
IRRIGATION REVENUE REPORT

OF THE

BOMBAY PRESIDENCY,

EXCLUDING SIND.

1915-1916.

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IRRIGATION REVENUE REPORT,
BOMBAY PRESIDENCY, EXCLUDING SIND,
1915-1916.

PART I.

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

GENERAL REMARKS:

Works in Operation.

The following list includes all the works in
operation (42 in number):—

Collectorate.	Number.	Names of Works.	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 season and 120 acres for the rabi season per cusec.	Whether Supply is reliable or dependent on local rain.	Storage Works completed or proposed.	Remarks.
		MAJOR WORKS.	Acres.			
		Protective Works.				
Ahmednagar	1	Pravara River Works —Pravara Right Bank Canal.	24,656 for completed canal.	Dependent on local rain.	Storage work at Lake Arthur Hill in progress.	Ghat catchment.
Nasik	2	Girna Left Bank Canal.	Information not available.	Reliable	Chankapur Tank completed.	Do.
Nasik	3	Godavari Left Bank Canal.	21,136	Do.	Lake Beale completed.	Do.
Ahmednagar		Godavari Right Bank Canal.	35,600. These are projected figures subject to alteration.			
Poona	4	Nira Canal including Shetphal Tank.	100,000	Do.	Lake Whiting completed.	Do.
Sholapur	5	Mhaswad Tank	17,975	Dependent on local rain.	Completed	Deccan catchment.
		Productive Works.				
Ahmedabad	9	Hathmati Canal and Khari Cut.	24,000	Dependent on local rain.	No storage work; Bokh Reservoir and Chandola Tank completed.	Forest and hilly catchment. Supply depends chiefly on the flow in the Hathmati and Khari Rivers, contents of the Bokh Reservoir and the Chandola Tank.
West Khandesh	10	Lower Panjhra River Works.	8,173	Panjhra River supply not reliable.	Mukti Tank completed.	Ghat catchment for one part and Deccan catchment for the rest.
Nasik	11	Kadwa River Works { Pal k h e d Canal, O j h a r Tam bat Canal, W a d a l i Canal.	7,228	Reliable	Waghad Tank completed.	Ghat catchment.
			550			
			970			
Ahmednagar	12	Pravara River Works —Lakh Canal.	592	Reliable for monsoon and rabi.	Storage work at Lake Arthur Hill in progress.	Ghat catchment.
Poona	13	Mutha Canals including Matoba Tank.	49,000	Reliable	Lake Fife completed.	Ghat catchment.
Sholapur	14	Ekruk Tank	13,070	Dependent on local rain.	Completed	Deccan catchment.
Satara	15	Krishna Canal	6,412	Reliable	Proposed	Ghat catchment.

Collectorate.	Number.	Names of Works.	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 season and 120 acres for the rabi season per-cusec.	Whether Supply is reliable or dependent on local rain.	Storage Works completed or proposed.	Remarks.
		MINOR WORKS AND NAVIGATION.	Acres.			
Kaira	16	Wangroli Tank ...	3,400	Dependent on local rain.	Completed	Ordinary catchment on plain ground.
	17	Tranza-Nagrama Tank.	800	Do.	Do.	Tranza Tank has no independent catchment. Nagrama Tank has a catchment of 150 sq. miles. Both are fed by the Matar Drainage channel which is not at all reliable.
	18	Savli Tank ...	3,000	Do.	Do.	Ordinary catchment on sloping ground.
	19	Sisat do. ...	2,000	Do.	Do.	Ordinary catchment on flat ground.
East Khandesh	20	Hartala do. ...	978	Do.	Do.	Deccan catchment.
	21	Mhasva do. ...	3,256	Do.	Do.	Do.
	22	Jamda Canals ...	42,000	Girna River, supply not reliable.	Storage Tanks on the Girna, the Manad and the Panjan Rivers under contemplation. Water is issued from the Chankapur Tank when available.	Ghat catchment for a small part and for the rest Deccan catchment.
Nasik	23	Parsul Tank ...	3,400	Dependent on local rain.	Completed	Deccan catchment.
Ahmednagar	24	Pravara River Works—Pravara Left Bank Canal.	6,852	Do.	Storage work at Lake Arthur Hill in progress.	Ghat catchment.
	25	Bhatodi Tank ...	1,461	Do.	Completed	Deccan catchment.
Poona	26	Kasurdi do. ...	150	Do.	Do.	Do.
	27	Shirsuphal do. ...	1,350	Do.	Do.	Do.
	28	Bhadalvadi do. ...	1,800	Do.	Do.	Do.
Sholapur	29	Koregaon do. ...	416	Do.	Do.	Hilly catchment.
	30	Ashti do. ...	3,382	Do.	Do.	Deccan catchment.
	31	Pathri do. ...	3,094	Do.	Do.	Hilly catchment.
	32	Rewari Canal ...	439	Do.	Nil	Deccan catchment.
Satara	33	Upper Man River Works.	973	Do.	Pingli Tank completed.	Do.
	34	Yerla River Irrigation Works.	1,182	Do.	Nebr do.	Do.
	35	Chikhli Canal ...	355	Do.	Nil	Do.
Bijapur	36	Maini Tank ...	455	Do.	Completed	Do. Supply from catchment is good.
	37	Muchkundi Tank ...	750	Do.	Do.	Deccan catchment.
	38	Gadikeri do. ...	418	Do.	Do.	Supply reliable.
Belgaum	39	Gokak Canal, 1st Section.	10,387	Reliable	Rabi Storage only.	Ghat catchment.
	40	Dambal Tank ...	651	Dependent on local rain.	Completed	Deccan catchment.
Dharwar	41	Medleri do. ...	231	Do.	Do.	Do.
	42	Asundi do. ...	303	Do.	Do.	Do.
	43	Madag do. ...	1,418	Do.	Do.	Ghat and forest catchment—reliable.
	44	Mavinkop do. ...	617	Do.	Do.	Forest catchment reliable.
	45	Dharma Canal ...	For monsoon season 6,680 acres. For Rabi nil.	9900 Do.	No storageworks, but canal takes off from the river itself.	Ghat catchment.

Nos. 6, 7, 8, 46, 47 and 48—Maladevi, Budhbal, Nira Right Bank Canal, Victoria Tank, Futelao Tank and the Suki River Project—are not included as the works were not in operation in the year under report. No. 49—Gokak Canal, 2nd Section—is in abeyance.

Interest Account.

2. The interest account to end of the year stands as follows:—

	Amount.				Amount.		
	Protective Works.	Productive Works.	Total.		Protective Works.	Productive Works.	Total.
	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.
Total Interest charges to end of 1914-15 ...	1,91,11,147	1,72,52,574	2,93,63,721	Net revenue realized to end of 1914-15 ...	43,13,278	77,96,808	1,21,10,056
Do. during 1915-16 ...	11,69,053	4,33,629	16,07,683	Do. during 1915-16 ...	4,53,704	3,44,764	7,98,468
					47,66,982	81,41,572	1,29,08,554
				Balance net Interest charges to end of 1915-16...	85,13,218	95,49,631	1,80,62,849
Total end of 1915-16 ...	1,32,80,200	1,76,91,203	3,09,71,403	Total ...	1,32,80,200	1,76,91,203	3,09,71,403

3. The gross revenue realized from all sources during the year, after deducting refunds of revenue (Rs. 19,351), was Rs. 15,84,169, of which Rs. 15,76,758 were direct and Rs. 7,411 indirect receipts. The net revenue actually realized was Rs. 8,59,501. The gross revenue shows a decrease of Rs. 1,14,669 while the net revenue shows a decrease of Rs. 89,271 as compared with the figures of 1914-15.

4. The gross area under command was 1,260,482 acres and the area irrigable at present is 442,904 acres.

5. The financial results of the year by main heads were as follows:—

	Area irrigated.	Revenue realized.			Working expenses.	Net revenue.
		Direct Receipts.	Share of Land Revenue.	Total.		
	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Class I.—Works for which Capital and Revenue Accounts are kept.</i>						
Major Works. { Protective Works.	83,545	8,16,424	...	8,16,424	3,62,720	4,53,704
{ Productive Works.	26,013	5,91,387	4,109	5,95,496	2,50,732	3,44,764
Total ...	109,558	14,07,811	4,109	14,11,920	6,13,452	7,98,468
Minor Works ...	37,798	1,68,947	3,302	1,72,249	1,11,216	61,033
Total Class I ...	147,356	15,76,758	7,411	15,84,169	7,24,668	8,59,501

The area shown as irrigated includes 10,981 acres on which a consolidated land and water assessment has been and is proposed to be levied. This is derived from old works on which expenditure on improvements only has been incurred.

6. The figures showing areas irrigated, revenue assessed and realized, and working expenses, as compared with former years, are as follows:—

Years.	Area irrigated.	Revenue.		Working expenses.
		Assessment.	Realization.	
	Acres.	Rs.	Rs.	Rs.
1905-06	105,716	8,93,325	8,47,811	3,57,670
1906-07	108,787	9,47,167	8,58,820	3,67,062
1907-08	130,808	10,87,554	11,01,106	3,80,332
1908-09	142,928	10,99,014	10,67,329	3,89,423
1909-10	145,155	11,22,916	12,55,165	4,16,046
1910-11	123,356	10,95,369	12,51,247	4,38,524
1911-12	142,934	13,31,017	13,76,101	4,68,047
1912-13	197,365	15,83,168	14,13,527	5,09,099
1913-14	203,338	17,59,548	17,39,483	6,51,890
1914-15	159,730	16,05,516	16,98,838	7,50,066
Average for ten years	146,011	12,52,459	12,60,942	4,72,815
1915-16	136,375	15,29,165	15,84,169	7,24,668

The decrease of 23,355 acres in the total area irrigated as compared with the previous year was distributed over the several classes of works as follows:—

	Acres.
Protective Works	— 1,181
Productive „	— 20,001
Minor „	— 2,173
Total	— 23,355

The variations in the areas irrigated may be remarked upon as follows:—

Deccan Irrigation Division.

The total area irrigated shows a decrease of 32 acres only as compared with the previous year.

Central Division.

The increase of 2,174 acres in the total area irrigated as compared with the previous year was distributed over the several classes of works as follows:—

	Acres.
Productive Works	939
Minor Works	1,235
Total	2,174

Though there was an increase in the total area irrigated, there was a decrease in the rabi areas on the Ekruk, Ashti and Pathri Tanks in the Sholapur District aggregating 823 acres; it was due to timely rainfall in the rabi season in that district.

As regards the agricultural condition in the West Khandesh District, the monsoon was confined to kharif season only; there was therefore sufficient storage in the Mukti Tank and people resorted to canal water more extensively during the rabi season. In the East Khandesh District, the rainfall was fair and there was more demand for canal water in both the seasons than in the previous year. In the Ahmednagar District the rainfall was heavier and the greater portion fell in the early monsoon; there was therefore less demand for kharif irrigation. There was very little rain in the latter portion of the monsoon and more area could have been irrigated under the Bhatodi Tank had not the rains in October served the purpose of cultivators. The supply in the tank was found to be more than sufficient to meet the requirements of cultivators during the rabi season.

Southern Division.

The total area irrigated shows a decrease of 5,767 acres as compared with the average of the previous three years and of 2,619 acres as compared with the total area of 1914-15. This latter decrease is distributed as follows :—

	Acres.
Productive Works	149
Minor Works	-2,470
Total	-2,619

The total area irrigated according to seasons is as follows :—

	Kharif.	Rabi.	Total.
	Acres.	Acres.	Acres.
1915-16	8,102	9,103	17,205
1914-15	7,898	11,926	19,824
Average of previous three years	10,697	12,275	22,972

There was an increase of 204 acres in the kharif season while there was a decrease of 2,823 acres in the rabi season.

The increase in the kharif area was small, and was due in the case of all the works except the Gokak and the Dharma Canals and the Dambal and the Madag Tanks, to the demand for water on account of irregular rainfall, while the large decrease in area during the rabi season was due generally to seasonable rainfall rendering the use of canal and tank water unnecessary.

Northern Division.

The rainfall of the year being much below the average, there was a general failure of grain and other crops throughout the northern part of Gujarat, though there was not actual famine. The monsoon broke in the middle of June as usual, but the rainfall was scanty throughout the season. The special feature of the year was that the duty of water in regard to irrigation works was less as scattered areas were cultivated and the loss on account of absorption in distribution was great.

The total area irrigated by both the Hathmati and Khari Cut Canals was 1,508 acres against 21,499 acres irrigated by them in the previous year. The total areas irrigated respectively by the Wangroli, Tranza-Nagrama, Savli and Saiat Tanks were nil, nil, 550 and nil acres against 1,301, nil, 1,229 and 909 acres irrigated by them in the previous year.

Collections of Revenue.

7. The state of the collections was as follows :—

	Rs.
Balance of demands unrealized at the commencement of the year	75,138
	Rs.
Demands of the year—	
Rabi, 1914-15	3,69,075
Kharif, 1915-16	8,79,974
Miscellaneous receipts	3,23,827
	15,72,876
	Total ... 16,48,014
<i>Deduct—</i>	
Remissions	2,412
	Net Total ... 16,45,602
Amount unrealized at the close of the year	49,493
Actual receipts for the year	15,96,109
	Carried over ... 15,96,109

		Rs.
<i>Add—</i>		
	Brought over	... 15,96,109
Share of Land Revenue	...	... 7,411
	Total	... 16,03,520
<i>Deduct—</i>		
Refunds of Revenue	...	... 19,551
Revenue realized as per paragraphs 3, 5 and 6	...	... 15,84,169

The remissions and refunds together amount to Rs. (21,763). The amount unrealized at the close of the year, viz., Rs. 49,493 is considerably less than that at the close of the last year; the total is made up as follows:—

		Rs.
1. Mutha Canals, including Matoba Tank	...	... 21,569
2. Dharma Canal	...	... 7,703
3. Nira Canal, including Shetphal Tank	...	... 5,483
4. Krishna Canal	...	... 4,220
5. Ekruk Tank	...	... 2,843
6. Kadwa River Works	...	... 2,495
7. Godavari Canal	...	... 2,309
8. Parsul Tank	...	... 1,647
9. Hathmati Canal and Khari Cut	...	... 1,033
10. Mhasva Tank	...	... 1,042
11. Madag Tank	...	... 1,026
12. Gokak Canal	...	... 610
13. Sahiat Tank	...	... 464
14. Other Works	...	... —3,076
	Total	... 49,493

The remarks made by the Superintending Engineers regarding the amounts outstanding are given below:—

Superintending Engineer, Deccan Irrigation Division.

The unrealised balance of revenue at the close of the year was Rs. 25,048 as detailed below, as compared with that of Rs. 60,985 in the previous year:—

		Rs.
1. Pravara River Works	...	... 219
2. Chankapur Tank and Girna Left Bank Canal	...	... 21
3. Godavari Canals	...	... 10,855
4. Nira Canal and Shetphal Tank	...	... 6,652
5. Kadwa River Works	...	... 2,495
6. Mutha Canals	...	... 5,606
7. Other Works	...	... 106
8. Excess recoveries made for Mhaswad Tank and Lakh Canal to be refunded	...	... —906
	Total	... 25,048

Of these, the sum of Rs. 19,170 has been recovered since the close of the year and steps are being taken in the Civil Department to recover the balance.

Superintending Engineer, Central Division.

The unrealised balance of revenue at the close of the year was Rs. 3,093. The heaviest outstandings were in the Ekruk Tank, viz., Rs. 2,906; out of this Rs. 1,366 have been recovered since 31st March 1916 and steps are being taken in the Civil Department to recover the outstandings.

Superintending Engineer, Southern Division.

The amount unrealised at the close of the year, viz., Rs. 13,827 is greater than that of the previous year by Rs. 2,092 and consists mainly of the large unrealised balance in the case of the Krishna Canal (Rs. 4,338), the Gokak Canal (Rs. 619), the Madag Tank (Rs. 1,026) and the Dharma Canal (Rs. 7,703). The Collectors concerned are being requested to effect recoveries as early as possible.

Superintending Engineer, Northern Division.

The outstanding balances could not be recovered owing to the bad season, and the consequent failure of grain and other crops. The Rabi crops were damaged by Haldarvo and Geru (rust) for which suspensions and remissions of revenue were granted by the Collectors. A large percentage of the arrears has, however, since been recovered during the year under report, and it is hoped that the balances still remaining outstanding, which are small, will be cleared during the year 1916-1917.

8. The total working expenses for the year amounted to Rs. 7,24,668 against Rs. 7,50,066 in the previous year, showing a decrease of Rs. 25,398 distributed as follows:—

		1914-15.	1915-16.	Difference.
		Rs.	Rs.	Rs.
Major Works—				
Protective Works	... ..	3,34,336	3,62,720	+ 28,384
Productive Works	... ..	2,40,113	2,50,732	+ 10,619
	Total ...	5,74,449	6,13,452	+ 39,003
Minor Works and Navigation	... ..	1,75,617	1,11,216	— 64,401
	Grand Total ...	7,50,066	7,24,668	— 25,398

The increases and decreases are explained by the Superintending Engineers as follows:—

Superintending Engineer, Deccan Irrigation Division.

The total working expenses for the year amounted to Rs. 5,49,273 against Rs. 5,07,047 in the previous year, showing an increase of Rs. 42,226, distributed as follows:—

		1914-15.	1915-16.	Difference.
		Rs.	Rs.	Rs.
Major Works—				
Protective Works	... ..	3,42,237	3,62,720	+ 20,483
Productive Works	... ..	1,51,412	1,72,055	+ 20,643
	Total ...	4,93,649	5,34,775	+ 41,126
Minor Works and Navigation	... ..	13,393	14,493	+ 1,100
	Grand Total ...	5,07,047	5,49,273	+ 42,226

The causes of the increase have not been explained by the Superintending Engineer, Deccan Irrigation Division.

Superintending Engineer, Central Division.

The total working expenses amounted to Rs. 46,993 against Rs. 53,425 in the previous year, showing a decrease of Rs. 6,432.

Though the total working expenses show a decrease of Rs. 6,432, there were more noticeable increases on the Lower Parjhra River Works and Mhaswa Tank amounting to Rs. 4,082 and 4,223, respectively, due to certain extensions and improvements carried out during the year. These increases were counter-balanced by decreases on most of the other works.

Superintending Engineer, Southern Division.

The total working expenses for the year amounted to Rs. 55,223 against Rs. 72,410 of the previous year and Rs. 56,075 the average of the past three years.

9: The following table contrasts the charges under the principal heads with those of the two previous years:—

	1915-14.	1914-1915.	1915-16.
	Rs.	Rs.	Rs.
Works	42,384	63,835	44,105
Repairs	3,16,634	3,50,800	3,54,451
Establishment	1,77,993	2,17,783	2,06,274
Tools and Plant	15,886	15,152	24,866
Total in the Public Works Department ...	5,52,907	6,47,575	6,29,696
Collection Charges	74,062	71,492	65,884
Indirect Charges	24,921	30,999	29,033
Total ...	6,51,890	7,50,066	7,24,663

The establishment charges divided between "Direction and Accounts" and "Executive," compare as follows with those of the previous year:—

	1914-15.	1915-16.	Difference.
	Rs.	Rs.	Rs.
Direction and accounts	17,120	16,767	-353
Executive	2,00,668	1,89,507	-11,161
Total ...	2,17,788	2,06,274	-11,514

Details of working expenses.

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

Name of works.	Average incidence of water-rate per acre.	Cost of measurement.		Working expenses total in the Public Works Department excluding indirect charges.	
		Total cost.	Per acre.	Per mile of main canal.	Per acre irrigated.
<i>Canals.</i>					
		Rs.	Rs. a. p.	Rs.	Rs.
Nira Canal, including Shetphal Tank.	9·86	1,429	0 0 5½	1,223	2·39
Háthmati and Khári Cut Canals ...	...	...	...	...	...
Girna Left Bank Canal ...	6·78	160	0 1 6	1,319	10·98
Kadwa River Works ...	7·23	145	0 0 9	550	4·27
Lakh Canal ...	...	...	...	...	...
Godavari Canal ...	8·76	1,068	0 0 11	1,192	6·56
Mutha Canals, including Mátoba Tank.	17·30	569	0 0 9½	1,601	12·22
Pravara Right Bank Canal ...	3·73	231	0 1 0	570	5·09
Krishna Canal ...	20·80	556	0 2 7	413	3·95
Yerla River Irrigation Works ...	4·31	521	0 2 10	388	3·23
Rewári Canal ...	6·24	254	0 4 3	387	2·04
Upper Mán River Works ..	4·18	177	0 3 2	106	2·11
Chikhli Canal ...	7·52	18	0 1 3	127	3·55
Gokák Canal ...	5·21	1,069	0 3 8	2,570	2·26
<i>Tanks.</i>					
Mhaswad Tank ...	5·11	266	0 0 7	261	2·36
Parsul Tank ...	4·63	146	0 0 9	<i>Nil</i>	2·00
Maini Tank ..	4·10	317	0 2 10	291	1·54

11. The gross assessed revenue, direct and indirect, as shown in Statement IV-C accompanying the Irrigation Administration Report for 1915-1916 was Rs. 15,29,165. If Rs. 51,496, being the difference between the value at normal rates of water issued from the Mutha Canals and the value of water supplied at special reduced rates or gratuitously for water-supply to various institutions in the Poona City, be added to the above amount, the total assessed revenue, both direct and indirect, of the year will be Rs. 15,80,661.

The details of the gross assessment were as follows:—

	Direct Revenue.			Indirect Revenue.	Total.
	Water-rates.	Other receipts.	Total.		
	Rs.	Rs.	Rs.	Rs.	Rs.
Major Works—					
Protective Works ...	7,39,395	24,587	7,63,982	...	7,63,982
Productive Works ...	5,30,303	2,61,341	5,91,644	4,109	5,95,753
Total ...	10,69,698	2,85,928	13,55,626	4,109	13,59,735
Minor Works ...	1,28,229	37,899	1,66,128	3,302	1,69,430
Grand Total ...	11,97,927	3,23,827	15,21,754	7,411	15,29,165

12. The net assessed revenue of the year, after deducting working expenses, including indirect and all other charges, and neglecting the items amounting to Rs. 51,496 referred to in the preceding paragraph, was Rs. 8,04,497 as compared with Rs. 8,55,450 in 1914-15.

13. The water-rates in force during the year are shown in Statement I-F accompanying the Irrigation Administration Report for 1915-16 in the remarks column of which the orders sanctioning them are quoted.

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

	1914-15.	1915-16.
	Rs.	Rs.
Protective Works	8.64	8.85
Productive Works	8.76	13.81
Minor Works	3.44	4.59

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

	1914-15.	1915-16.
	Rs.	Rs.
Water-rates	12,72,867	11,97,927
Other Receipts—		
Plantations	13,147	11,179
Water-power	12,630	14,313
Water-supply to towns	1,73,566	1,74,999
Miscellaneous	1,23,866	1,23,336
Total	3,23,209	3,23,827
Share of land-revenue	9,440	7,411
Total	3,32,649	3,31,238
Grand Total	16,05,516	15,29,165

The above comparison shows increases under water-power and water-supply to towns, and decreases under water-rates, plantations, miscellaneous receipts and share of land-revenue.

The decrease under water-rates was due to the decreased area irrigated in the Northern Division owing to the rainfall in that Division below the average. This decrease was however counterbalanced by increases in other Divisions. The other increases and decreases are small and call for no special remarks.

16. The principal crop acreages irrigated during 1914-15 and 1915-16 were as follows:—

	1914-15.	1915-16.	Increase or decrease.
	Acres.	Acres.	Acres.
Gardens and Orchards	2,483	3,208	+ 725
Sugarcane	16,976	19,629	+ 2,653
Wheat	12,778	14,446	+ 1,668
Rice	29,579	2,233	- 27,296
Maize	2,651	2,328	- 323
Jowári	42,749	33,345	- 9,404
Bájri	1,092	10,679	+ 9,587
Gram, etc.	9,843	8,248	- 1,595
Groundnut	15,153	15,690	+ 537
Condiments	3,566	4,721	+ 1,155
Cotton	644	194	- 450
Fodder	1,444	1,392	- 52

The total estimated value of crops is shown as Rs. 1,48,59,555 against Rs. 1,44,78,830 in the previous year and Rs. 1,49,05,579 for the year 1913-14. But these estimated crop values must be regarded as only-roughly approximate, there being no uniform method of estimating them. This matter is now receiving the attention of Government.

17. In Statement I-E accompanying the Irrigation Administration Report for 1915-16 the duty of water on each work, as well as the basis on which the duties were calculated, etc., are shown. The results vary with the nature of the crops irrigated, perennial crops requiring much more water than cereals. To obtain a correct comparative result it is necessary to consider the area of each class of crop grown under the canals concerned. Statement G affords means for such a comparison.

DETAILED REPORTS BY LOCAL OFFICERS.

GUJARAT IRRIGATION DISTRICT.

MAJOR WORKS.

Works without storage and dependent on local rain.

18. The area irrigated, net assessment, average water-rate and working expenses under the Hathmati and Khari Cut Canals compare with the average of those of the three preceding years as under :—

Year.	Kharif.		Rabi.		Total.		Average water rate assessed per acre.	Working expenses.
	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.		
Average of 3 years ..	13,707	72,364	3,641	7,100	17,349	79,544	4.37	42,712
1915-16 ...	1,327	4,033	131	282	1,508	4,315	2.86	44,822

19. There was a small flood in the Hathmati River on the 28th June 1915, when the water level rose 1.50 feet above the weir crest. The Hathmati Canal was opened on 28th June as soon as there was a little water in the river and it continued to flow until 24th August 1915, the maximum discharge being 350 cusecs on the 28th June 1915, and the minimum 9 cusecs on the 11th July 1915. The supply available was utilized for irrigating the lands on the canal itself, the surplus water partially filling the Bokh Reservoir for subsequent use. When there appeared no probability of further rain falling, water was let into the Khari River and diverted therefrom into the Khari Cut Canal at Raipur and stored up in the Chandola and other tanks and it proved of great use for water supply as there was great scarcity of sweet water for drinking purposes everywhere, especially for cattle.

20. The Chandola tank also irrigated 229 acres of bagayat land of Dani Limda and 10 acres of Behrampur and the realizations on account of himayat thereon amounted to Rs. 565 and Rs. 26 respectively.

21. The miscellaneous revenue realized was Rs. 11,289 against Rs. 3,964 in the previous year. The increase is attributable to the sale of a larger number of trees, etc., and to the better prices obtained.

22. Remissions of Rs. 3 only were granted in the kharif season during the year.

23. The gross assessed revenue amounted to Rs. 15,604 and was less than the working expenses by Rs. 29,218, which means a loss of 2.22 per cent. and on the basis of realizations 1.51 per cent. on the direct and indirect capital outlay of Rs. 13,15,103 on the Hathmati and Khari Cut Canals combined.

24. The realizations amounted to Rs. 24,904, though much less than those of the last year, viz., Rs. 1,20,302, may be considered satisfactory, as on account of the scanty rainfall there could be little or no cultivation anywhere except on wells. They exceed by Rs. 19,118 the realizations (viz., Rs. 5,786) of the year 1904-05 (eleven years ago) when the Gujarat Irrigation District was established, and show the great improvement effected since then. Though during the year of drought there was little or no irrigation, the water stored up in the several tanks proved of great value and the crops of "millet jawar" raised afforded some protection and relieved much distress in the distant villages where the scarcity of drinking water was keenly felt.

25. The rainfall gauged at Ahmednagar at the head of the Hathmati Canal was 19.51 and 0 inches respectively in the kharif and rabi seasons, while at Raipur at the head of the Khari Cut Canal it was 8.46 and 0 inches respectively.

MINOR WORKS AND NAVIGATION.

Works with storage tanks dependent on local rain.

26. The area irrigated, net assessment and working expenses under the Wangroli, Tranza-Nagrama, Savli and Saiat Tanks compare with the average of those of the previous 3 years as under :—

Tank.	Year.	Kharif.		Rabi.		Total.		Working expenses. Rs.
		Acres.	Rs.	Acres.	Rs.	Acres.	Rs.	
Wangroli	Average of 3 years...	903	3,335	418	988	1,321	4,323	10,784
	1915-16 ...	...	...	...	...	...	...	13,442
Tranza-Nagrama.	Average of 3 years...	150	441	129	347	279	788	2,816
	1915-16 ...	...	...	...	...	...	...	2,168
Savli	Average of 3 years...	1,010	4,025	416	824	1,426	4,849	17,400
	1915-16 ...	...	...	550	1,096	550	1,096	6,062
Saiat	Average of 3 years...	523	2,022	279	827	802	2,849	19,931
	1915-16 ...	...	...	...	...	...	...	7,446

(16) WANGROLI TANK.

27. There was no replenishment received in the tank owing to the scanty rainfall. There was, therefore, no irrigation and the realizations on account of himayat which amounted to Rs. 2,066 in the year 1914-15. were remitted during the year under report.

28. The miscellaneous revenue amounted to Rs. 211 against Rs. 91 in the previous year. The increase was due to the large area let out for cultivation of the land in the tank bed.

29. There was no irrigation and no remissions were granted during the year.

30. The rainfall gauged in the tank catchment was 12.04 and 0 inches respectively in the kharif and rabi seasons.

(17) TRANZA-NAGRAMA TANKS.

31. These tanks were empty and there was therefore no irrigation under them. They have no independent catchment basins of their own and there was no flow in the feeder channel. An endeavour is being made to divert the drainage via Alindra through the Chokadia and Heranj Tanks, if possible.

32. The miscellaneous revenue amounted to Rs. 8 only against Rs. 296 in the previous year.

33. No remissions were granted during the year.

34. The rainfall gauged at the Nagrama Tank was 11.28 and 0.03 inches respectively in the kharif and rabi seasons and it was about the same at the Tranza Tank.

(18) SAVLI TANK.

35. There was some replenishment received in the tank, but the supply received was not much, and it was utilized in irrigating rabi crops, mainly wheat and gram.

36. The miscellaneous revenue amounted to Rs. 362 against Rs. 372 in the previous year.

37. No remissions were granted during the year.

38. The rainfall gauged at the tank was 15.49 and 0 inches respectively in the kharif and rabi seasons.

(19) SALAT TANK.

39. Owing to the scanty rainfall there was no replenishment received at all in the tank and hence there was no irrigation during the year.

40. The miscellaneous revenue amounted to Rs. 72 against Rs. 450 in the previous year. The decrease was due to the greater area of land in the tank bed not having been taken up for cultivation as it was dry.

41. No remissions were granted.

42. The rainfall gauged at the tank was 10.12 and 0 inches respectively in the kharif and rabi seasons.

POONA IRRIGATION DISTRICT.

Works with Ghat storage.

(4) NIRA CANAL AND SHETPHAL TANK.

43. (a) The rainfall at Bhatghar, at the three representative stations along the canal, and at Shetphal Tank was satisfactory as compared with the average of the past three years:—

Stations.	Rainfall during 1915-16.	Rainfall during 1914-15.	Average rainfall during the past three years.	Remarks.
Bhatghar	47.60	54.74	48.03	
Pimpra	30.00	21.09	16.90	
Baramati	17.21	16.77	15.04	
Nimbgaon	30.60	16.33	13.84	
Shetphal	31.07	17.39	16.13	

(b) The following table gives the run-off during 1915 from the catchment of Lake Whiting:—

Name of catchment.	Area in square miles.	Actual run-off in c.ft. in 1915.	Equivalent run-off in inches.	Remarks.																																												
Lake Whiting.	123	26,781*	89.67*	<p>*Calendar year (1st January to 31st December 1915)—</p> <table> <tr> <td>Flood discharge</td> <td>...</td> <td>...</td> <td>21,548</td> </tr> <tr> <td>Under-slice discharge</td> <td>...</td> <td>...</td> <td>3,898</td> </tr> <tr> <td>Evaporation, absorption and leakage</td> <td>...</td> <td>...</td> <td>566</td> </tr> <tr> <td>1st January, depth</td> <td>...</td> <td>70.30</td> <td></td> </tr> <tr> <td>31st December, depth</td> <td>...</td> <td>15.20</td> <td></td> </tr> <tr> <td>Therefore contents on those dates—</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>3,072.58</td> </tr> <tr> <td></td> <td></td> <td></td> <td>3,841.07</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Difference ... 769</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Total ... 26,791</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Equivalent to depth on catchment area of inches nearly 90.</td> </tr> </table>	Flood discharge	21,548	Under-slice discharge	3,898	Evaporation, absorption and leakage	566	1st January, depth	...	70.30		31st December, depth	...	15.20		Therefore contents on those dates—							3,072.58				3,841.07				Difference ... 769				Total ... 26,791				Equivalent to depth on catchment area of inches nearly 90.
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44. The level of water in Lake Whiting on 31st March 1916 was 61.40 feet against 59.20 on the same date of the preceding year.

45. The lowest depth reached was 36.80 feet, the corresponding contents being 347.07 million cubic feet.

46. The lake began to receive replenishment from 25th June 1915. From this date, draw-off from the lake was stopped as replenishment was also received in the Vir basin. The level in the tank rapidly rose to 75 feet (crest of the waste-weir) at 6 p. m. on the 29th June 1915, due to heavy falls of rain in the valley. From this date the south waste-weir gates were kept open in order to pass off the ordinary flood water.

47. On the 2nd July 1915 the level in the tank reached 78.00 feet when the north waste-weir gates were also opened.

48. The automatic gates worked well, especially the gates Nos. 1 to 8, 16, 23, 30 and 45.

49. The total flood discharge passed over the waste-weirs was 2,154,813 million cubic feet.

50. The full supply depth, namely 83 feet, was attained on the 15th September 1915 and was kept at that figure upto 17th November 1915 on which date the draw-off for irrigation commenced.

51. The highest rainfall recorded at Bhatghar on a single day was 2.80 inches on 25th July 1915. The previous year's maximum rainfall in a single day was 7.30 inches.

52. The average discharge in cusecs at the head of the Nira Canal for each month during 1915-16 was as shown below :—

Month.	Number of days.	Discharge in day cusecs.	Remarks.
February 1915 (16th to 28th) ...	13	1,942	1 day cusec = 1 cusec for 24 hours, and if multiplied by 86,400 gives the quantity of water in cubic feet. The quantity of water which entered the canal is thus :— $104,000 \times 86,400 = 8,985,600,000$ c. ft. or 8,985 million cubic feet. Average daily discharge 235 cusecs.
March " ...	31	5,198	
April " ...	30	4,683	
May " ...	31	4,933	
June " ...	30	6,408	
July " ...	31	9,628	
August " ...	31	13,854	
September " ...	30	9,967	
October " (1st to 15th) ...	15	3,522	
" " (16th to 31st) ...	16	5,533	
November " ...	30	13,046	
December " ...	31	12,117	
January 1916 ...	31	8,567	
February " (1st to 15th) ...	15	4,552	
Total ...	365	1,04,000	

53. Water in Shetphal Tank reached its lowest level, viz., 3.30 feet, on 20th June 1915, when it began to receive new replenishment from the Nira Canal. The highest level reached was 37 feet (full supply) on the 27th September 1915.

54. The following table shows the area irrigated, water rate levied, gross assessed revenue, working expenses, etc., during the year as compared with the average of the past three years :—

Area irrigated in acres.		Assessment.		Gross assessed revenue.		Working expenses.		Realization.		Average rainfall of 5 stations.	
1915-16.	Average of past 8 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 8 years.
Aores.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
50,859	61,072	5,01,512	5,47,018	5,11,961	5,53,378	1,55,923	1,34,882	5,54,670	5,44,295	31.90	21.99

55. The sugarcane and perennial area on the Nira Canal and Shetphal Tank is compared below with figures for the past three years. It is far in excess of that for the year 1914-15, but less than that for the year 1913-14 :—

Year.	Area in acres.
1912-13	7,949
1913-14	9,182
1914-15	7,121
1915-16	8,628

56. The total area assessed on the Nira Canal and Shetphal Tank together amounted to 50,859 acres and is nearly equal to that for the year 1914-15, which was the second highest ever recorded. The fall is entirely in the rabi area and is due to timely and ample rainfall during the latter part of the monsoon, which did away with the necessity for flooding lands for rabi sowings and also to favourable winter rains which reduced the demand for water for rabi crops. This left a large quantity of water unutilized; and, in order to utilize this surplus supply, sanction was given to issue the same to about 2,000 acres of overlapping adsali and about 1,200 acres of cane outside blocks. This will considerably increase the revenue of the year 1916-17.

57. The total culturable area under command of the Nira Canal and Shetphal Tank was 227,670 acres, of which 17.91 per cent. were assessed in the kharif season and 4.87 per cent. in the rabi season. The corresponding percentages for the year 1914-15 were 15.89 and 7.89 respectively.

58. The refunds of revenue sanctioned during the year under report amounted to Rs. 125. There were no remissions.

59. The cost incurred on measuring 50,859 acres of irrigated area amounted to Rs. 1,429, viz., 5½ pies per acre compared with a little less than 6 pies per acre in 1914-15.

(13) MUTHA CANALS INCLUDING MATOBA TANK.

60. The rainfall figures for eight representative stations on this system are shown in the sub-joined table :—

Stations.	Rainfall during 1915-16.	Rainfall during 1914-15.	Average rainfall during the past 8 years.		
	Inches.	Inches.	Inches.		
Tank area	Musa	113.00	149.48	135.36	
	Mutha	65.36	90.66	78.56	
	Khadakvasla	39.87	51.38	43.72	
	Garli	220.03	316.08	These stations are newly opened.	
	Yegra	140.72	254.47		
Canal area	Poona (Sassoon Hospital)	36.78	33.13		28.89
	Khedgaon	18.65	14.02		12.13
	Matoba Tank... ..	20.52	15.10		14.55

61. On the 1st of April 1915 the water in Lake Fife was 19.56 feet above the sill of the canal sluices. The lowest water level at Lake Fife was 6.44 feet only on 25th June 1915. During the previous year the lowest depth was reached on the 20th June 1914 when the depth was 7.10 feet. The lake began to receive replenishment from the 26th June 1915 and was filled to overflowing on the 25th August 1915. The highest level of 34 feet was reached on the 23rd of September 1915, viz., 34 feet over the sill of sluices and 8 feet over the weir crest.

62. The regular draw-off commenced on the 29th of October 1915 as against 6th October 1914, that is to say 23 days later than the previous year. On 1st April 1916 the level of water went down to 19.82 feet above the sill of canal sluices against 19.54 on 1st April 1915.

63. The Matoba Tank was dry upto 24th June 1915 and received its first replenishment for the year on the same day. The tank reached its full supply level, namely, 29 feet, and began to overflow on the 27th July 1915. The overflow lasted for 24 days, i. e., upto 19th August 1915. After several fluctuations upto the 17th October 1915 the level went down gradually and the tank dried up on the 1st May 1916.

64. The following table shows the area irrigated, water rates assessed, gross assessed revenue, working expenses, etc., during the year as compared with the average of the past three years :—

Area irrigated in acres.		Assessment.		Gross assessed revenue.		Working expenses.		Realizations.		Average rainfall of 6 stations in inches.	
1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
11,524	14,008	1,99,434	2,09,377	3,71,834	3,77,629	1,53,942	1,26,366	3,66,724	3,80,321	49.03	52.20

65. The area under sugarcane was 3,929 acres against 4,256 acres in 1914-15.

66. The total area under perennial including sugarcane on the Mutha Canals and Matoba Tank are compared below with the figures of the past three years :—

Year.	Area in acres.
1912-13 ...	... 5,185
1913-14 ...	... 5,676
1914-15 ..	... 5,284
1915-16 ...	... 5,471

67. The working expenses for the Poona Water Supply and the Mutha Canals proper for the year 1915-16 are compared with the average of the past three years as under :—

	1915-16.	Average of past 3 years.
	Rs.	Rs.
Poona Water Supply	61,133	65,190
Mutha Canals	92,809	61,279
Total	1,53,942	1,26,469

68. The average daily supply of filtered water delivered into mains for distribution from the Poona Water Works amounted to 1,571,344 gallons against 1,488,149 gallons in 1914-15.

69. The loss of revenue on account of water supplied either gratis or at reduced rates to certain charitable and public institutions in the Poona Cantonment and Suburban limits in accordance with Government orders amounted to Rs. 10,168 against Rs. 10,069 in 1914-15.

70. The actual cost of measuring the crops amounted to Rs. 569 against Rs. 600 in the previous year. The average cost per acre came to 9.5 pies against 9.4 in the previous year.

71. The refunds given during the year amounted to Rs. 392 and there were no remissions.

72. The total assessed revenue for the Mutha Canals and Matoba Tank combined for the year under report amounted to Rs. 3,71,834 made up of Rs. 1,99,434 from irrigation and Rs. 1,72,400 from other sources. The latter figure includes Rs. 1,53,330 derived from Poona Water Supply.

73. The following table gives the run-off during 1915 from the catchment of Lake Fife :—

Name of catchment.	Area in square miles.	Actual run-off in M. c. ft. 1915.	Equivalent run-off in inches.	Remarks.
Lake Fife	196	33,622*	84'44"	<p>* Discharge over weir ... M. c. ft. 32,177'93 " through under-slucices ... 3,074'05 " for irrigation ... 324'78 Loss by evaporation and absorption ... 3,145'65 Contents of the tank ... 783'65 1st June—Contents ... 8,923'90 31st October—Contents ... 3,145'65</p> <p>1st June—R. L. ... 10'06 31st October ... 53'85</p> <p>Total ... 33,621'66 or say ... 33,622</p> <p>Equivalent to depth on catchment area of inches 84'44.</p>

Storage works dependent on local rains.

74. The following table shows the area irrigated, water rates levied, gross assessed revenue, working expenses, etc., on the works named below during the year as compared with the average of the past three years :—

	Area irrigated in acres.		Assessment.		Gross assessed revenue.		Working expenses.		Realizations.		Rainfall in inches.	
	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Kasurdi	114	71	498	660	674	716	648	710	523	646	24'33	19'23
Shirsuphal	1,033	704	3,969	3,776	4,107	4,948	2,115	2,052	3,671	4,499	20'44	11'23
Bhadalwadi	1,422	1,271	5,870	5,694	5,958	6,096	2,799	2,737	6,150	5,559	20'21	11'48

75. The following table gives the run-off during 1915 from the catchments of Shirsuphal and Bhadalwadi Tanks. The figures for Kasurdi Tank are not available. As it is a small tank no discharges were observed :—

Name of catchment.	Area in square miles.	Actual run-off in M. c. ft. in 1915.	Equivalent run-off in inches.
Shirsuphal	Acres. 23'5	M. c. ft. 213	Inches. 3'88
Bhadalwadi	Acres. 23	M. c. ft. 156	Inches. 2'91

(26) KASURDI TANK.

76. The tank was dry upto 24th June 1915 when it began to receive replenishment. The highest level, viz., 17'46, was reached on 25th June 1915. During the year under report the tank overflowed several times. The overflow for the last time commenced on 20th September and lasted for 25 days, i. e., upto 14th October 1915, and the highest level reached was 17'46. Water was issued to rabi crops and the level then gradually went down and the tank finally dried up on 11th March 1916.

(27) SHIRSUPHAL TANK.

77. The tank was dry upto 16th May 1915 when it began to receive replenishment. The highest level reached was 25'15, i. e., 5'88 feet below weir crest on 15th October 1915. The tank did not dry up during the year under report and the level of water on the 31st March 1916 was 18'30 feet.

(28) BHADALWADI TANK.

78. The tank began to receive replenishment from 19th June 1915 and the highest level reached was 31 feet, 4 feet below the weir crest on 13th October 1915. Water was issued to rabi crops and the level of water gradually went down and the tank dried up on 8th March 1916.

MALSIRAS DISTRICT.

Storage works with Deccan catchment.

(5) MHASWAD TANK.

79. The supply of this tank is dependent on local rains on its large catchment of 480 square miles. On the 1st of April 1915 the tank had 9'20 feet of water above the sill of canal sluices, the corresponding contents being 618'75 million cubic feet. The tank received slight replenishments between 16th May and 27th July 1915 and large ones on 11th, 21st and 28th September 1915, when water began to flow over the waste weir. The overflow continued upto 1st November 1915, the maximum depth of flood above the crest of weir being 0'90 feet. The level of water in the tank on 31st March 1916 was 16'74 feet above sill of canal sluices, the corresponding contents being 1,442'99 million cubic feet.

80. The average of the rainfall recorded at five stations in the catchment of the tank from 1st June to 31st October 1915 was 17'75 inches or nearly 5 per cent. higher than the usual average. The average for the whole year was 21'97 inches.

81. The following table shows the area irrigated, water rates levied, gross assessed revenue, working expenses, etc., during the year as compared with the average of the past three years :—

Area irrigated in acres.		Assessment.		Gross assessed revenue.		Working expenses.		Realizations.		Rainfall in inches.	
1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
7,305	8,766	37,355	44,072	40,739	48,784	20,503	18,636	43,216	51,393	17'75	12'17

82. Owing to short supply in the kharif season, only a small area of kharif crops could be irrigated. In the rabi season, although the supply was abundant, cultivators did not require water for rabi crops outside rabi blocks owing to seasonable rainfall. This explains the fall in area and revenue.

83. The cost of measurement of crops during the year was 7 pies per acre against 6 pies for the last year.

84. The following table gives the run-off during 1915 from the catchment of Mhaswad Tank :—

Name of catchment.	Area in square miles.	Actual run-off in mil. c. ft.	Equivalent run-off in inches.
Mhaswad	480	4,033	3'61

85. The refunds given during the year amounted to Rs. 340; there were no remissions.

PRAVARA CANALS DISTRICT.

(a) Canals supplied by Ghat-fed river with storage works.

(3) GODAVARI RIGHT BANK CANAL.

86. This canal forms part of the Godavari Irrigation Project, and is fed from the Lake Beale Storage reservoir on the Darna River near Asvali Station on G. I. P. Railway in addition to the river supply. A length of 62 miles of this canal was in operation during the year.

87. The tail portion of $8\frac{1}{2}$ miles length of the canal has, with the exception of a few masonry works and short approach banks, been completed. It is hoped that all distributaries in this length will be completed in all respects by the end of May 1917.

88. The designed discharge of the canal is 384 cusecs at head and 114.41 cusecs at tail, the F. S. Ls. being 7 feet and 5 feet respectively above the canal bed level and the gross area commanded is 144,310 acres.

(3) GODAVARI LEFT BANK CANAL.

89. Water has been let into the canal for its full length of 48 miles and all distributaries thereunder are now in working order. There was an ample supply of water in the canal, but the demand was not equal to the supply available owing to good and timely rainfall in the Nasik Taluka as well as in the Kopergaon Taluka of the Ahmednagar District. Two thousand acres of rabi were, however, given out on six years' leases.

90. The canal is designed to discharge 228 cusecs at head and 35 cusecs at tail, the F. S. Ls. being 6 feet and 3 feet respectively above canal bed level.

91. The local Godavari Canals Irrigators' Association held several meetings during the year under report, which were well attended. Useful discussions took place on such subjects as manures and their application, methods of cultivation and saving of manual labour. With careful guidance this association should have a valuable future before it.

92. The refunds given during the year amounted to Rs. 8,395; there were no remissions.

93. The following table shows the area irrigated, water-rates levied, gross assessed revenue, working expenses, etc., on the Godavari Right and Left Bank Canals during the year as compared with the average of the past three years:—

	Area irrigated in acres.		Assessment.		Rainfall in inches.		Gross assessed revenue.		Working expenses.		Realizations.	
	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.
	Acres.	Acres.	Rs.	Rs.	Inches.	Inches.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Godavari Right Bank	16,099	23,567	1,50,185	1,58,715	28.51	18.60	1,84,947	1,74,519	1,47,066	93,210	1,91,436	1,50,069
Godavari Left Bank.	2,799	1,540	29,458	8,822	27.12	16.90						

94. The cost incurred on the measuring establishment amounted to Rs. 922 and Rs. 146 with an irrigated area of 16,099 and 2,799 acres respectively, and works out to nearly 11 pies per acre. The rate for the last year was nearly 17 pies per acre.

(b) Canals supplied by Ghat-fed river without storage works.

95. The Pravara River Irrigation project consists of a very high masonry dam, 270 feet high, across the Pravara River in the Ghats at Bhandardara, which will impound over 10,000 million cubic feet of water. The pick-up weir is situated near the village of Ojhar, about 53 miles below the reservoir (Lake Arthur Hill), whence the Pravara Left and Right Bank Canals take off.

(24) PRAVARA LEFT BANK CANAL.

96. The work of widening and extending the old canal was started in 1910. The earthwork of the main canal is almost completed with the exception of the approaches to certain masonry works and a few cuts at old canal crossings. The widening and straightening of the old canal was hindered owing to the necessity of opening the canal during the rabi season in order to mature crops in certain tracts.

97. In order to facilitate construction of the new masonry works and the widening of the existing works, which are on the old alignment, the canal has been closed to irrigation from 15th October 1913, the available water supply being utilized by the Pravara Right Bank Canal.

98. The **designed discharge** of the remodelled canal (now called the Pravara Left Bank Canal) is 530 cusecs at head and 39 cusecs at tail, the F. S. Ls. being 8 feet and 3 feet respectively above canal bed level.

(1) PRAVARA RIGHT BANK CANAL.

99. This canal runs for a length of 33 miles and has a **designed discharge** of 152.62 cusecs at head and 81.79 cusecs at tail, the F. S. Ls. being 5 feet and 3 feet respectively above canal bed level. The **gross area commanded** is 73,763 acres.

100. All the works on the main canal are now completed; as also all distributaries up to mile 33 with the exception of a few road and field bridges and falls.

101. The canal is in operation upto mile 33, but the supply of water is at present unreliable and inadequate and will remain so until water is available from "Lake Arthur Hill" at Bhandardara.

102. The following table shows the **area irrigated, water rates levied, gross assessed revenue, working expenses, etc.**, during the year as compared with the average of the past 3 years:—

	Area irrigated in acres.		Assessment.		Gross assessed revenue.		Working expenses.		Realizations.		Rainfall in inches.	
	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Pravara Right Bank	3,694	6,446	13,773	18,089	14,752	18,569	20,376	11,531	15,975	15,601	27.48	16.87
Pravara Left Bank	1,212	2,845	3,745	7,275	6,910	9,502	5,803	7,020	3,233	13,233	27.43	16.87

103. The **cost incurred on the measuring establishment** amounted to Rs. 231 and Rs. 57 respectively with irrigated areas of 3,694 and 909 acres respectively and works out to 12 pies and 9 pies. The rates for last year were 14 pies and 36 pies respectively.

104. The **refunds** given during the year amounted to Rs. 15 (Pravara Right Bank Canal); there were no remissions.

Works without a storage but on a river with Ghat catchment.

(12) LAKH CANAL.

105. This canal draws its supply from the Pravara River, just where it is crossed by the Dhond-Manmad Railway near Lakh village. Being situated below the Ojhar weir, it only receives such water as is not required by the Pravara Canals and the supply runs short after October. In the year under report, however, the supply was sufficient for the rabi crops, but the demand was poor. The canal has a **designed head discharge** of 129 cubic feet per second.

106. The following table shows the **area irrigated, water rates levied, gross assessed revenue, working expenses, etc.**, during the year under report as compared with the average of the past three years:—

Area irrigated in acres.		Assessment.		Gross assessed revenue.		Working expenses.		Realizations.		Rainfall in inches.	
1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
590	1,659	1,142	2,870	2,179	3,585	2,851	3,295	2,353	3,983	25.71	14.27

107. The cost incurred on the measuring establishment amounted to Rs. 37 with an irrigated area of 590 acres, and works out to 1 anna per acre. The figure for the last year was 22 pies.

NASIK AND AHMEDNAGAR IRRIGATION DISTRICT.

(a) Canal supplied by Ghat-fed river with storage works.

(2) CHANKAPUR TANK—GIRNA LEFT BANK CANAL.

108. The Chankapur Tank on the Girna River is the storage for the Girna Left Bank Canal. The volume of water stored in the tank was 1,535.24 million cubic feet. This represents the contents at R. L. 166.80, that is practically the full supply in the tank. The natural supply of the river derived from its tributaries was sufficient and hence there was no demand for canal water to the kharif crops. The tank was drawn on from 5th December 1915. The full supply level of the tank is at R. L. 167.00.

109. The tank water which was not required for the irrigation on the Girna system was issued to supplement the supply to the Jamda Canals in the East Khandesh District. From February 1916 water from the lake was released beyond actual requirement in order to reduce the level to carry out certain repairs to the waste-weir apparatus and it was emptied down to R. L. 154.76 on 31st March 1916.

110. The tank supply was also used for feeding the existing bandharas on the Girna River. The area irrigated in excess of the kayam bagayat area by the Patna, Dhabadhi, Mahal-Patna and so on, on the Girna River was 22 acres and the assessment of Rs. 124 against last year's 34 acres and Rs. 181 respectively.

111. The total refund of the revenue made during the year amounted to Rs. 23. There were no remissions.

112. The following table shows the area irrigated, water rates assessed, gross assessed revenue, working expenses, etc., during the year as compared with the average of the past 3 years:—

Area irrigated in acres.		Assessment.		Gross assessed revenue.		Working expenses.		Realizations.		Rainfall in inches.	
1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
1,710	2,763	11,591	14,589	11,773	14,841	18,853	14,199	11,127	14,292	47.15	42.34

113. The cost incurred on the measuring establishment amounted to Rs. 160 with an irrigated area of 1,710 acres and works out to one anna and six pies per acre. The figure for the last year was one anna and five pies.

114. The following table gives the run-off during 1915 (from 1st June to 31st October 1915) from the catchment of Chankapur Tank:—

Name of catchment.	Area in square miles.	Actual run-off in M. c. ft. in 1915.	Equivalent run-off in inches.	Remarks.																																	
Chankapur Tank.	100	3,797.50*	16.34*	<p>*From 1st June to 31st October 1915—</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Flood discharge</td> <td style="text-align: right;">...</td> <td style="text-align: right;">M. c. ft.</td> </tr> <tr> <td>Irrigation discharge</td> <td style="text-align: right;">...</td> <td style="text-align: right;">510.25</td> </tr> <tr> <td>Leakage through waste-weir gates</td> <td style="text-align: right;">...</td> <td style="text-align: right;">330.76</td> </tr> <tr> <td>Loss by evaporation</td> <td style="text-align: right;">...</td> <td style="text-align: right;">1,943.08</td> </tr> <tr> <td>Level of water in the tank on 1st June 1915 at R. L.</td> <td style="text-align: right;">...</td> <td style="text-align: right;">156.28</td> </tr> <tr> <td>Do. do. on 31st August 1915 at R. L.</td> <td style="text-align: right;">...</td> <td style="text-align: right;">166.98</td> </tr> <tr> <td>Therefore contents on those dates—</td> <td></td> <td style="text-align: right;">992.12</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">1,546.80</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">Difference ... 554.68</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">Total ... 3,797.50</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">Equivalent to depth on catchment area of inches nearly 16.34.</td> </tr> </table>	Flood discharge	...	M. c. ft.	Irrigation discharge	...	510.25	Leakage through waste-weir gates	...	330.76	Loss by evaporation	...	1,943.08	Level of water in the tank on 1st June 1915 at R. L.	...	156.28	Do. do. on 31st August 1915 at R. L.	...	166.98	Therefore contents on those dates—		992.12			1,546.80			Difference ... 554.68			Total ... 3,797.50			Equivalent to depth on catchment area of inches nearly 16.34.
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lowest level reached during the year under report) on 15th July 1915. The contents of the tank at this level are 18.77 million cubic feet. The regular replenishment began to be received from 23rd July 1915 and the tank then filled to R. L. 120.00, crest of weir. The water flowed over the waste-weir on 8th September 1915 to a depth of 7.80 feet and the overflow continued for 39 days. The automatic waste-weir gates were closed on 9th September 1915.

121. A quantity of 200 million cubic feet which was promised to assist the irrigation on the Godavari Canals system was let out in addition to the supply required for maintaining the irrigation on the Kadwa Canals. There was practically no demand for canal water during the kharif season, owing to good rainfall.

122. The supply was more than sufficient for the area under irrigation on the Kadwa system. The regular draw-off commenced from 9th October 1915. The water in the tank on 31st March 1916 was 32.95 feet above the sill level, representing a volume of 244.27 million cubic feet.

123. The following table shows the area irrigated, water rates levied, gross assessed revenue, working expenses, etc., of the year as compared with the average of the previous three years:—

	Area irrigated in acres.		Assessment.		Gross assessed revenue.		Working expenses.		Realizations.		Rainfall in inches.			
	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.		
	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Ra.	Ra.	Inches.	Inches.	
Waghad Tank	...	...	...	...	570	838	3,090	2,529	617	754	...	...	...	...
Palkhed Canal	2,095	2,324	15,699	15,497	17,158	17,670	9,326	7,625	16,873	16,922	...	...	...	...
Ojhar Tambat Canal.	797	686	5,455	4,024	5,639	4,230	1,500	1,057	5,176	4,153	49.69	73.29	...	...
Wadali Canal	214	194	1,253	1,000	1,311	1,127	1,246	1,024	1,475	1,560	...	...	...	...

124. The following table gives the run-off during the year 1915 from the catchment of the Waghad Tank:—

Name of catchment.	Area in square miles.	Actual run-off in M. c. ft. 1915.	Equivalent run-off in inches.	Remarks.														
Waghad Tank.	29	1,991*	29.43*	*From 1st June to 31st October 1915— <table style="margin-left: 20px;"> <tr> <td></td> <td>M. c. ft.</td> </tr> <tr> <td>Discharge over weir</td> <td>1,331.61</td> </tr> <tr> <td>Discharge through outlet</td> <td>52.61</td> </tr> <tr> <td>Loss by evaporation</td> <td>64.69</td> </tr> <tr> <td>Contents of the tank</td> <td>521.95</td> </tr> <tr> <td>Total</td> <td>1,990.87</td> </tr> <tr> <td>or say</td> <td>1,991</td> </tr> </table> <p>Equivalent to catchment area of 29.43 inches.</p>		M. c. ft.	Discharge over weir	1,331.61	Discharge through outlet	52.61	Loss by evaporation	64.69	Contents of the tank	521.95	Total	1,990.87	or say	1,991
	M. c. ft.																	
Discharge over weir	1,331.61																	
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Contents of the tank	521.95																	
Total	1,990.87																	
or say	1,991																	

125. The total refund of revenue made during the year amounted to Rs. 17. There were no remissions.

126. The actual cost of measuring the crops amounted to Rs. 145-9-0, which works out to 9 pies per acre against 9.4 pies in 1914-15.

Storage works with Deccan catchment.

(23) PARSUL TANK.

127. This is a small tank built on the Parsul River. It is solely dependent on local rain which generally suffices for the monsoon, kharif and part of the rabi area. The tank supply was sufficient for the irrigation on this system. The realignment and remodelling of water-courses and head regulators to Umrana Right Bank Canal is in progress. This will much improve the distribution of water for the irrigation on this system.

128. The tank received its first replenishment on the 19th June 1915, on which date the R. L. was 1,861.58. Water flowed over the waste-weir on 28th

September 1915 at 1,876.78 R. L., i. e., 35.40 feet above the outlet sill level, which is at R. L. 1,841.38, and the discharge continued for 27 days. The maximum depth of water over the weir was 0.40 feet.

129. The following table shows the **area irrigated, water rates levied, gross assessed revenue, working expenses, etc.,** of the year with the average figures for the previous three years:—

Area irrigated in acres.		Assessment.		Gross assessed revenue.		Working expenses.		Realizations.		Rainfall in inches.	
1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.	1915-16.	Average of past 3 years.
Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
1,336	1,179	6,191	5,041	6,443	5,139	3,133	1,474	5,204	3,591	16.13	14.31

130. The following table gives the run-off during 1915 from the catchment of this tank:—

Name of catchment.	Area in square miles.	Actual run-off in million c. ft.	Equivalent run-off in inches.
Parsul Tank	17.75	341.24	8.24

131. The total refund of revenue made during the year amounted to Rs. 27; there were no remissions.

132. The actual cost of measuring the crops amounted to Rs. 146-2-0, which works out to one anna and nine pies per acre. The figure for the last year was one anna and ten pies.

SHOLAPUR DISTRICT.

Storage works with Deccan catchment.

EKRUK TANK.

133. At the beginning of the year the water level in this tank was 28.65 feet above the outlet of the perennial canal and the contents were 1,650.82 million cubic feet of water. The water level continued to fall during the dry weather till it reached 25.72 feet above the sill on the 23rd June 1915, representing 1,314.30 million cubic feet of water. It then began to rise and the waste-weir overflowed from 28th September to 5th November 1915. The maximum depth over the crest of waste-weir was 1 foot. The mean rainfall gauged at the five stations in the catchment of 159 square miles from 1st June to 31st October 1915 was 26.39 inches. The total replenishment received was 3,657.45 million cubic feet, the proportion of run-off to rainfall over the catchment being 37 per cent.

134. The total area irrigated during the year was 2,936 acres against 3,234 acres, the preceding 3 years' average. The decrease is due to less demand for water owing to good rains.

135. The gross assessed revenue amounted to Rs. 82,248 against Rs. 80,658, the preceding three years' average. The increase is due to the large consumption of water by the Sholapur Municipality.

136. The working expenses amounted to Rs. 13,917 against Rs. 16,049, the preceding three years' average.

KOREGAON TANK.

137. The tank had 6.60 feet of water above the outlet at the beginning of the year, representing 38.73 million cubic feet. The water level continued to fall until the 23rd June 1915,

Rainfall and Storage.

when the level was 3.35 feet above the sill, representing a volume of 19.21 million cubic feet. It then began to rise and the waste-weir overflowed from 21st September to 26th October 1915. The maximum depth of water over the waste-weir was 0.80 feet. The rainfall gauged at Koregaon from 1st June to 31st October 1915 was 33.85 inches which gave a total replenishment of 224.87 million cubic feet. The proportion of run-off to the total rainfall over the catchment of 7 square miles was 40 per cent.

138. The **area irrigated** was 614 acres against 264 acres, the preceding three years' average. The increase was due to sufficient water being available to meet requirements during the rabi season.

139. The **gross assessed revenue** was Rs. 3,167 against Rs. 1,390, the preceding three years' average.

140. The **working expenses** amounted to Rs. 959 against Rs. 1,831, the preceding three years' average.

ASHTI TANK.

141. The level of water on the 1st April 1915 was 8.77 feet above the sill of outlet. The tank received replenishment and overflowed from 3rd to 23rd October 1915. There was no keen demand for kharif irrigation owing to the seasonable rainfall. The mean rainfall gauged at the two stations in the catchment of 92 square miles was 24.66 inches, giving a replenishment of 1,684.09 million cubic feet, the proportion of run-off to the total rainfall on the catchment being 32 per cent.

142. The **area irrigated** was 3,043 acres against 3,254 acres, the average of the previous three years. The decrease is due to water not being required for irrigation owing to the seasonable rainfall.

143. The **gross assessed revenue** amounted to Rs. 16,607 against Rs. 23,706, the previous three years' average. The decrease is due partly to less demand for water and partly to the fact that a very small quantity of wood in the tank contour could be sold on account of water submerging the trees.

144. The **working expenses** amounted to Rs. 7,052 against Rs. 7,357; the previous three years' average.

PATHRI TANK.

145. The level of water in the tank was 26.35 feet above the sill of outlet at the beginning of the year, representing a volume of 264 million cubic feet. The lowest level reached was 24.13 feet on 19th June 1915, since when the tank began to receive replenishment till it rose to the full supply level, viz., 31.5 feet over sill, and the waste-weir overflowed from 8th September to 2nd November 1915. The mean rainfall gauged at the two stations in the catchment of 27.5 square miles was 28.95 inches which gave a total replenishment of 979.47 million cubic feet, the proportion of run-off to the total rainfall being 52 per cent.

146. The **area irrigated** was 1,476 acres against 1,661 acres, the average of the preceding triennium. The decrease is due to seasonable rainfall.

147. The **gross assessed revenue** amounted to Rs. 7,063 against Rs. 7,951, the average of the previous triennium.

148. The **working expenses** amounted to Rs. 3,462 against Rs. 2,272, the average of the preceding three years. The increase is due to the execution of some unusual items of work during the year.

AHMEDNAGAR DISTRICT.

Storage works with Deccan catchment.

BHATODI TANK.

149. The tank is on the Mehekari River, about 12 miles from Ahmednagar. It is a small tank, with a capacity at F. S. L. of 92.70 million cubic feet, and depends solely on local rain for its supply, which generally suffices for the monsoon and a part of the rabi season. The tank was empty until 16th

May 1915, when it received its first replenishment, the water rising to R. L. 80'40. The highest level of water in the tank was 90'50, viz., $25\frac{1}{2}$ feet above the outlet sill (R. L. 70'00) or $4\frac{1}{2}$ feet below the top of the masonry dam (R. L. 100'00) on 7th September 1915. Water was flowing over the waste-weir from 16th July to 14th November 1915. After meeting the demands of rabi season the tank level on 31st March 1916 was at R. L. 90'60.

150. The area irrigated, gross assessment from all sources and working expenses are given below in comparison with the average of the three preceding years:—

Name of tank.	Area irrigated.						Total gross assessment from all sources.		Working expenses.		Rainfall.	
	Kharif.		Rabi.		Total.		1915-16.	Average of the past 3 years.	1915-16.	Average of the past 3 years.	1915-16.	Average of the past 3 years.
	1915-16.	Average of the past 3 years.	1915-16.	Average of the past 3 years.	1915-16.	Average of the past 3 years.						
1	2	3	4	5	6	7	8	9	10	11	12	13
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
Bhatodi ...	14	295	1,007	382	1,021	677	8,684	5,613	3,251	2,783	29.39	19.08

The results of the year were better than the average.

EAST KHANDESH DISTRICT.

Works without storage but on a river with Ghat catchment.

(22) JAMDA CANALS.

151. On the 1st April 1915 the discharge of the river Girna, which feeds the Jamda Canals, was 103'88, and on 13th March 1915 the highest discharge was 187'45, the supply being supplemented by water from Chankapur Tank, in the Nasik District, from time to time.

152. The subjoined statement shows area irrigated compared with the average of the preceding three years and the corresponding assessments and working expenses:—

1	Area irrigated.						Assessment.						Gross assessed revenue.	Working expenses, direct and indirect.		
	Kharif.		Rabi.		Total.		Kharif.		Rabi.		Total.					
	1915-16.	Average of the 3 preceding years.	1915-16.	Average of the 3 preceding years.	1915-16.	Average of the 3 preceding years.	1915-16.	Average of the 3 preceding years.	1915-16.	Average of the 3 preceding years.	1915-16.	Average of the 3 preceding years.				
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	Acres.	Acres.	Acres.	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
	785	1,410	1,368	1,181	2,153	2,591	6,205	5,323	2,968	2,877	9,193	8,200	12,058	10,786	9,675	11,238

153. Owing to timely and sufficient rainfall in the early part of the monsoon the demand for kharif irrigation was less than usual, resulting in a decrease in the area irrigated. The increase in the assessment was due to growth of high-rated crops on a larger scale. The increase in miscellaneous revenue was due to handsome sale-proceeds of canal produce owing to good rainfall.

154. The cost of measurement per acre irrigated was 6.5 pies nearly.

Storage works with Deccan catchment.

HARTALA TANK.

155. On 1st April the contents of the Hartala Tank were 96.00 million cubic feet which decreased to 59.42 million cubic feet by 24th June, after which date the tank received replenishment, ultimately overflowing on 26th August. The waste-weir was overflowing till 28th October 1915 with small and occasional variations in the levels. The storage by the end of the year decreased to 92.03 million cubic feet against the full storage of 134.87 million cubic feet.

Supply of water.

MHASWA TANK.

156. On 1st April 1915 the contents of the Mhaswa Tank were 70.19 million cubic feet which decreased to 26.83 million cubic feet by 24th June. From the next day the replenishment began. The tank was full on 9th October 1915 but it did not overflow owing to the new revolving gates designed to retain about 1 foot height of water above the waste-weir.

Supply of water.

157. The following table shows the rainfall and storage of the Hartala and Mhaswa Tanks :—

Tanks.		Rainfall, June to October.	Full supply storage.	Maximum storage reached during the year.	Storage on 31st October 1915.
		Inches.	M. c. ft.	Full	M. c. ft.
Hartala	...	40.65	134.87	Full	133.84
Mhaswa	...	24.17	153.05	Full	137.30

158. The area irrigated during the year compared with the average of the preceding three years and corresponding assessment and working expenses are given in the statement below :—

Tank.	Area irrigated.						Assessment.						Gross assessed revenue.	
	Kharif.		Rabi.		Total.		Kharif.		Rabi.		Total.		1915-16.	Average of the preceding years.
	1915-16.	Average of the 3 preceding years.	1915-16.	Average of the 3 preceding years.	1915-16.	Average of the 3 preceding years.	1915-16.	Average of the 3 preceding years.	1915-16.	Average of the 3 preceding years.	1915-16.	Average of the 3 preceding years.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Hartala	20	34	92	33	112	67	109	41	187	69	296	110	606	974
Mhaswa	60	156	695	471	755	627	252	206	1,421	970	1,473	1,176	5,037	2,076

WEST KHANDESH DISTRICT.

Works depending on river supply from Ghat catchment supplemented by a tank with a Deccan catchment.

LOWER PANJHRA RIVER WORKS.

159. These works are mainly fed by the Panjhra River, supplemented by the Mukti Tank storage when the river supply decreases.

Sources of water supply.

160. On 1st April 1915 the contents of the Mukti Tank were 243.70 million cubic feet which decreased to 186.07 million cubic feet on 23rd June 1915. It received the first replenishment on 24th June, raising the storage to 203.33 million cubic feet, but the maximum supply, viz., 324.28 million cubic feet was not reached till 12th

Storage.

October 1915 on which date the flow over the waste-weir commenced. Owing to timely and copious rain there was no demand for tank water for kharif crops. After meeting the demands of the kayam bagayat and dry-crop lands there was a balance of 188'66 million cubic feet on 31st March 1916 to meet the requirements in the hot season.

161. The rainfall was 19'20 inches and was confined to the kharif season as in 1914-15.

162. The following table shows the area irrigated during the year, the assessment and the working expenses compared with the average of the previous three years:—

	Area irrigated.						Assessment.						Revenue from other sources.		Working expenses.	
	Kharif.		Rabi.		Total.		Kharif.		Rabi.		Total.		1915-16.	Average of the past 3 years.	1915-16.	Average of the past 3 years.
	1916-16.	Average of the past 3 years.	1915-16.	Average of the past 3 years.	1915-16.	Average of the past 3 years.	1916-16.	Average of the past 3 years.	1916-16.	Average of the past 3 years.	1915-16.	Average of the past 3 years.				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LOWER PANJHRA RIVER WORKS.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	R
Mukti Tank.																
Patasthal lands...	1,539	1,487	273	327	1,812	1,814	7,597	6,735	755	1,617	8,352	8,352	...	...	...	...
Jirayat lands ...	259	175	654	417	1,113	592	660	797	3,485	1,925	4,145	2,722	1,728	1,418	6,473	11,629
Total ...	1,798	1,662	1,127	744	2,925	2,406	8,257	7,532	4,240	3,542	12,497	11,074	1,728	1,418	6,473	11,629

163. The area under patasthal is almost the same, but that under jirayat has considerably increased and exceeded not only the average of the last three years but also that of the last 10 years.

164. The revenue from patasthal land is fixed under the survey settlement. The increase under jirayat is due to good area irrigated in the rabi season. The revenue derived from other sources is less than that of the last year, viz., Rs. 2,023, but it exceeds the average of the past three years. The decrease is mainly due to less demand for grass in the tank limits.

165. The cost of measurements of land irrigated during the year amounted to Rs. 10-5-5 which gives a rate of Re. 0-1-0 per acre.

SATARA DISTRICT.

(15) KRISHNA CANAL.

(Supply : River with Ghat Catchment.)

166. On the improvements to increase the storage capacity of the pool above Khodsi weir an expenditure of Rs. 991 was incurred in connection with the construction of the buttress wall and the raising of the curved portion of the existing weir. The work of fixing falling shutters for the crest remains to be completed. The total expenditure to end of the year under report is Rs. 57,526.

167. The rainfall gauged at Retre Budruk was less than that of the previous year and more than the average of past ten years:—

Year.				Kharif.	Rabi.	Total.
				Inches.	Inches.	Inches.
1914-15	...	...	...	32'80	6'12	38'92
1915-16	...	...	...	28'54	3'64	32'18
Average of previous ten years	...	...	...	.....	.....	27'16

168. The **supply in the river**, as gauged in April 1915, was 399 cusecs. It decreased to 153 cusecs in May 1915. It, however, increased to 4,597 cusecs in June and reached its maximum in July when it measured 10,600 cusecs. The supply decreased steadily during the following months until it was 60 cusecs in March 1916.

169. The **area irrigated** during the year was 3,424 acres and assessment Rs. 71,201 against 3,573 acres and Rs. 51,743 in the previous year and 4,035 acres and Rs. 44,855, the average figures of the previous three years. The increase in the assessment is due mainly to an extension of the plantation of sugarcane.

170. The **working expenses**, including direct and indirect charges, amounted to Rs. 13,959 or to Rs. 4.08 per acre against Rs. 3.45 of the previous year and Rs. 2.78, the average of the previous three years.

171. Deducting working expenses, the **net profit** of the year was Rs. 68,276 compared with Rs. 40,555 of the previous year and Rs. 35,625, the average of the previous three years.

(32) REWARI CANAL.

(Deccan Catchment.)

172. The **rainfall** gauged at Rewari during the year was greater than that of the previous year and the average:—

Year.	Kharif.	Rabi.	Total.
	Inches.	Inches.	Inches.
1914-15	27.95	1.65	29.60
1915-16	31.67	2.35	34.02
Average of previous ten years ... ..	.....	.....	25.14

173. The **area irrigated** was 951 acres and the **assessment** Rs. 5,939 against 1,199 acres and Rs. 5,754 of the previous year and 1,076 acres and Rs. 4,906, the corresponding averages of the previous three years. As compared with the previous year there was an increase of 87 acres in the kharif area but copious rains during the rabi season caused a decrease in the area which used canal water.

174. The **working expenses**, direct and indirect, amounted to Rs. 2,014 against Rs. 2,320 of the previous year and Rs. 2,133, the average of the previous three years.

175. The operations of this year showed a **net profit** of Rs. 4,034 compared with Rs. 3,503 of the previous year and Rs. 3,070, the average of the previous three years.

(33) UPPER MAN RIVER WORKS.

(Deccan Catchment.)

176. The **rainfall** gauged at Gondwla was greater than that of the previous year and the average:—

Year.	Kharif.	Rabi.	Total.
	Inches.	Inches.	Inches.
1914-15	14.34	1.30	16.14
1915-16	15.17	2.03	17.20
Average of previous ten years ... ..	.....	.....	16.44

177. In the beginning of the year the supply in the Pingli Tank was only 47 million cubic feet. It gradually subsided till the tank became dry on the 21st August 1915. No replenishment was received until the 8th September 1915, when the supply increased gradually until the tank overflowed on 2nd October. This very unusual occurrence, so far as this tank in East Satara is concerned, is due chiefly to the clearing of a feed channel. The quantity of water remaining in the tank on 31st March 1916 was quite substantial.

178. The area irrigated was 876 acres and the assessment Rs. 3,666 as compared with 958 acres and Rs. 4,034 in the previous year and 949 acres and Rs. 3,769, the average of the previous three years.

179. The working expenses, including direct and indirect charges, amounted to Rs. 1,946 against Rs. 4,365 in the preceding year and Rs. 2,725, the average of the previous three years.

180. The operations of the year show a net profit of Rs. 1,920 against Rs. 1,848, the average of the previous three years.

(34) YERLA RIVER IRRIGATION WORKS.

(Deccan Catchment.)

181. The rainfall gauged at Khatgun was less than that of the previous year but greater than the average:—

Year.	Kharif.	Rabi.	Total.
	Inches.	Inches.	Inches.
1914-15	25.60	2.42	28.02
1915-16	25.38	1.86	27.24
Average of previous ten years	.....	.....	24.25

182. On 31st March 1915 Nehr Tank held 191 million cubic feet and by the 16th June this had fallen to 122 million cubic feet. In the month of June small replenishments began to be received and on the 28th July 1915 the tank overflowed. The supply in the tank on 31st March 1916 was 290 million cubic feet.

183. The area irrigated and the assessment were respectively 4,003 acres and Rs. 17,256 against 4,110 acres and Rs. 18,296 of the previous year and 4,982 acres and Rs. 20,171, the average figures of the previous three years.

184. The working expenses, including direct and indirect charges, amounted to Rs. 13,339 against Rs. 26,311 of the previous year and Rs. 14,902, the average of the previous three years.

185. The result of the year's operations was a net profit of Rs. 5,792 against Rs. 6,616, the average of the previous three years.

(35) CHIKHLI CANAL.

(Deccan Catchment.)

186. The rainfall gauged at Chikhli was less than that of the previous year but greater than the average:—

Year.	Kharif.	Rabi.	Total.
	Inches.	Inches.	Inches.
1914-15	26.66	1.83	28.49
1915-16	19.88	5.96	25.84
Average of previous ten years	.....	.....	20.98

187. The area irrigated and the assessment were 232 acres and Rs. 1,738 respectively against 396 acres and Rs. 1,902 of the previous year and 355 acres and Rs. 1,599, the average figures of the previous three years.

188. The working expenses, including direct and indirect charges, amounted to Rs. 855 against Rs. 2,605 of the previous year and Rs. 1,382, the average of the previous three years.

189. The operations of the year showed a net profit of Rs. 1,046 against Rs. 541, the average of the previous three years.

(36) MAINI TANK.

(Deccan Catchment.)

190. The rainfall gauged at Maini was greater than that of the previous year and the average :—

Year.	Khariſ.	Rabi.	Total.
	Inches.	Inches.	Inches.
1914-15	18.66	2.26	20.92
1915-16	20.02	2.24	22.26
Average of previous ten years	.....	.....	22.03

191. The water in the Maini Tank had almost disappeared by the 19th June but thereafter it increased steadily until the tank overflowed on 11th September.

192. The area irrigated was 1,743 acres and assessment Rs. 7,153 against 1,789 acres and Rs. 7,196 of the previous year and Rs. 1,826 acres and Rs. 7,303, the average of the previous three years.

193. The working expenses, direct and indirect, amounted to Rs. 2,817 against Rs. 2,671 of the previous year and Rs. 2,694 the average.

194. The result of the year's operations was a net profit of Rs. 4,414 compared with Rs. 5,080 which is the average.

BIJAPUR DISTRICT.

(37) MUCHKUNDI TANK.

(Deccan Catchment.)

195. The rainfall gauged at Muchkundi was greater than usual :—

Year.	Khariſ.	Rabi.	Total.
	Inches.	Inches.	Inches.
1914-15	9.18	2.35	11.53
1915-16	16.67	3.62	20.19
Average of previous ten years	.....	.....	15.73

196. The tank was dry until 14th July when rain fell and by the 19th it reached sluice sill level. On 9th November the water level in the tank was at its maximum height for the season and that was only 6 feet above sill level which, in the case of this tank, is almost useless for irrigation purposes.

197. The concession of the free grant of water from the tank has been extended for a further period of five years by Government Resolution No. A.I.-3685, dated the 27th March 1914.

198. The **working expenses** of the year amounted to Rs. 316 against Rs. 281 of last year and Rs. 266, the average of the previous three years.

199. The result of the year's operations was a **net profit** of Rs. 1,192 (which was entirely due to receipts from canal produce, such as grass) as compared with Rs. 983 of last year and Rs. 940, the average of the previous three years.

DHARWAR IRRIGATION DISTRICT.

(40) DAMBAL TANK.

(Deccan Catchment.)

200. The **rainfall** gauged was greater than that of the previous year and the average:—

Year.				Kharif.	Rabi.	Total.
				Inches.	Inches.	Inches.
1914-15	...	...	...	9.64	2.97	12.61
1915-16	...	...	...	16.03	4.64	20.67
Average of previous ten years				.....	.....	15.53

201. The tank was dry from 1st April to 12th June. Subsequently timely replenishments gave a satisfactory supply of water to the end of the year.

202. The **area irrigated** and the **assessment** were 72 acres and Rs. 325 respectively against 5 acres and Rs. 25 of last year and 95 acres and Rs. 262, the average of the previous three years.

203. Compared with the average, the decrease in the irrigated area and the increase in the assessment were due respectively to less demand for water on account of timely rainfall and increase in the water rates.

204. The **area of irrigated lands assessed at consolidated rates** was 144 acres and the irrigation share of revenue was Rs. 916.

205. The **working expenses**, including direct and indirect charges, amounted to Rs. 1,259 against Rs. 802 of last year and Rs. 918 the average.

206. The operations of the year resulted in **net profit** of Rs. 219 against Rs. 1,019 of the previous year and Rs. 985 the average.

(41) MEDLERI TANK.

(Deccan Catchment.)

207. The **rainfall** gauged was slightly greater than that of the previous year but less than the average:—

Year.				Kharif.	Rabi.	Total.
				Inches.	Inches.	Inches.
1914-15	...	...	...	8.27	3.05	11.32
1915-16	...	...	...	9.20	2.44	11.64
Average of previous ten years				.....	.....	12.20

208. The water was below the outlet sill by the end of January 1915. The tank received replenishments in the month of June and thereafter until the end of the year water was available therefrom.

209. The area irrigated and the assessment respectively were 72 acres and Rs. 528 against 46 acres and Rs. 466 of last year and 64 acres and Rs. 467, the average of the previous three years. The increase in the area and assessment was due to a good supply of water in the tank.

210. The working expenses amounted to Rs. 919 against Rs. 1,183 of last year and Rs. 1,262, the average of the previous three years.

211. The operations of the year showed a net deficit of Rs. 140.

(42) ASUNDI TANK.

(Deccan Catchment.)

212. The rainfall gauged was less than that of the previous year but slightly greater than the average:—

Year.	• Kharif.	Rabi.	Total.
	Inches.	Inches.	Inches.
1914-15	16·37	9·09	25·46
1915-16	18·44	3·71	22·15
Average of previous ten years ✓	.....	.....	21·51

213. On 1st April 1915 the tank had 4·80 feet of water above the sill. The tank received small replenishments at intervals. The heavy rains of 29th July 1915 filled the tank and water overflowed the waste-weir for about two days. On 25th October 1915 the level of water was 8·50 feet above the sill. It then gradually fell until it was 4·02 feet above the sill on 31st March 1916.

214. The area irrigated and the assessment were respectively 130 acres and Rs. 655 against 136 acres and Rs. 590 of last year and 131 acres and Rs. 575, the average of the previous three years. The area being almost equal to that of the previous year and the average calls for no remark. The increase in the assessment is due to the irrigation of a large area of high-rated crops.

215. The area irrigated under consolidated assessment was 190 acres and the irrigation share of revenue was Rs. 687 or Rs. 3·62 per acre.

216. The working expenses amounted to Rs. 1,127 against Rs. 1,355 of last year and Rs. 1,336, the average of the previous three years.

217. The year's operations resulted in a net profit of Rs. 245 against Rs. 56 of last year.

(43) MADAG TANK.

(Ghat Catchment.)

218. The rainfall gauged was less than that of the previous year and the average:—

Year.	Kharif.	Rabi.	Total.
	Inches.	Inches.	Inches.
1914-15	24·59	5·11	29·70
1915-16	16·04	5·08	21·12
Average of previous ten years	.....	.....	25·99

219. The tank had a satisfactory supply throughout the year. The maximum depth of water that passed over the waste-weir was 8·73 feet on 1st August 1915.

220. The **area irrigated** was 514 acres as compared with 532 acres of the last year and 610 acres, the average of the previous three years, the assessment being Rs. 2,041 against Rs. 1,981 and Rs. 2,263, the corresponding figures of the previous year and the average. The decrease in the area was due to less demand for water on account of timely rainfall.

221. The **working expenses** amounted to Rs. 1,984 against Rs. 4,565 of last year and Rs. 3,264, the average of the previous three years.

222. The operations of the year resulted in a **net profit** of Rs. 320.

(44) MAYINKOP TANK.

(*Forest Catchment.*)

223. On the 1st April 1915 there was about three feet of water in the tank, and this was not increased until towards the end of June when the rains had become established.

224. The whole of the **irrigated area** which was 597 acres is **assessed at consolidated rates**, the irrigation share of which was Rs. 2,244.

225. The **working expenses** amounted to Rs. 823 against Rs. 670 of the last year and Rs. 718, the average of the previous three years.

226. The operations of the year showed a **net profit** of Rs. 1,421 against Rs. 1,589 of the last year and Rs. 1,541, the average of the previous three years.

(45) DHARMA CANAL.

227. The **rainfall** at Yekambi, which is in the catchment of Dharma River, was less than that of the previous year and also less than the average:—

Year.	Kharif.	Rabi.	Total.
	Inches.	Inches.	Inches.
1914-15	107.00	7.02	114.02
1915-16	70.45	7.46	77.91
Average of previous six years	.....	.....	79.78

228. Water was admitted into the canal on the 4th July and it flowed until the 30th November 1915.

229. The **area irrigated** during the year at crop rates was 522 acres against 618 acres of the previous year, the **assessment** being Rs. 2,690 as compared with Rs. 3,133, the corresponding figure of the last year.

230. The **area assessed at consolidated rates** was 7,861 acres and the irrigation share of revenue was Rs. 18,195.

231. The total revenue from all sources amounted to Rs. 21,003 against Rs. 21,440 in the previous year.

232. The **working expenses** amounted to Rs. 2,524 as compared with Rs. 1,267 of the previous year.

BELGAUM DISTRICT.

(38) GADIKERI TANK.

(*Ghat Catchment.*)

233. The management of this tank is in the hands of the Revenue Department.

234. The **area irrigated** during the year was 377 acres and the irrigation share of the consolidated assessment amounted to Rs. 2,061.

235. The **working expenses**, direct and indirect, were Rs. 343 against Rs. 341 of last year and Rs. 345, the average of the previous three years.

236. The result of the year's operations was a **net profit** of Rs. 1,718 as compared with Rs. 1,720 of last year and Rs. 1,716, the average of the past three years.

(39) GOKAK CANAL.

First Section and Storage Works.

237. The **rainfall** gauged at Dhupdal was less than that of the previous year but slightly greater than the average:—

Year.				Kharif.	Rabi.	Total.
				Inches.	Inches.	Inches.
1914-15	...	...	...	21.99	2.99	24.98
1915-16	...	...	...	16.23	5.45	21.68
Average of previous ten years				.....	.....	20.57

238. The water in Dhupdal Reservoir reached its lowest level on the 26th May 1915, when it stood at 18 feet above the outlet sill. Thereafter the tank had small replenishments until it overflowed on the 26th June. The maximum flood of the year occurred on the evening of the 29th July, when the level in the tank stood nearly 4 feet above the weir crest.

239. As has been customary for some years past the usual work of building a temporary wall two feet high on the crest of the weir was carried out in January at a cost of Rs. 1,451 and the additional water thus impounded was usefully utilized.

240. From 18th January to 3rd May 1915 the Gokak Mills were given a discharge of 130 cubic feet instead of the usual discharge of 146 cubic feet per second for 13 hours a day: this at the request of the Manager. During the year under report the mills obtained all the water required for power purposes there.

241. The **area irrigated** during the year and the **assessment** thereon were 4,666 acres and Rs. 24,304 respectively against 6,462 acres and Rs. 30,576 of last year and 8,640 acres and Rs. 38,132, the average of the previous three years. The decrease is due to a falling off in the demand for water on account of seasonable rainfall.

242. The area cultivated in the tank bed during the year and the assessment thereon were 147 acres and Rs. 630 respectively against 229 acres and Rs. 1,077 of last year and 307 acres and Rs. 1,320, the average of the previous three years. The decrease in the area and assessment was due to the water in the tank not receding at the usual time.

243. The **working expenses**, including direct and indirect charges, amounted to Rs. 10,998 against Rs. 11,354 of last year and Rs. 12,549, the average of the previous three years.

244. The result of the year's operations was a **net profit** of Rs. 31,401 as compared with Rs. 36,716 of the last year and Rs. 43,639, the average of the previous three years.

PART II.

COMPRISING SECOND CLASS IRRIGATION WORKS FOR WHICH ONLY REVENUE ACCOUNTS ARE KEPT—AND AGRICULTURAL WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE ACCOUNTS ARE KEPT.

GENERAL REMARKS.

245. The following table gives a general comparison of the financial results of Second Class Irrigation Works for which only Revenue Accounts are kept, for the year under report, with those for 1914-15:—

	1914-15.	1915-16.	Increase.	Decrease.
	Acres.	Acres.	Acres.	Acres.
Area irrigated	49,809	35,903	.....	13,906
	Rs.	Rs.	Rs.	Rs.
Revenue Receipts	2,15,892	1,32,417	.....	83,475
Expenditure	3,65,256	2,90,333	.....	74,923

246. The details of expenditure on this class of works are as follows:—

	Expenditure.		Comparison.	
	1914-15.	1915-16.	Increase.	Decrease.
	Rs.	Rs.	Rs.	Rs.
Extensions and Improvements...	1,01,234	76,426	.....	24,858
Maintenance and Repairs ...	1,38,666	99,800	.....	38,866
Establishment	94,738	91,477	.....	3,261
Tools and Plant	9,194	9,706	512	.....
Total ...	3,43,882	2,77,409	.....	66,473
Share of collection charges ...	21,374	12,924	.....	8,450
Total ...	3,65,256	2,90,333	.....	74,923

247. The following table shows the areas irrigated in the different districts in the Deccan and Gujarat and the consolidated revenue assessed during the year 1915-16 in respect of irrigation works on which expenditure has been incurred during the year:—

Collectorate.	Number of works.	Area irrigated.	Revenue.			Remarks.
			Irrigation share.	Land share.	Total.	
		Acres.	Rs.	Rs.	Rs.	
(a) Ahmedabad ...	79	2,493	1,236*	5,472	6,708	(a) Works in charge of Gujarat Irrigation.
(a) Kaira ...	90	7,824	5,511†	17,287	22,798	* Includes Rs. 6 on account of "Water Rates—Direct Receipts."
(a) Panch Mahals ...	41	170	1,149‡	190	1,339	† Do. Rs. 271 do.
Surat ...	15	771	1,735	8,556	10,291	‡ Do. Rs. 709 do.
Brbachi ...	...	...	...	...	...
West Khandesh ...	22	3,398	24,745§	6,561	31,306	§ Includes Rs. 924 on account of "Water Rates—Direct Receipts."
East Khandesh ...	1	372	2,175	999	3,174	
(b) Nasik ...	27	4,210	32,433	4,533	37,016	(b) Works in charge of Nasik and Ahmednagar Irrigation District.
Ahmednagar ...	1	76	200	61	261	
Poona ...	1	427	2,403	917	3,320	
Satara ...	...	...	...	...	...
Belgaum ...	58	8,027	9,298	2,324	11,622	
Dharwar ...	87	10,212	40,737	10,194	50,931	
(c) Kanara ...	29	2,563	6,019	1,504	7,523	(c) Works in charge of the Irrigation District, Dharwar.
Bijapur ...	3	54	246	175	421	
Ratnagiri ...	2	316	1,324	46	1,370	
Total ...	456	35,903	1,29,211 (d)	58,869	1,88,080	

(d) Direct Receipts—	Rs.
Water Rates ...	1,910
Indirect Receipts ...	1,27,301
	<u>1,29,211</u>

248. The actual expenditure and receipts for the year 1915-16 on the works referred to in paragraph 247 were as follows :—

Collectorate.	EXPENDITURE.								ACTUAL RECEIPTS.						
	Direct Charges.								Direct Receipts.			Indirect Receipts.	Grand Total, Direct and Indirect Receipts.	Less Refund of Revenue.	Gross Receipts Less Refunds.
	Extensions and Improvements.	Maintenance and Repairs.	Establishment.		Tools and Plant.	Total.	Share of Collection Charges.	Grand Total.	Water Rates from Irrigation.	Miscellaneous.	Total Direct Receipts.	Share of Consolidated Revenue.			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ahmedabad	Rs. 8,554	Rs. 21,884	Rs.	Rs.	Rs.	Rs.	Rs. 124	Rs.	Rs. 6	Rs. 60	Rs. 66	Rs. 1,230	Rs. 1,296	...	Rs. 1,296
Kaira	50,445	11,448	} 4,376	} 36,051	} 1,982	} 1,48,985	} 571	} 1,49,795	} 271	} 1,152	} 1,423	} 5,240	} 6,663	} ...	} 6,663
Panch Mahals	13,406	839													
Surat	.....	2,224	90	418	80	2,762	174	2,936	...	1,136	1,136	1,735	2,871	...	2,871
Broach	.....	.....	...	...	...	...	...	.....	...	...	.....	.....	.....	...	...
West Khandesh	2,078	8,492	474	1,816	113	12,973	2,428	15,401	924	...	924	23,821	24,745	...	24,745
East Khandesh	.....	78	4	61	1	144	217	361	...	...	.....	2,175	2,175	...	2,175
Nasik	1,671	16,721	791	9,776	5,449	34,403	3,243	37,651	...	...	.....	32,433	32,433	...	32,433
Ahmednagar	.....	505	23	86	7	621	20	641	...	...	.....	200	200	...	200
Poona	.....	4	...	1	...	5	240	245	...	...	.....	2,403	2,403	...	2,403
Satara	.....	.....	...	...	...	...	...	.....	...	...	.....	.....	.....	...	...
Bulgaum	219	9,569	219	825	73	10,905	935	11,840	...	54	54	9,298	9,352	...	9,352
Dharwar	53	27,476	1,221	55,107	2,043	65,900	4,098	69,998	...	266	266	40,737	41,003	...	41,003
Kanara	.....	.....	...	...	...	...	602	602	...	...	.....	6,019	6,019	...	6,019
Bijapur	.....	487	18	94	6	555	25	580	...	...	.....	246	246	...	246
Ratnagiri	.....	123	5	21	2	151	132	283	...	...	.....	1,324	1,324	...	1,324
Total	76,426	99,800	7,221	84,256	9,706	2,77,409	12,924	2,90,333	1,910	3,206	5,116	1,27,301	1,32,417	...	1,32,417

249. The whole area of irrigation and revenue due from Second Class Irrigation Works in the Deccan and Gujarat as recorded in the register of these works is 249,532 acres and 9,27,083 rupees with the exception of districts for which lists are not prepared. The figures will be modified when new or revised lists are issued.

DETAILED REPORTS BY DISTRICT OFFICERS.

WORKS FOR WHICH ONLY REVENUE
ACCOUNTS ARE KEPT.

GUJARAT IRRIGATION AND SURAT AND BROACH DISTRICTS.

250. During the year, there being no water in the river Khari at Pinglaj, there was no irrigation under the sluices; however, the water that was stored up in the Bokh Reservoir was partly utilized in filling the Gam-Tanks at Chanindra, Nawagam, Bareja, Jetalpur, Aslali and Narol, which proved of great use for village water supply as there was great scarcity of sweet water for drinking purposes everywhere, especially for cattle. The water was let down early in the season with a view to lay bare the bed for cultivation if no more rain fell and to reduce loss on account of absorption and evaporation in the Khari River bed which is generally very great in drought years. Both these objects were achieved and every drop of water was used to the best advantage, and for the first time it may be noted that the trickle of water, which could be obtained, was made available for 3 or 4 of the most important kalambandi villages, at least for drinking purposes, and the people were satisfied with the result. The sluices were maintained at a cost of Rs. 2,475, and Rs. 6,569 were spent on their improvements, making certain feed channels and providing certain masonry works and on maintenance and repairs to the Goblj Tank and Bherai Reservoir, etc.

251. The remissions granted by the Collector owing to the deficiency of water supply and the consequent failure of the rice crop amounted to Rs. 28,622.

252. The following table compares the area irrigated and the assessment levied with the average of the previous ten and three years:—

	Average of 10 years ending 1914-15.		Average of 3 years ending 1914-15.		1915-16.	
	Area.	*Revenue after deducting remissions.	Area.	*Revenue after deducting remissions.	Area.	*Revenue after deducting remissions.
	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
I.—Irrigation above the kalambandi villages ...	788	3,521	780	3,744	653	2,134
II.—Irrigation from tanks fed by the river Khari.	198	532	198	565	198	386
III.—Irrigation below the kalambandi villages ...	449	2,064	...	...	...†	...†
IV.—Irrigation from the Khari Sluices proper (i. e., 10 kalambandi villages) ...	6,843	32,009	6,617	35,227	†6,172	†16,801
	8,278	38,186	7,595	39,556	7,023	19,321

* Note (1).—The revenue is consolidated and exclusive of Inamdars' shares.

† Note (2).—Since the year 1912-13 no figures of irrigation are shown under the head "III.—Kalambandi villages," as the people of Kaloli (which is the only village coming under that head) objected to water-rates being levied as they received no water from the Khari River; and the water-rates amounting to Rs. 2,948 on 641 acres which had been assessed for over 20 years have been wholly remitted, and the village itself has been struck off the Canal Return VIII.

‡ Note (3).—The reduction in the area irrigated under the head "IV.—Irrigation from the Khari Sluices proper" is chiefly due to the abandonment of land assessed to himayat by some people at the time of the Revision Survey and also to 121 acres of land having been taken up in the Goblj Tank. The decrease in revenue under all the heads is due to scanty rainfall, as compared with the average of the three preceding years.

253. The assessment under the Khari Sluices proper, i. e., of the "kalambandi" villages being consolidated, the average rates per acre for land and water respectively were as under:—

		Irrigation share.	Land share.	Total consolidated.
		Rs. a. p.	Rs. a. p.	Rs. a. p.
Government land	... ..	1 2 7	2 4 11	3 7 6
Alienated land	... ..	0 6 4	0 12 8	1 3 0

254. During the year 224 old tanks, viz., 78 in Ahmedabad (inclusive of 13 Talukdari), 95 in Kaira, 38 in Panch Mahals and 13 in the Surat and Broach Districts, were either repaired or improved at a total cost of Rs. 1,03,478, while Rs. 5,322 were spent on surveys and preparation of plans and estimates for repairs or improvements to a number of similar tanks in the Ahmedabad and Kaira and Panch Mahals Collectorate. Out of the above works, 115 were completed, while repairs to the remainder were in progress. Some of the tanks repaired or improved in the Gujarat Irrigation District have been brought on to the list of tanks to be maintained by the Irrigation Department and others will be brought on as soon as their examination, which is going on in all the talukas with that object in view, is completed.

255. The area irrigated and the revenue derived from the old irrigation tanks and bunds are as under:—

District.	Area irrigated.	Revenue.		
		Irrigation share.	Land share.	Net consolidated assessment.
	Acres.	Rs.	Rs.	Rs.
Ahmedabad	4,652	1,290	13,442	14,732
Kaira	1,356	943	4,253	5,196
Panch Mahals	170	440	190	630
Surat	12,315	52,622	1,12,077	1,64,699
Broach	503	812	4,761	5,573
Total	18,996	56,107	1,34,723	1,90,830

POONA IRRIGATION DISTRICT.

256. The following table gives the area irrigated, the consolidated assessed revenue and the irrigation share thereof for the six irrigation works in the Poona Collectorate for which only Revenue Accounts are kept for the year 1915-16:—

Name of work.	Area irrigated.	Net consolidated revenue.		
		Irrigation share.	Land share.	Total.
	A. g.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Dam at Kasur	25 28	127 6 0	.....	127 6 0
Dam at Vadaj	150 33	517 10 0	.....	517 10 0
Dam at Agar	53 18	432 0 0	89 0 0	521 0 0
Dam at Narayangaon	427 17	2,403 2 0	917 1 0	3,320 3 0
Tank at Patas	...	No irrigation	from this tank.	
Vadhana Tank and Channel.	30 15	17 12 0	7 8 0	25 4 0
Total	687 31	3,497 14 0	1,013 9 0	4,511 7 0

257. During the year under report a sum of Rs. 115 was spent on repairs to the dam at Kasur, exclusive of establishment and tools and plant.

258. The following table shows the average area irrigated during the past three years and the revenue assessed on the works as compared with the figures of the year under report :—

Period.				Area irrigated.	Irrigation share of revenue.
				Acres.	Rs.
For the year 1915-16				688	3,493
Average of past three years				690	3,499

NASIK AND AHMEDNAGAR IRRIGATION DISTRICT.

259. The area irrigated and the revenue derived on lands irrigated by bandharas in the Nasik Collectorate, for which only Revenue Accounts are kept, were as shown below :—

Area irrigated.	Net consolidated revenue.		
	Irrigation share.	Land share.	Total.
Acres. 28,572	Rs. 1,73,420	Rs. 40,703	Rs. 2,14,123

260. Remissions amounting to Rs. 7,189 were granted by the Revenue Department during the year under review on account of short supply to certain bandhara thals.

261. The expenditure during the year on these works amounted to Rs. 18,392, exclusive of establishment and tools and plant charges.

262. The water supply in general was ample on account of timely and copious rainfall with the result that the harvest has been good in general.

263. The following table shows the average area irrigated during the past 3 years and the revenue assessed on works as compared with the figures of the year under report :—

Period.				Area irrigated.	Irrigation share of revenue.
				Acres.	Rs.
For the year 1915-16				28,572	1,73,420
Average of past three years				28,701	1,58,268

AHMEDNAGAR DISTRICT.

264. There are two second class works in the Akola Taluka, viz., the Savargaon and Gardani bandharas. A sum of Rs. 505 was spent on repairing the Savargaon channel.

265. The following statement shows the area irrigated and the gross assessed revenue as compared with the average for the past three years :—

Name of Bandhara.	During 1915-16.		Average of the past 3 years.	
	Area irrigated.	Gross revenue.	Area irrigated.	Gross revenue.
	Acres.	Rs.	Acres.	Rs.
Savargaon and Gardani ...	145	486	145	486

EAST KHANDESH DISTRICT.

266. The area irrigated and the revenue derived from each of the old second class irrigation works are shown below :—

No.	Name of work.	Area irrigated.	Revenue.		
			Irrigation share.	Land share.	Total.
		Acres.	Rs.	Rs.	Rs.
1	Patonda channel ...	132	796	313	1,109
2	Toli channel ...	70	557	151	708
3	Amalner channel ...	372	2,175	999	3,174
	Total ...	574	3,528	1,463	4,991

267. The irrigation share was Rs. 3,528 against Rs. 3,535 of the previous year. The outlay on these works was Rs. 140 as detailed below against Rs. 936 in the previous year :—

			Rs.
Extensions and Improvements ...	...	...	Nil.
Maintenance and Repairs ...	...	...	78
Establishment ...	...	...	61
Tools and Plant ...	...	...	1
	Total ...	...	140

WEST KHANDESH DISTRICT.

268. The area irrigated and the revenue derived from the old irrigation works are shown below :—

Years.	Area irrigated.	Revenue.		
		Irrigation share.	Land share.	Total.
	Acres.	Rs.	Rs.	Rs.
1915-16 ...	8,928	59,911	14,184	74,095
Average of previous three years.	9,010	54,657	14,023	68,680

269. These figures are exclusive of old irrigation on the Lower Panjhra River Works. The outlay on these works was Rs. 12,499 as detailed below against Rs. 12,425, the average of the previous three years :—

Description.	Expenditure.	
	Average of the previous three years.	1915-16.
	Rs.	Rs.
Extensions and Improvements ...	709	2,078
Maintenance and Repairs ...	9,755	8,492
Establishment ...	1,818	1,816
Tools and Plant ...	143	113
Total ...	12,425	12,499

270. The old works on the Lower Panjhra River consist of old bandharas and channels, viz. :—

Dhulia bandhara and channel.		
Nimkhedi	do.	do.
Japi	do.	do.
Nahalod	do.	do.
Kavtha	do.	do.
Betawad	do.	do.
Mandal	do.	do.
Mudhi	do.	do.

They are repaired from the annual provision of Rs. 3,000 made for Maintenance and Repairs of Lower Panjhra Works under "42.—Major Works."

271. Some extensive repairs to the following were undertaken and are still in progress :—

	Estimated amount.
	Rs.
Repairs to Upper Pankheda bandhara and channel	... 1,700
Repairs to Astana Bodri and Jirathal bandhara and channel	... 2,296
Repairs to Shenpur bandhara and channel	... 3,627
Repairs to Upper Dangshirwada bandhara and channel	... 2,042
Repairs to Lower Dangshirwada bandhara and channel	... 1,911

272. The irrigation under Shahada channel for dry-crop land amounted to Rs. 303 acres as compared with 281 acres, the average of the last three years.

SATARA DISTRICT.

273. There is only one second class work in this district, viz., Boregaon Dam, which served 102 acres with a **consolidated assessment** of Rs. 1,036, of which the **irrigation share** was Rs. 622. Nothing was spent on this work.

BIJAPUR DISTRICT.

274. There are altogether 16 second class works in this district, which irrigate a **total area** of 1,429 acres assessed at consolidated rates. During the year under report 1,191 acres were **irrigated**, the **consolidated assessment** being Rs. 7,875, of which Rs. 4,816 was the **irrigation share**. No expenditure was incurred on account of these tanks.

DHARWAR IRRIGATION DISTRICT.

275. The expenditure incurred during the year on repairs to the second class tanks in the Dharwar and Kanara Collectorates was Rs. 27,477.

276. The **area under command** of tanks irrigating more than Rs. 50 acres each and assessed at consolidated rates is 63,981 acres. During the year under report, 61,400 acres were **irrigated** against 61,192 acres of the previous year and the consolidated assessment was Rs. 2,16,028, out of which **remissions** to the extent of Rs. 1,486 were granted by the Collector because of shortage of water in some instances. The **net consolidated assessment** was thus Rs. 2,14,542, of which the **irrigation share** was Rs. 1,71,635.

BELGAUM DISTRICT.

277. The total number of second class tanks irrigating over 50 acres each in this district is 67 with an **irrigated area** of 9,916 acres, paying a **consolidated assessment** of Rs. 41,319, of which the **irrigation share** is Rs. 33,053.

278. A sum of Rs. 9,569 was spent during the year on repairs to some of these tanks.

RATNAGIRI DISTRICT.

279. There are four irrigation works in the Ratnagiri Collectorate, which irrigated 1,229 acres during the year. The consolidated assessment and irrigation share were Rs. 7,176 and Rs. 4,572 respectively. A sum of Rs. 123 was spent on maintaining two of the tanks.

AGRICULTURAL WORKS.

WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE
ACCOUNTS ARE KEPT.

GUJARAT IRRIGATION AND SURAT AND BROACH DISTRICTS.

280. All the drainage channels in the Surat and Broach and Gujarat Irrigation Districts worked satisfactorily and were maintained at a total cost of Rs. 4,939 and Rs. 3,537 respectively.

POONA IRRIGATION DISTRICT.

KHAMGAON TANK.

281. This partially completed tank was dry up to 24th June 1915, when it began to receive replenishment. During the year under report the tank overflowed twice, the overflow for the first time lasting for 40 days and for the second time for 21 days. The crest of the waste-weir is at R. L. 98 and the sill of the sluice is at R. L. 61—25. During the kharif season 29 acres were irrigated and during the rabi 78, the total area irrigated during the year being 107 acres and the gross assessed revenue Rs. 513. The tank dried up on 3rd June 1916.

SHOLAPUR DISTRICT.

WADSHIVNE TANK.

282. The tank was quite dry at the beginning of the year. The first replenishment of 4 feet of water was received on 16th July and further replenishment in September 1915 raised the water level to 10·25 feet above the sill of outlet, representing a volume of 68·03 million cubic feet. This storage was utilized for rabi irrigation. The rainfall gauged at the two stations in the catchment of 14·5 square miles was 18·67 inches, which gave a total replenishment of 81·12 million cubic feet, the proportion of run-off to the total rainfall in the catchment being 13 per cent. The waste-weir did not overflow.

283. The area irrigated was 215 acres against 374 acres, the average of the preceding three years.

284. The gross assessed revenue amounted to Rs. 1,203 against Rs. 2,132, the average of the preceding three years. The decrease is due to less demand of water for the rabi crops owing to seasonable rainfall.

285. The working expenses amounted to Rs. 771 against Rs. 1,359, the previous three years' average.

WEST KHANDESH DISTRICT.

TALWADA TANK.

286. The rainfall was 30·03 inches and was better than the average of 23·37 inches of the past three years.

287. On 1st April 1915 the contents of the tank were 76·04 million cubic feet and the first replenishment was received on 24th June, raising the contents from 46·27 million cubic feet (the lowest supply reached during the year) to 61·80 million cubic feet. The maximum supply received was 87·6 million cubic feet against F. S. L. of 117·22 million cubic feet which was reached in the preceding year.

288. The area irrigated was 381 acres and the revenue assessed Rs. 1,515 against 100 acres and Rs. 484 respectively of the previous three years' average.

Revenue Report of Irrigation Works in
the Bombay Presidency excluding Sind for
1915-16—Review of

GOVERNMENT OF BOMBAY.

PUBLIC WORKS DEPARTMENT.

Resolution No. W.I.—4939.

Bombay Castle, 11th May 1917.

Memorandum from the Superintending Engineer, Southern Division, No. 2503, dated 14th September 1916.

States that the Irrigation Revenue Report for the year 1915-16 is delayed for want of the Administrative Accounts due from the Accountant General, Bombay, who states that he will forward them to the Superintending Engineer on or about the 15th September 1916.

Letter from the Superintending Engineer, Central Division, No. 5653, dated 20th September 1916.

Submits the Irrigation Revenue Report for 1915-16 in Parts I and II.

Letter from the Superintending Engineer, Central Division, No. 5746, dated 28th September 1916.

Requests that certain figures and information may be inserted in the Irrigation Revenue Report for 1915-16 submitted to Government with his No. 5653, dated 20th September 1916.

Letter from the Superintending Engineer, Southern Division, No. 2779, dated 8th October 1916.

Submits the Irrigation Revenue Report for the year 1915-16.

Letter from the Superintending Engineer, Deccan Irrigation Division, No. 6013, dated 10th October 1916.

Submits the Irrigation Revenue Report for 1915-16.

Letter from the Superintending Engineer, Northern Division, No. 8924, dated 23rd October 1916.

Submits the Irrigation Revenue Report for 1915-16 in Parts I and II.

Memorandum from the Superintending Engineer, Southern Division, No. 3062, dated 24th October 1916.

Requests that certain corrections may be carried out in the Irrigation Revenue Report and the statements submitted to Government with his No. 2779, dated 8th October 1916.

Letter from the Superintending Engineer, Deccan Irrigation Division, No. 6451, dated 31st October 1916.

In continuation of his No. 6013, dated 10th October 1916, submits the general remarks in connection with the Irrigation Revenue Report for 1915-16.

Read letter from the Accountant General, Bombay, No. B.K.—22-1-3098, dated 16th February 1917.

Read Government memorandum to the Superintending Engineer, Deccan Irrigation Division, No. 2927-I., dated 15th March 1917.

Read memorandum from the Executive Engineer, Pravara Canals District, No. 2529, dated 22nd March 1917.

Read memorandum from the Superintending Engineer, Deccan Irrigation Division, No. 1709, dated 2nd April 1917.

RESOLUTION.—The Irrigation Works, dealt with in this report, are of three kinds, viz. :—

(i) Works for which Capital and Revenue Accounts are kept, commonly called First Class Works;

(ii) Works for which only Revenue Accounts are kept and known as Second Class Works in the Presidency proper; and

L. P. W. D. 388

(iii) Works for which neither Capital nor Revenue Accounts are kept which are called Agricultural Works.

The First Class Works are described in detail in part I of this report and those coming under the Second Class and Agricultural Works, being very small and numerous, a brief general account thereof is given in Part II.

2. The total capital outlay on the first class irrigation works upto the end of 1915-16 was Rs. 5,93,31,948 and the net revenue realized was Rs. 8,59,501. The capital expenditure, both direct and indirect, in the year under review was Rs. 39,54,152 of which a little over Rs. 26 lakhs were spent on the Nira Right Bank Canal and nearly Rs. 11½ lakhs on the Godavari and Pravara River Projects. Good progress continued to be made with the Godavari and Pravara Canals, and on the former system a total length of 62 miles of the Right Bank Canal and the full length (48 miles) of the Left Bank Canal were in operation during the year.

3. The area irrigated was 136,375 acres against 159,730 acres of the previous year showing a decrease of 23,355 acres, which chiefly occurred in the Northern Division owing to the rainfall in northern Gujarat being very scanty—not even equal to half the average of the last 30 years. There was no irrigation from the Wangroli, Tranza Nagrama and Saiat tanks for want of replenishment, and the area irrigated on the Savli tank was only 550 acres against 1,229 acres of the previous year. The area irrigated by the great Hathmati and Khari Cut Canal system was also only one-tenth of the average of the preceding three years. The variations in the other part of the Presidency were not of much importance.

4. With the decrease of irrigation, there was a fall in the gross assessed revenue which amounted to Rs. 15,29,165 against Rs. 16,05,516 of the previous year. This however shows an increase of Rs. 2,76,706 when compared with the average of the previous ten years.

5. The unrealized balance at the close of the year was Rs. 49,493 which is less than the previous year's figure by Rs. 25,737. The greater portion of the amount unrealized was in the Deccan Irrigation Division, but nearly four-fifths of it have been recovered since the close of the year. The balance of outstandings is, however, still larger than need be and an effort should be made to effect prompt recoveries.

6. The working expenses show a decrease of Rs. 25,398 on the figures for the year 1914-15 (Rs. 7,50,066).

7. The resulting net revenue for the year was :—

	Rs.
(i) on the basis of assessment	8,04,497
(ii) on the basis of realization	8,59,501

as compared with Rs. 8,55,450 and 9,48,772 respectively during the previous year.

8. As usual, liberal grants for expenditure on the improvement and maintenance of the second class irrigation works were made. The annual expenditure during the last 13 years has been on the average about 4 lakhs of rupees, and a large number of works has been put into good working order. The figures of area and revenue given in Part II are only for those second class works on which some expenditure is incurred during the year. Lists of these works are being prepared for each district. The present figures show that the total area under irrigation and revenue due from second class irrigation works in the Deccan and Gujarat are 249,532 acres and Rs. 9,27,083. From paragraphs 245—247 it will be seen that an expenditure of Rs. 2,90,333 was incurred on 456 works during the year under review, while the area irrigated and revenue realized amounted to 35,903 acres and Rs. 1,32,417 respectively, the corresponding figures of the previous year being 49,809 acres and Rs. 2,15,892.

9. The irrigation officers and all officers concerned with the distribution of water should be thanked for their efficient management of the works.

10. Copies of the report and of this review should be forwarded to the Government of India. Copies should also be sent to the Secretary of State for India.

W. N. CARTLAND,
Under Secretary to Government.

G. R. No. W.I.—4939, P. W. D., dated 11th May 1917.

To

The Revenue Department, Secretariat.
The Financial Department, Secretariat.
The Commissioner in Sind.
The Commissioner, N. D.
The Commissioner, C. D.
The Commissioner, S. D.
The Director of Agriculture.
The Settlement Commissioner and Director of Land Records.
The Chief Engineer in Sind.
All Superintending Engineers of Divisions.
The Accountant General, Bombay.
All Executive Engineers in charge of Irrigation Works.
The Government of India.
The Under Secretary of State for India. } By letter.

Class A.

Exd. R. D. K.

No. of 1917.

Copy forwarded for information and guidance to