokh and Bhujwa in Kharif Season (B)—12 cusecs of water were brought down for irrigation on Khari Cut Canal via bokh and Bhujwa in Rabi Season.
15th June to 14th October ... 15th June to 15th November ... 15th June to 15th November ...	15th October to 14th February. 16th November to 14th February 16th November to 14th February	
15th February to 14th October Do. ... Do. ...	15th October to 14th February Do. ... Do. ...	

## STATEMENT

No.	Name of Work	Area irrigated in acres.					
		Kharif	Rabi	Total	Flow	Lift	
1	2	3	4	5	6	7	
<b>WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT—contd.</b>							
<b>UN PRODUCTIVE—contd.</b>							
13	Mutha Canals ..	(10,997)	(7,354)	(18,351)	..	..	
		12,364	4,266	16,630	16,221	409	
	Matoba Tank (c) ..	(716)	(2,064)	(2,780)	..	Nil.	
		2,237	682	2,914	..	..	
14	Vijapur tube wells Scheme @	925	1,277	2,202	..	2,202	
15	Shirsuphal Tank ..	(1,135)	(804)	(1,839)	..	..	
		1,135	883	2,018	2,018	..	
16	Bhadalwadi Tank ..	(857)	(1,207)	(2,064)	..	..	
		857	1,284	2,141	2,141	..	
17	Lake Beale—Darra Dam ..				..	..	
	Godavari Right Bank Canal ..	14,663	(18,431)	(33,094)	..	..	
		20,819	10,181	31,000	29,316	1,684	
		(10,693)	(14,981)	(25,674)	..	..	
	Godavari Left Bank Canal ..	16,992	70,083	24,075	21,166	2,909	
18	Chankapur Tank—Girna Canal ..	(8,059)	(11,518)	(19,577)	..	..	
		11,159	8,791	19,950	19,950	..	
19	Kadwa River Works..	Waghad Tank (c) ..				..	..
			(1,029)	(771)	(1,800)	..	..
		Palkhed Canal (c) ..	1,691	781	2,472	2,462	10
		Ojhar Tambat Canal (c) ..	(765)	(691)	(1,456)	..	..
			1,050	678	1,728	1,716	12
		(440)	(518)	(958)	..	..	
	Wadali Canal ..	487	657	1,144	1,096	48	
					..	..	

I-E—Contd.

Double cropped		Average discharges, Cubic Feet per Second.			
		At Head		Utilized	
Area irrigated 8	Percentage of Total Area 9	Kharif 10	Rabi 11	Kharif 12	Rabi 13
200	1.20	172	150	97	91
5Nil	Nil	12	25	12	25
....	....	....	....	....	....
		16.8	8.4	16.8	8.4
		11.72	11.48	11.72	11.48
1,369	4.4	207	240	118	153
640	2.6	132	150	96	114
597	3.0	98	132	83	119
15	0.6	10	20	10	20
1	0.05	8	10	8	10
....	....	5	7	5	7



## STATEMENT

S. No.	Name of the work.	Area irrigated per Cubic Foot per Second			
		Discharged at head		Utilized	
		Kharif 14	Rabi 15	Kharif 16	Rabi 17
	<b>WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT.</b>				
13	Mutha Canals ..	(64) 72	(49) 28	(113) 127	(81) 47
	Matoba Tank (c) ..	(60) 186	(83) (27)	(60) 186	(83) 27
14	Vijapur Tube wells.Scheme @ ..	.....	.....	.....	.....
15	Shirsuphal Tank ..	67.56	95.71	67.56	95.71
16	Bhadalwadi Tank ..	73.12	105.14	73.12	105.14
	Lake Beale -Darna Dam ..	.....	.....	.....	.....
17	Godavari Right Bank Canal ..	71	77	124	120
	Godavari Left Bank Canal ..	81	100	111	131
18	Chankapur Tank-Girna Canal ..	82	87	97	97
	Waghad Tank (c) ..				
19	Kadwa River Works { Palkhed Canal (c) ..	103	39	103	39
	{ Ojhar Tambat Canal. (c) ..	96	69	96	69
	{ Wadali Canal ..	88	74	88	74

I-E—contd.

Base to which the Duties of Water are calculated.		
18	19	20
Do. ...	Do. ...	
Do. ...	Do. ...	
15th February to 14th October.	15th October to 14th February.	@—This is a Tube well Scheme and water is pumped out and supplied for irrigation.
Do. ...	Do. ...	
Do. ...	Do. ...	In the Central Circle, the figures in brackets represent areas actually irrigated during the respective seasons and the duties have been calculated on these figures.
Do. ...	Do. ...	
Do. ...	Do. ...	
15th February to 14th October.	15th October to 14th February.	In the Deccan Irrigation Circle, figures in bracket in columns 3 to 5 represent the areas actually irrigated in the respective seasons and include all perennial and two-seasonal crops irrigated in these seasons.
Do. ...	Do. ...	
Do. ...	Do. ...	

## STATEMENT

No.	Name of work	Area irrigated in acres				
		Kharif	Rabi	Total	Flow	Lift
1	2	3	4	5	6	7
20	Pravara River Works { Pravara Right Bank Canal. Pravara Left Bank Canal.	(11,294)	(16,433)	(27,727)	22,586	255
		15,246	7,595	22,841		
21	Bhatodi Tank (c) .. ..	(28,298)	(38,508)	(66,806)	60,098	733
		38,495	22,336	60,831		
22	Mhaswad Tank .. ..	(136)	(465)	(601)	701	..
		154	547	701		
23	Parsul Tank (c) .. ..	(3,498)	(5,233)	(8,731)	13,741	4
		7,052	6,683	13,745		
24	Ashti Tank .. ..	(1,182)	(1,248)	(2,430)	2,349	..
		1,194	1,155	2,349		
25	Pathri Tank .. ..	(1,904)	(4,414)	(6,318)	7,881	..
		2,523	5,358	7,881		
26	Jamda Canals .. ..	(134)	(1,206)	(1,340)	1,537	..
		174	1,363	1,537		
27	Mhaswa Tank .. ..	(2,380)	(6,446)	(8,826)	10,418	..
		2,876	7,542	10,418		
28	Lower Panjhra River Works .. ..	(68)	(80)	(148)	173	..
		77	96	173		
29	Krishna Canal .. ..	(1,479)	(2,492)	(3,971)	4,094	..
		1,492	2,602	4,094		
30	Revari Canal .. ..	(2,239)	(1,778)	(4,017)	6,564	1,443
		5,732	2,275	8,007		
31	Upper Man River Works .. ..	(11)	(799)	(810)	1,069	..
		150	919	1,069		
31	Upper Man River Works .. ..	(389)	(1,018)	(1,405)	1,575	11
		511	4,735	1,586		

I-E—contd.

Double cropped		Average discharges, Cubic Feet per Second			
		At Head		Utilized	
Area irrigated	Percentage of Total Area	Kharif	Rabi	Kharif	Rabi
8	9	10	11	12	13
2,154	9.4	98	109	84	109
1,461	2.4	375	473	375	473
....	....	8	8	6	8
		59	108	59	108
335	14	1.3	5.6	1.3	5.6
		10	30	10	30
		.57	12.7	.57	12.7
		152	99	152	99
....	....	18	2	18	2
275	22%	2.68	0.37	2.68	0.37
		53	33	53	33
		....	4.28	....	4.28
		1.8	8.2	1.8	8.2

## STATEMENT

S. No.	Name of work.	Area irrigated per Cubic Foot per Second			
		Discharged at Head		Utilized	
		Kharif	Rabi	Kharif	Rabi
		14	15	16	17
20	Pravara River Works { Pravara Right Bank Canal. Pravara Left Bank Canal.	156	151	182	151
		103	81	103	81
21	Bhatoai Tank (c) .. .. .	19	58	26	58
22	Mhaswad Tank .. .. .	59.29	48.82	59.29	48.82
23	Parsul Tank (c) .. .. .	909	223	909	223
24	Ashti Tank .. .. .	190.4	147.13	190.4	147.13
25	Pathri Tank .. .. .	235.09	94.96	235.09	94.96
26	Jamda Canals .. .. .	15.66	65.11	15.66	65.11
27	Mhaswa Tank .. .. .	3.78	40	3.78	40
28	Lower Panjhra River Works ..	551.87	6735.13	551.87	6735.13
29	Krishna Canal .. .. .	42.25	53.88	42.25	53.88
30	Revani Canal .. .. .	....	186.68	....	186.68
31	Upper Man River Works ..	216.11	124.15	216.21	124.15

I-E—contd.

Base to which the Duties of Water are calculated.		Remarks.
Kharif	Rabi.	
18	19	
15th February to 14th October	15th October to 14th February.	
Do. ...	Do. ...	
Do. ...	Do. ...	(C)—In the case of Matoba
Do. ...	Do. ...	tank, Palkhed Canal
Do. ...	Do. ...	Ojhar Tambat Canal Wadali
Do. ...	Do. ...	Canal Parsul tank
Do. ...	Do. ...	and Bhatodi tank, the actual
Do. ...	Do. ...	number of days on which
Do. ...	Do. ...	the canals were flowing in
Do. ...	Do. ...	each season has been taken
Do. ...	Do. ...	into account for the pur-
Do. ...	Do. ...	pose of calculating aver-
Do. ...	Do. ...	age discharge and duties.
Do. ...	Do. ...	
Do. ...	Do. ...	
Do. ...	Do. ...	
Do. ...	Do. ...	
Do. ...	Do. ...	
Do. ...	Do. ...	

## STATEMENT

No.	Name of Work	Area irrigated in acres				
		Kharif	Rabi	Total	Flow	Lift
1	2	3	4	5	6	7
32	Yerla River Irrigation Works ..	(44) 302	(4,228) 4,735	(1,488) 1,714	4,985	52
33	Chikhli Canal .. ..	40	350	390	381	9
34	Maini Tank .. ..	(44) 182	(1,442) 1,532	(1,488) 1,714	1,686	28
35	Gokak Canal—First Section and Storage Works.	9,027	5,828	14,855	14,561	274
36	Muchkundi Tank .. ..	19	..	19	19	..
37	Dambal Tank .. ..	533 *144	136	669 *144	669 *144	..
38	Medleri Tank .. ..	137	11	148	148	..
39	Madag Tank .. ..	530	109	639	639	..
40	Asundi Tank .. ..	85	*182 164	249 *182	249 *182	..
		848		848	848	..
41	Dharma Canal .. ..	*8,648		*8648	*8648	..
	Total, Unproductive ..	2,73,253 *8,792	1,87,459 *182	4,60,712 *8,974	4,48,867 *8,974	11,845 *—
	Grand Total, Productive and Unproductive ..	2,76,698 *9,736	1,93,845 *182	4,70,543 *9,918	4,58,654 *9,918	11,889 *—

I-E—contd.

Double cropped		Average discharges, Cubic Feet per Second			
		At Head		Utilized	
Area irrigated	Percentage Total Area	Kharif	Rabi	Kharif	Rabi
8	9	10	11	12	13
		3.5	31.4	3.5	31.4
....	....	1	6.6	0.40	5.25
....	....	0.4	8.2	0.4	8.2
....	....	98.5	98.0	98.5	98.0
....	....	....	....	....	....
....	....	4.16	4.22	4.16	4.22
....	....	1.85	2.67	1.85	2.67
....	....	10.81	15.61	10.81	15.61
....	....	0.92	3.50	0.92	3.50
....	....	82.93	40.51	80.93	40.51
10,282	....	....	....	....	....
10,315	....	....	....	....	....



## STATEMENT

No.	Name of work	Area irrigated per Cubic Feet per Second			
		Discharge at Head		Utilized	
		Kharif	Rabi	Kharif	Rabi
1	2	14	15	16	17
32	Yerla River Irrigation Works ..	12.57	134.65	12.57	134.65
33	Chikbli Canal .. ..	3	2	2.60	2.5
34	Maini Tank .. ..	110	176.1	110	176.1
35	Gokak Canal—First Section and Storage Works. .. ..	83.25	82.88	83.25	82.88
36	Muchkundi Tank .. ..	....	....	....	....
37	Dambal Tank .. ..	160.6	32.15	160.64	32.15
38	Medleri Tank .. ..	74.05	4.12	74.05	4.12
39	Madag Tank .. ..	49.03	6.99	49.03	6.99
40	Asundi Tank .. ..	92.39	98.86	92.39	98.86
41	Dharma Canal .. ..	114.51	....	114.51	....
	Total, Unproductive ..	....	....	....	....
	Grand Total, Productive and Unproductive.	.....	.....	.....	.....

I-E—concl'd.

Base to which the Duties of Water are calculated.		Remarks
Kharif	Rabi	
18	19	20
15th February to 14th October	15th October to 14th February	
Do. ...	Do. ...	
Do. ...	Do. ...	
From 15th June 50 to 14th Nov. 50	From 15th Nov. 50 to 8th Feb. 51	
From 15th Feb. to 14th Oct. ...	From 15th Oct. to 14th Feb. ...	
From 15th Feb. to 14th Oct. ..	From 15th Oct. to 14th Feb. ..	
From 15th Feb. to 14th Oct. 242 days.	From 15th Oct. to 14th Feb. 123 days.	
Do. ...	Do. ...	
Do. ...	Do. ...	
Do. ...	Do. ...	
....	....	....
....	....	....

## STATEMENT

Statement showing water-rates per acre in force during

No.	Name of Work	Water-Rates			
		Irrigation in blocks	Perennial	Early eight months	Monsoon, four months
1	2	3	4	5	6
		Rs.	Rs.	Rs.	Rs.
	<b>Works for which Capital and Revenue Accounts are kept</b>				
	<b>PRODUCTIVE</b>				
	<i>Southern Circle</i>				
1	Gadikari Tank* ...	...	...	...	...
	<i>Karnatak Irrigation Circle</i>				
2	Mavinkop Tank* ...	...	...	...	...
	<i>Central Circle</i>				
3	Ekrak Tank ...	...	M 35 B 17½	8	3
4	Shahada Channel ...	...	M 28 B 14	8	3
	<b>UNPRODUCTIVE</b>				
	<i>Gujarat Irrigation Circle</i>				
5	{ Hathmati Canal a <sup>1</sup> ...	...	...	...	{ D 3 E 1
	{ Khari Cut Canal a <sup>1</sup> ...	...	...	...	{ D 5 E 1
	<i>North Gujarat Circle</i>				
6	Wangroli Tank a <sup>2</sup> ...	...	...	...	D 5 F 2½
7	Savli Tank a <sup>2</sup> ...	...	...	...	D 5 F 4
8	Tranza Nagrama Tanks a <sup>2</sup> ...	...	...	...	D 4 F 2
	<i>South Gujarat Circle</i>				
9	Futelao Tank a <sup>2</sup> ...	...	...	...	F 2 D 4
	<i>Deccan Irrigation Circle</i>				
10	{ Nira Left Bank Canal including Shetphal Tank (d)	G1 25	J 85½ M 60 C 80 B 30	10	4

I-F.

## 1949-50 on Irrigation Works in the Bombay State.

Water-Rates			Single Watering	Occupier's rate	Owner's rate	Water Advantage.
Rabi, four months	Hot Weather	Miscellaneous				
7	8	9	10	11	12	13
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
...	...	...	...	Nil	Nil	Nil
...	...	...	...	"	"	"
5	7	...	(e) 2	"	"	"
5	6	...	(e) 2	"	"	"
3	6	...	2	"	"	"
5	6	...	{ *** 1 ** 2	"	"	"
4	6	...	1½	"	"	"
4	6	...	1½	"	"	"
4	6	...	1	"	"	"
A <sub>3</sub> S <sub>3</sub> F	3 2 2	5	1	"	"	"
6	9	5	2	"	"	"

## STATEMENT

No.	Name of Work	Water-Rates			
		Irrigation in blocks	Perennial	Early eight months	Monsoon, four months
1	2	3	4	5	6
		Rs.	Rs.	Rs.	Rs.
11	Nira Right Bank Canal (d) ...	G1 25	J 85½ M 60 C <sup>1</sup> 80 B 30	10	4
12	Mutha Canals and Matoba Tank (d)— Sugarcane under the Mutha Canals within the Poona City and suburban Municipal and Cantonment limits or within one mile of those limits.	...	M 66	...	...
	On all remaining land com- manded by both the canals.	...	M 60	10	4
	Pan gardens ...	...	J 85½	...	...
	Perennial crops other than sugarcane and pan gardens.	...	B 30	...	...
	Matoba Tank ...	...	M 60	...	...
13	Godavari Right Bank Canal (d) } Godavari Left Bank Canal (d) }	G1 25	M 60 B 30 C <sup>1</sup> 80 J 85½	10	4
14	Chankapur Tank-Girna Canal (d)	G1 25	M 60 B 30 C <sup>1</sup> 80 J 85½	10	4
15	Kadwa River Works (d)— Palkhed Canal Ojher-Tambat Canal Wadali Canal	...	M 80 B 30	10	4
16	Pravara Canals (d) ...	G1 25	M 60 B 30 C <sup>1</sup> 80 J 85½	10	4
17	Bhatodi Tank (d) ...	...	M 37 B 18½	10	4
18	Parsul Tank (a <sup>9</sup> ) ...	28	N 14	8	3
	<i>Central Circle.</i>				
19	Shirsuphal Tank				
20	Bhadalwadi Tank				
21	Ashti Tank	...	M 28 B 14	8	3
22	Pathri Tank				
23	Mhaswad Tank				

I-F—contd.

Water-Rates			Single Watering	Occupier's rate	Owner's Rate	Water Advantage
Rabi, four months	Hot Weather	Miscellaneous				
7	8	9	10	11	12	13
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
6	9	5	2	Nil	Nil	Nil
...	...	...	...	..	..	..
6	9	5	2	..	..	..
...	...	...	...	..	..	..
...	...	...	...	..	..	..
...	...	...	...	..	..	..
6	9	5	2	..	..	..
6	9	5	2	..	..	..
6	9	5	2	..	..	..
6	9	5	2	..	..	..
6	7½	5	2	..	..	..
5	6	4	2	..	..	..
5	6	...	(e) 2	..	..	..

## STATEMENT

No.	Name of Work	Water-Rates				
		Irrigation in blocks	Perennial	Early eight months	Monsoon, four months	
1	2	3	4	5	6	
		Rs.	Rs.	Rs.	Rs.	
24	Jamda Canal ...	...	M 28 B 13	7	3	
25	Mhaswa Tank ...	...	M 12 B 9	5	2	
26	Lower Panjhra River Works ...	...	M 28 B 14	8	3	
27	Krishna Canal ...	...	M 32 B 16	8	3	
28	Revani Canal ...	}				
29	Upper Man River Works ...					
30	Yerla River Irrigation Works ...		...	M 28 B 14	8	3
31	Chikhali Canal ...					
32	Maini Tank ...					
	<i>Southern Circle.</i>					
33	Muchkundi Tank (s) ...	...	(b1) 10	(j) 5	(m) 2	
34	Dambal Tank (s4) ...	...	(b1) 14	(j) 6 (z) 7½	(m) 4	
	<i>Karnatak Irrigation Circle.</i>					
35	Medleri Tank (w) ...	...	14	}		
36	Madag Tank (w) ...	...	12		(j) 6 (z) 7½	(m) 4
37	Asundi Tank (w) ...	...	14			
38	Dharme Canal (s9) ...	...	...	...	(m) 4½	
39	Gokak Canal, 1st Section and Storage Works (u).	40	25	10	4	

I-F—concl'd.

Water-Rates			Single Watering	Occupier's rate	Owner's rate	Water Advantage
Rabi, four months	Hot Weather	Miscellaneous				
7	8	9	10	11	12	13
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
4	6	...	(e) 2	Nil	Nil	Nil
3	4	...	(e) 1	"	"	"
5	6	...	(e) 2	"	"	"
5	8	...	(e) 2	"	"	"
5	6	...	(e) 2	"	"	"
(n) 2	(l) 5	...	(j) 1	"	"	"
(n) 4½	(l) 7	...	(j) 1 (k) 2	"	"	"
(n) 4½	(l) 7	...	(j) 1 (k) 2	"	"	"
...	...	...	(j) 1 (k) 2	"	"	"
6	15	...	5(b5) 2½(b6)	"	"	"



*Note.*—(1) For lift irrigation half the ordinary rates are charged.

(2) Double or treble the ordinary rates are charged as penal rates for taking water without permission.

(3) Leakage or percolation rates are the same as ordinary rates.

\*Lands wholly assessed at consolidated rates.

\*\*For single watering for crops for which no application for irrigation throughout the season was received.

\*\*\*Single Seasonal rate for the Season as for crops other than rice during which water is taken shall be levied.

A2—For ordinary crops.

B—For perennial crops other than sugarcane.

C1—For sugarcane on Form VII.

D—For Rice.

E—For crops other than rice.

F—For other crops.

G1—For Cane Block.

J—For Pan garden.

M—For Sugarcane.

N—For Pomegranates.

(d)—Rates sanctioned in G. R. No. 929/36 of 18th May 1945.

(e)—Single watering rate applies to one pre-seasonal or post-seasonal watering in the case of two seasonal crops. If more than one such watering is taken, the full seasonal rates shall be charged unless specifically ordered otherwise. The single watering rate is applicable only for sanctioned seasonal irrigation.

(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 30th November.

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

(s)—In force up to 15th February 1951 *vide* G. R. No. 5594/36, dated the 2nd September 1948.

(u)—Water rates sanctioned in G. R., P. W. D., No. 1604/36 of 21st July 1948 applicable to end of February 1951.

(w)—Rates sanctioned in G. R. No. 3994/36, dated the 2nd March 1950.

(z)—From 15th October to 14th June or 1st August to 31st March.

(a1)—Rates sanctioned *vide* G. R., P. W. D., No. 4752/36, dated the 27th November 1946.

(a2)—Rates continued up to 14th February 1954 *vide* G. R. No. 3494/36-(II), dated 14th December 1949.

(a3)—Rates sanctioned in G. R. No. 929/36, dated the 31st May 1945.

(a4)—Water rates sanctioned in G. R., P. W. D., No. 3994/36, dated 2nd March 1944 to be in force up to 14th February 1952.

(a5)—For restorative crops grown after rice.

(a9)—Rates sanctioned in G. R. No. 4998/36-I.B(I) of 7th August 1950.

(b1)—Rate for perennial 12 months from 15th February to 14th February.

(b5)—For money crops in respect of Gokak Canal, 1st Section and Storage Works.

(b6)—For other crops in respect of Gokak Canal, 1st Section and Storage Works.

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STATEMENT I-F.

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## STATEMENT

Statement showing water-rates per acre in force during

No.	Name of Work	Water-Rates			
		Irrigation in blocks	Perennial	Early eight months	Monsoon, four months
1	2	3	4	5	6
	Works for which Capital and Revenue Accounts are kept	Rs.	Rs.	Rs.	Rs.
	<b>PRODUCTIVE</b>				
	<i>Southern Circle</i>				
1	Gadikari Tank* ...	...	...	...	...
	<i>Karnatak Irrigation Circle</i>				
2	Mavinkop Tank* ...	...	...	...	...
	<i>Central Circle</i>				
3	Ekruk Tank a <sup>2</sup> ...	...	M 35 B 17½	C 8 B 9	C 3 B 3½
4	Shahada Channel a ...	...	M 28 B 14	8	3
	<b>UNPRODUCTIVE</b>				
	<i>Gujarat Irrigation Circle</i>				
5	Hathmati Canal a <sup>3</sup> ...	...	...	...	D 8 E 1
	Khari Cut Canal a <sup>3</sup> ...	...	...	...	D 5 E 1
6	Vijapur Tube Wells Scheme a <sup>4</sup> ...	...	...	...	Gallons 14,000 Gallons 10,500
7	Wadhvana Irrigation Tank ...	...	...	...	A 5½ A <sup>2</sup> 3½ H 1½
	<i>North Gujarat Circle</i>				
8	Wangroli Tank a <sup>2</sup> ...	...	...	...	D 5 F 2½
9	Savli Tank a <sup>2</sup> ...	...	...	...	D 5 F 4
10	Tranza Nagrama Tanks a <sup>2</sup> ...	...	...	...	D 4 F 2
	<i>South Gujarat Circle</i>				
11	Futelao Tank a <sup>2</sup> ...	...	...	...	D 4 F 2
	<i>Deccan Irrigation Circle</i>				
12	Nira Left Bank Canal including Shetphal Tank (d)	G <sup>1</sup> 25	J 85½ M 60 C <sup>1</sup> 80 B 30 N 19	10	4

I-F.

## 1950-51 on Irrigation Works in the Bombay State.

Water-Rates			Single Watering	Occupier's rate	Owner's rate	Water Advantage
Rabi, four months	Hot Weather	Miscellaneous				
7	8	9	10	11	12	13
Rs.	Rs.	Rs.	Rs.			
...	...	...	...	Nil	Nil	Nil
...	...	...	...	"	"	"
C 5	C 7	...	2	"	"	"
B 6	B 8	...	2	"	"	"
5	6	...	...	"	"	"
3	6	...	2	"	"	"
5	6	...	*** 1	"	"	"
			** 2	"	"	"
per rupee up to 14th February 1951			...	...	...	...
per rupee from 15th February 1951			...	...	...	...
G 7	...	K 14	@	...	@	...
H 3½		L 7				
4	6	...	1½	Nil	Nil	Nil
4	6	...	1½	"	"	"
4	6	...	1	"	"	"
A <sup>a</sup> 3	5	...	1	"	"	"
a <sup>b</sup> 2						
F 2						
6	9	5	2	"	"	"

## STATEMENT

No.	Name of Work	Water-Rates			
		Irrigation in blocks	Perennial	Early eight months	Monsoon, four months
1	2	3	4	5	6
		Rs.	Rs.	Rs.	Rs.
13	Nira Right Bank Canal (d) ..	G <sup>a</sup> 25	J 85½ M 80 C <sup>a</sup> 80 B 30 N 19	10	4
14	Mutha Canals and Matoba Tank (d)— Sugarcane under the Mutha Canals within the Poona City and suburban Municipal and Cantonment limits or within one mile of those limits..	..	M 66	..	..
	On all remaining land com- manded by both the canals.	..	M 60	10	4
	Pan gardens ..	..	J 85½	..	..
	Perennial crops other than sugarcanes and pan gardens.	..	B 30	..	..
	Matoba Tank ..	..	60	..	..
15	Godavari Right Bank Canal (d)..	G <sup>a</sup> 25	M 60 B 30	10	4
	Godavari Left Bank Canal (d) ..		C <sup>a</sup> 80 J 85½ N 19		
16	Chankapur Tank-Girna Canal (d).	G <sup>a</sup> 25	M 60 B 30 C <sup>a</sup> 80 J 85½ N 19	10	4
17	Kadwa River Works (d) Waghed Tank Palkhed Canal Ojhar-Tambat Canal Wadali Canal	No cane blocks	M 80 B 30	10	4
18	Prāyara Canals (d) ..	G <sup>a</sup> 25	M 60 B 30 C <sup>a</sup> 80 J 85½ N 19	10	4
19	Bhatodi Tank (d) ..	..	M 37 B 18½	10	4
20	Parsul Tank (d) ..	G <sup>a</sup> 28	14	8	3
	<i>Central Circle</i>				
21	Shirsuphal Tank a ..	..	M 28 B 14	8	3
22	Bhadalvadi Tank a ..				
23	Jamda Canals a ..	..	M 28 B 14	8	3

I-F—contd.

Water-Rates			Single Watering	Occupier's rate	Owner's rate	Water Advantage
Rabi, four months	Hot Weather	Miscellaneous				
7	8	9	10	11	12	13
Rs.	Rs.	Rs.	Rs.			
6	9	5	2	Nil	Nil	Nil
..	..	..	..	..	..	..
6	9	5	2	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
..	..	..	..	..	..	..
6	9	5	2	..	..	..
6	9	5	2	..	..	..
6	9	5	2	..	..	..
6	9	5	2	..	..	..
6	7½	5	2	..	..	..
5	6	4	2	..	..	..
5	6	..	2	..	..	..
5	6	..	2	..	..	..

## STATEMENT

No.	Name of Work	Water-Rates			
		Irrigation in blocks	Perennial	Early eight months	Monsoon, four months
1	2	3	4	5	6
		Rs.	Rs.	Rs.	Rs.
24	Mhaswa Tank a ..	..	M 12 B 9	5	2
25	Lower Panjhra River Works a ..	..	M 28 B 14	8	3
26	Ashti Tank aa	}	..	8	3
27	Pathri Tank aa ..				
28	Mhaswad Tank aa				
29	Krishna Canal ab ..	..	M 32 B 16	10	4
30	Revvari Canal ab	}	..	10	4
31	Upper Man River Works ab ..				
32	Yerla River Irrigation Works ab				
33	Maini Tank ab	..	M 32 B 16	10	4
	<i>Southern Circle</i>				
34	Muchkundi Tank ..	..	(x) 10	(y) 5	(m) 2
35	Dambal Tank (w) ..	..	(x) 14	(y) 6 (z) 7½	(m) 4
36	Chikhli Canal ..	..	..	..	4
	<i>Karnatak Irrigation Circle</i>				
37	Gokak Canal, 1st Section and Storage Works (u).	40	25	10	4
38	Medleri Tank (b <sup>1</sup> ) ..	..	14	}	(m) 4
39	Madag Tank (b <sup>1</sup> ) ..	..	12		
40	Asundi Tank (b <sup>1</sup> ) ..	..	14		
41	Dharma Canal (b <sup>2</sup> ) ..	..	..	..	(m) 4½

I-F—concl.

Water-Rates			Single Watering	Occupier's rate	Owner's Rate	Water Advantage
Rabi, four month	Hot Weather	Miscellaneous				
7	8	9	10	11	12	13
Rs.	Rs.	Rs.	Rs.			
3	4	..	1	Nil	Nil	Nil
5	6	..	2	"	"	"
5	6	..	2	"	"	"
6	7½	..	2	"	"	"
6	7½	..	2	"	"	"
(n) 2	(l) 5	..	(j) 1	"	"	"
(n) 4½	(l) 7	..	(j) 1 (k) 2	"	"	"
6	7½	..	2	"	"	"
6	15	..	5 (b <sup>a</sup> ) 2½ (b <sup>b</sup> )	"	"	"
(n) 4½	(l) 7	..	(j) 1 (k) 2	} "	"	"
..	..	..	(j) 1 (k) 2	"	"	"



*Note.* (1) For lift irrigation half the ordinary rates and 3/4 of the flow rates respectively are charged.

(2) Double or treble the ordinary rates are charged as penal rates for taking water without permission.

(3) Leakage or percolation rates are the same as ordinary rates.

(4) Single watering rate applies to one pre-seasonal or post-seasonal watering in the case of sanctioned Rabi and Hot weather crops and one post-seasonal watering in the case of two seasonal crops. If more than one such watering is taken, the full seasonal rate shall be charged unless specifically ordered otherwise.

\*Lands wholly assessed at consolidated rates.

\*\*For single watering for crops for which no application for irrigation throughout the season was received.

\*\*\*Single seasonal rate for the season as for crops other than rice during which water is taken, shall be levied.

A—For Fine Rice.

A1—For Coarse Rice.

A2—For Ordinary Crops.

B—For perennial crops other than sugarcane.

C—For Bhusar seasonal.

C1—For Sugarcane on Form VII.

D—For Rice.

E—For crops other than rice.

F—For other Kharif Crops.

G—For wheat.

G1—For Cane Block.

H—For Vasal.

J—For Pan garden.

K—For Vegetable, garden, Fruits etc.

L—For Sundhia.

M—For Sugarcane.

N—For Pomegranates.

(d)—Rates sanctioned in G. R. No. 929/36 of 18th May 1945.

(j)—From the 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 30th November.

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

(u)—Rates sanctioned in G. R., P. W. D. No. 1664/36-II-I-B(I), dated the 31st July 1950 are applicable to end of February 1953.

(w)—Rates sanctioned in G. R. No. 3994/36, dated the 2nd March 1944.

(x)—For perennial twelve months (15th February to 14th February).

(y)—For 8 months from 15th June to 14th February.

(z)—For 8 months from 15th October to 14th June or 1st August to 31st March.

- a—Rates sanctioned *vide* G. R., P. W. D., No. 929/36, dated 14th December 1949.
- a<sup>2</sup>—Rates sanctioned in G. R., P. W. D., No. 3494/36-(II), dated the 4th June 1947, have been continued up to 14th February 1954 in G. R., P. W. D., No. 3494/36 (II), dated the 14th December 1949.
- a<sup>5</sup>—For restorative crops grown after rice.
- (b<sup>1</sup>)—Rates sanctioned in G. R., P. W. D., No. 2933/48, dated the 3rd February 1951.
- (b<sup>2</sup>)—Rates sanctioned in G. L., P. W. D., No. 4996/36-I-B (I), dated the 28th December 1950.
- (b<sup>3</sup>)—For money crops in respect of Gokak Canal 1st section and Storage Works.
- (b<sup>4</sup>)—For other crops in respect of Gokak Canal 1st section and Storage Works.
- aa—Rates sanctioned in G. R., P. W. D., No. 2177/48, dated 14th April 1950.
- ab—Rates sanctioned in G. R., P. W. D., No. 929/36, dated 9th February 1950.
- a<sup>3</sup>—Rates sanctioned *vide* G. R., P. W. D., No. 4752/36, dated the 20th April 1950.
- a<sup>4</sup>—Water is given on Volumetric basis. Rates sanctioned *vide* G. R., A. & F. D., No. 5825, dated 23rd November 1950.
- @—As per G. R., P. W. D., No. 1915/48, dated the 7th October 1950.
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Statement showing expenditure on establishment in the Roads and Buildings and  
on the total outlay on works and repairs

Year.	Expenditure on Establishment in the							
	50—Civil Works—Provincial.	81—Civil Works.	50—Civil Works—Central.	81—Military Works.	Deposit Work.	Total Establishment Charges.	Percentage on the total outlay on works and repairs in the Roads and Building Branch	68—Construction of Irrigation Navigation Embankment and Drainage Works.
1	2	3	4	5	6	7	8	9
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.
1921-22 ..	29,06,955	..	1,98,683	45,258	2,34,992	34,35,888	19.26	11,53,734
1922-23 ..	20,14,640	8,34,450	1,78,163	71,481	77,143	31,75,877	20.79	14,20,751
1923-24 ..	15,84,488	8,10,645	67,892	38,560	6,88,354	31,89,939	19.88	21,87,793
1924-25 ..	16,89,892	12,25,632	1,10,721	27,862	2,52,556	33,15,663	19.67	29,10,785
1925-26 ..	18,89,417	12,05,078	1,01,876	69,049	2,58,535	35,23,055	20.66	32,21,647
1926-27 ..	25,30,286	5,97,486	1,08,896	5,882	3,94,389	36,96,939	23.76	35,58,959
1927-28 ..	21,99,448	5,59,107	1,49,132	5,042	2,97,270	32,09,999	24.96	36,98,956
1928-29 ..	22,40,393	6,66,713	2,29,540	2,240	2,56,180	33,85,066	25.03	39,04,670
1929-30 ..	22,45,450	7,33,877	1,56,773	3,638	2,34,897	33,74,625	25.26	42,76,873
1930-31 ..	25,51,711	1,80,139	1,72,163	2,415	85,444	20,91,872	32.35	42,88,966
1931-32 ..	25,93,104	2,32,929	1,22,799	3,182	44,132	29,96,146	38.70	40,37,972
1932-33 ..	23,74,603	71,981	85,143	3,334	17,156	25,52,217	39.79	28,70,427
1933-34 ..	22,73,945	31,807	71,866	3,810	30,502	24,11,930	37.97	17,60,090
1934-35 ..	21,88,729	38,279	62,472	2,693	47,694	23,39,866	35.82	15,39,830
1935-36 ..	20,51,807	808	89,984	1,539	54,593	21,98,731	35.75	1,37,301
1936-37 ..	23,14,593	619	61,859	1,124	57,679	24,35,874	31.66	74,021
1937-38 ..	22,61,828	699	58,352	998	47,319	23,47,689	24.46	68,679
1938-39 ..	20,85,355	..	10,113	769	65,701	21,61,938	25.28	53,922
1939-40 ..	19,38,566	..	17,245	810	63,725	20,09,191	23.37	37,362
			-11,702*	547*				
1940-41 ..	17,79,944	66,927	..	..	78,566	19,26,437	22.98	52,960
1941-42 ..	17,06,360	1,25,314	..	..	28,924	18,60,598	15.41	26,714
1942-43 ..	16,15,325	1,23,070	..	..	25,566	17,63,901	13.15	4,851
1943-44 ..	18,50,549	54,204	..	..	55,187	20,59,940	19.06	4,697
1944-45 ..	26,11,951	4,59,745	..	..	26,044	32,19,061	20.00	4,332
1945-46 ..	27,09,660	3,35,986	..	..	20,022	33,54,781	15.87	9,257

\*Represents the difference between the Establishment charges debited on the basis of estimated

Note.—The percentage of the establishment charges on the cost of works and repairs in the (column 8). The reason is largely that the establishment charges in the Irrigation Branch include certain canal systems which has no connection with the execution of works and repairs, and that management including the *control and distribution of water*, which is debited in the accounts charges debited in the account to "revenue management." are deducted from the total cost of be so divergent. The increase in the rate per cent. in the R. & B. Branch is mainly due to same ratio in which expenditure on works is reduced. A mere over all percentage on expenditure

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

\*Minus expenditure due to the write off of previous years' expenditure on which

the Irrigation Branches of the P. W. D. from the year 1921-22 to 1945-46 and the percentage during that period in both the Branches.

Roads and Buildings and Irrigation Branches.							Total Establishment charges in the Roads and Buildings and Irrigation Branches.	Percentage on the total outlay of works and repairs in Roads Buildings and Irrigation Branches.
XVII—Works for which capital accounts are kept.	18—Other Revenue Expenditure financed from Ordinary Revenue	XLI—Receipt from Electricity schemes—Hydro-Electro Scheme.	53—Capital Outlay on Electricity Schemes—Hydro-Electro Scheme.	Deposit Works	Total Establishment charges.	Percentage on the total outlay on works and repairs in the Irrigation		
10	11	12	13	14	15	16	17	18
Rs.	Rs.			Rs.	Rs.		Rs.	
13,85,900	6,68,651	..	..	2,770	32,11,115	33.59	66,47,003	24.26
13,44,901	5,34,327	..	..	1,993	33,01,972	32.22	64,77,849	25.38
14,43,222	4,32,013	..	..	2,056	40,65,084	33.89	72,55,023	25.87
17,37,724	5,26,361	..	..	492	51,75,362	28.73	84,91,025	24.35
17,99,343	5,19,228	..	..	2,681	55,42,899	21.62	90,66,854	21.23
18,08,385	5,94,989	..	..	3,207	59,63,540	30.56	96,60,479	27.54
19,20,773	7,80,312	..	..	3,847	64,03,888	26.00	96,13,887	25.64
21,35,939	6,16,601	..	..	2,750	66,59,960	25.51	1,00,45,026	25.35
21,08,302	6,18,312	..	..	1,012	69,54,499	23.26	1,03,29,124	23.88
18,31,149	5,99,621	..	..	1,734	67,21,470	21.60	97,13,342	24.06
16,34,011	5,18,627	..	..	86	61,90,696	22.40	91,86,842	25.97
23,53,971	4,01,329	..	..	680	56,26,407	28.54	81,78,624	31.30
29,83,531	5,14,407	..	..	48,060	53,06,988	40.41	77,18,918	39.61
30,98,255	4,55,037	..	..	441	50,90,563	42.89	74,30,429	40.38
8,66,476	1,73,501	..	..	61	11,77,339	89.46	33,76,070	45.21
8,24,868	1,63,507	..	..	620	10,63,016	83.73	34,98,980	39.04
7,70,784	1,27,039	..	..	73	9,66,575	82.27	33,14,264	30.77
8,22,086	1,30,881	..	..	..	10,15,839	92.85	31,77,827	32.95
7,77,209	1,14,778	1,442	89,598	317	10,20,686	82.62	30,29,877	30.82
7,96,162	43,795	3,749	4,452	1,109	9,02,236	107.88	28,28,673	30.68
7,47,287	42,317	1,884	1,091	1,380	8,20,673	88.78	26,81,271	20.63
7,62,592	45,736	2,234	221	-96*	8,15,538	104.51	25,79,439	18.17
7,12,336	47,375	2,269	..	24	7,66,701	86.75	28,26,641	24.18
9,72,069	89,995	1,721	82	223	10,68,422	74.94	42,87,483	24.47
2,37,183	1,15,532	2,782	..	1,201	13,65,955	88.08	47,20,729	20.81

figures and those on the basis of actuals to end of March final kept under suspense.

Irrigation Branch (column 16) is generally higher than that in the Roads and Buildings Branch the cost of Special Revenue Establishment employed entirely on "revenue management work on these charges also include cost of part of the time of Irrigation establishment spent on revenue to "revenue management" and not to execution of works and repairs. If these establishment in the Irrigation Branch the percentage on the cost of works and repairs will not decrease in outlay on "works" and "repairs". Establishment charges cannot be reduced in the on works is inaccurate.

establishment charges were levied.

**CHECKED**

Statement showing expenditure on establishment charges (1) Roads and Buildings (2) Electrical and (3) Irrigation Branches of Public Works Department for the years 1946-47 to 1950-51 and the percentage thereof on the total outlay on works and repairs in all branches.

	Years				
	1946-47	1947-48	1948-49	1949-50	1950-51
	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Establishment charges in the Roads and Buildings Branch.</i>					
(a) 50-Civil Works-State ..	47,37,693	50,66,002	47,68,734	50,93,947	36,75,405
(b) 81-Civil Works ..	1,27,563	4,40,687	12,98,465	23,67,542	23,98,352
(c) Deposit Works ..	15,033	10,922	13,376	33,895	14,464
Total establishment charges.	48,80,289	55,17,611	60,80,575	74,61,489	60,88,221
Percentage on total outlay on works and repairs in the Roads and Buildings Branch.	29·54	30·86	21·63	18·29	17·70
<i>Establishment charges in the Electrical Branch.</i>					
(a) 52-A-Other Revenue Expenditure on Electricity Schemes.	96,224	67,200	41,402	4,539	1,01,112
(b) 53-Capital Outlay on Electricity Schemes.	190	295	726	11,553	4,644
(c) 81-A-Capital Outlay on Electricity Schemes.	3,30,768	6,05,423	8,76,914	12,92,812	20,73,887
(d) XLI-Receipt from Electricity Schemes.	17,083	17,895	5,607	74,406	1,51,024
Total establishment charges ..	4,44,265	6,90,813	9,24,649	13,83,310	23,30,667
Percentage on the total outlay on works and repairs in Electrical branch.	193·64	42·05	25·49	13·61	14·32
<i>Establishment charges in the Irrigation Branch.</i>					
(a) XVII-Irrigation Works for which Capital accounts are kept.	13,90,083	15,02,281	20,26,797	18,21,774	22,92,279
(b) 18-Other Revenue expenditure financed from Ordinary Revenues.	2,04,606	1,67,149	3,59,705	7,39,375	9,74,020
(c) 68-Construction of Irrigation, Navigation, Embankment and Drainage Works.	22,735	68,134	6,83,787	24,07,235	33,22,678
(d) Deposit Works ..	2,564	176	854	....	232
Total establishment charges ..	16,19,988	17,37,740	30,71,143	49,61,384	65,89,218
Percentage on total outlay on works and repairs in the Irrigation Branch.	119·45	94·33	61·72	39·65	25·02
Total establishment charges in (i) Roads and Buildings (ii) Electrical and (iii) Irrigation Branches.	69,44,542	79,46,164	1,00,76,367	1,38,08,183	1,50,08,106
Percentage on the total outlay on works and repairs in (i) Roads and Buildings (ii) Electrical and (iii) Irrigation Branches.	38·36	37·19	27·45	39·65	25·02