## ANNOAL IRRIGATION REVENUE REPORT; SIND, <br> 1913-1914.

Received from the Assistant Secretary to Government, Paddle works [icpartment, Secretariat, Bombay, $\quad \mid \operatorname{cop} y$ of the publication noted below:-
Spinal Irrigation Revercucher Sind. 1913-14.


Dated the

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It is requested that this receipt may be signed and returned as soon as possible to the Assistant Secretary to Government, OwGCic bit ko Department.

## INDEX.



No. 7315 or 1914.

> Public Works Department. Superintending Engineer's Office, Indus Right Bank Division. Camp Gaheja, $15 t h$ December 1914.

From

F. St. J. GEBBIE, Esquire, Superintending Engineer, Indus Right Bank Division;

To
The SECRETARY to GOVERNMENT, Public Works Department (Irrigation), Bombay.

Slubject:-Annual Irrigation Revenue Report for 1913-1914.
Sir,
I have the honour to forward herewith the Revenue Report for Irrigation Works in this Division for the year 1913-14.
2. Crop Return VIII-A will follow.

> I have the honour to be,
> Sir,
> Your most obedient servant,
> F. Sr. J. GEBBIE,
> Superintending Engineer, Indus Right Bank Division.

Accompaniments:-
Annual Irrigation Revenue Report.
Tables I to IX.
Through
The Superintending Engineer, Indus Left Bank Difision.
The Ceief Engineer in Sind.
The Cominssioner in Sind.

## ANNUAL IRRIGATION REVENUE REPORT, INDUS RIGHT BANK DIVISION. 1913-1914.

The inundation of 1913 as described in the Irrigation Administration
Character of inondation. Report for 1913-14 and under para 21 of this report was, if anything, a little worse than that of 1912.
The diagram sent in advance of the report compares the iṇundation of 1913 with those of the previous two years and with the averages of the previous ten years.

The following table shows the principal features of the year as compared with the previous year and with the averages of the previous three and the previous ten years :-


Area of oultivation, Government,
Jagir and Foreign.
2. The gross assessed areas for the year are given, according to the classification of works, in the following statement A:-

Statement a.

| Year and class of crops. | Major <br> . Works. | Minor Woris and Navigation. |  |  |  | Grand Total. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Productive Works, | Works for which Capital and Revenue Accounts are kept. | Works for which only Revenue Accounts ara kept. | Agricoltural Worise. | Total. |  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| $\begin{gathered} \text { Average of } 3 \text { years in- }\left\{\begin{array}{l} \text { Kharif... } \\ \text { cluding 1912-1913. } \\ \text { Rabi } \end{array} . . .\right. \end{gathered}$ | Acres. 336,057 122,881 | Acres. 304,389 35,427 | Acres. 565,471 134,110 | Acres. $\mathbf{1 7 , 8 1 2}$ 9,633 | Acres. <br> 887,672 <br> 179,170 | $\begin{gathered} \text { Acres. } \\ 1,223,729 \\ 302,051 \end{gathered}$ |
| Total | 458,933 | 339,816 | 699,581 | 27,445 | 1,066,843 | 1,526,780 |
| $\text { 1312-1013 } \quad \text {... }\left\{\begin{array}{l} \text { Kharif... } \\ \text { Rabi ... } \end{array}\right.$ | $\begin{aligned} & 333,456 \\ & 118,777 \end{aligned}$ | $\begin{array}{r} 312,533 \\ 33,123 \end{array}$ | $\begin{aligned} & 589,906 \\ & 123,771 \end{aligned}$ | $\begin{array}{r} 19,089 \\ 9,421 \end{array}$ | $\begin{aligned} & 921,528 \\ & 166,320 \end{aligned}$ | $\begin{array}{r} 1,254,984 \\ 285,097 \end{array}$ |
| Total ... | 452,233 | 345,661 | 713,677 | 28,510 | 1,087,843 | 1,540,081 |

Statement A.-continued.

| Year and class of crops. |
| :--- |

The statement shows that the area under both Kharif and Rabi are in excess of the previous years' areas and the areas of the average of the previous triennium by total cultivation of 118,287 and 132,588 acres, respectively.
3. The area of "Dubari" or twice-cropped land, which is not included in statement A, was 278,997 acres.
4. The total net consolidated assessment and

Assessment,
Foreign and Jagir. "Hakabo" on Foreign and Jagir lands, after deducting remissions, is shown in the following statement B .

Statement B.

| Year and class of crops | Major Works. | Minor Works and Navigation. |  |  |  | Grand Total. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Prodactive Works. | Works for which Capital and Revenue Accounts are lept. | Works for which only Revenue Accounts are lept. | Agricaltural Works. | Total. |  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7. |
| $\begin{gathered} \text { Average of } 3 \text { years in- }\left\{\begin{array}{l} \text { Kharif.. } \\ \text { cluding 1912-1013. } \\ \text { Rabi } \end{array}\right]=. \end{gathered}$ | $\underset{\substack{\text { Rs. } \\ \mathbf{8 , 6 2 , 1 3 1} \\ \hline, 25,879}}{ }$ | $\underset{\substack{\mathrm{Re}_{\mathrm{i}} \\ \mathbf{1 1 , 9 4 , 1 3 5} \\ \mathbf{1 , 9 5 7}}}{ }$ | $\begin{gathered} \mathrm{Rs}_{\mathrm{s}} \\ \mathbf{1 5 , 9 1 , 2 6 9} \\ 4,42,123 \end{gathered}$ | Rs. <br> 40,657 <br> 26,399 | $\begin{gathered} \text { Rs. } \\ \begin{array}{r} 27,55,961 \\ 6,62,479 \end{array} \end{gathered}$ | $\underset{\substack{\text { Rs. } \\ 9,18,092 \\ 9,88,358}}{ }$ |
|  | 10,88,010 | 13,18,092 | 20,33,392 | 66,956 | 34,18,440 | 45,06,450 |
| 1912-1913 | $\begin{aligned} & 6,93,960 \\ & 2,97,402 \end{aligned}$ | $\begin{array}{r} 11,15,954 \\ 1,91,631 \end{array}$ | $\begin{array}{r} 16,34,889 \\ 3,97,287 \end{array}$ | $\begin{aligned} & 44,068 \\ & 26,185 \end{aligned}$ | $\begin{array}{r} 27,04,306 \\ 6,15.103 \end{array}$ | $\begin{array}{r} 34,78.266 \\ 9,12,505 \end{array}$ |
| 1913-1914 $\quad$.. $\begin{aligned} & \text { Total } \\ & \text { Khari } \\ & \text { Rabi }\end{aligned}$ | 9,81,362 | 13,08,985 | 20,32,176 | 70,248 | 34,09,409 | 43,90,771 |
|  | $\begin{aligned} & 8,97,436 \\ & 3,54,930 \end{aligned}$ | $\begin{array}{r} 11,67,685 \\ 2,38,012 \end{array}$ | $\begin{array}{r} 15,15,173 \\ 457,400 \end{array}$ | $\begin{aligned} & 32,727 \\ & 31,730 \end{aligned}$ | $\begin{array}{r} 27,15,585 \\ 7,27,142 \end{array}$ | $\begin{aligned} & 36,13,001 \\ & 10,82,072 \end{aligned}$ |
|  | 12,52,366 | 14,05,697 | 19,72,573 | 64,457 | 34,42,727 | 46,95,093 |
| $\begin{aligned} & \text { Increase or decrease } \\ & \text { as compared with }\left\{\begin{array}{l} \text { Kharif... } \\ \text { average. } \end{array}\right. \text { Rabi ... } \end{aligned}$ | $1,35,305$ <br> 29,051 | 43,550 44,055 | $-76,096$ 16,277 | $\begin{array}{r} -7,830 \\ 5,331 \end{array}$ | $-40,378$ 64,663 | 04,929 03,714 |
|  | 1,64,356 | 87,605 | -60,819 | -2,499 | 24,257 | 1,88,643 |
| $\begin{aligned} & \text { Increase or decrease } \\ & \text { as compared with }\left\{\begin{array}{l} \text { Eharif. . } \\ \text { 1912-1913. } \end{array}\right. \text { Rabi ... } \end{aligned}$ | $2,13,476$ 57,528 | 52,331 46,381 | $-1,19,716$ 60,113 | $-11,336$ 6,545 | $-78,721$ 3,12,039 | $1,34,755$ $1,69,567$ |
| Total . | 2,71,004 | 98,712 | -59,603 | $-5,791$ | 33,318 | 3,44,322 |

The total net assessed revenue as compared with the previous year and the average of the previous triennium was more by Rs. $3,04,322$ and 188,013, respectively.
4. (a) The area cultivated on " spill" water from

Caltivation from Spill. the river was 53,295 acres as compared with $48,52 \mathrm{~S}$ acres in the previous year.
5. The average net consolidated assessment per acre on Government Assesment rate per acro on land, as compared with the averages of the previous Government land. year, and that of previous three years, is as follows :-

|  |  |  |  |
| :--- | :---: | ---: | :---: | :---: |

6. The following table shows the actual realizations of Irrigation

Actual realizations under all heads and the balances ontstandiag.

Revenue under all heads, and the balances outstanding at the end of the year :-

Statement $\mathbf{C}$.

| Lear. |
| :--- |

The balance outstanding at the end of the year, including the land share, shows a decrease of Rs. 23,793 when compared with the previous year, and a decrease of Ris. 1,63,870 when compared with the average of the previous three years.
7. The remissions granted during the year amounted to Rs. $4,14,283$ of which Rs. 3,20,207 were on Kharif and Rs. 94,076 on Rabi. Compared with the previous year and the average of the previous triennium the total remissions are more by Rs. 56,910 and 77,297 , respectively.

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The folloring statement shors details of causes, and the amount attributable to each, as compared with the figures of the previous year:-


Remissions on Jaghir lands.
$\overline{7}(b)$. Remissions on lands in Foreign territory (Khelat) amounted to
Rercissions on Foreign lands.
8. The difference between the "Hakabo" assessed on foreign and jághir cultivation, and the full rate of assessment for these areas, amounted to Rs. $3,36,516$. This amount represents the loss of canal revenuo during the year,

Loss to canals, Foreign and Jághir lands.

7 (a). The remissions granted under this head was Rs: 65 on kharif for Western Nára. due to the low rate at which water is allored to jághirdárs and to zemindárs in Khelat.

[^0]9. The total charges of the year, on account of maintenance and repairs, amounted to Rs. 21,22,503 and is divided as under:-
\[

$$
\begin{array}{ccr} 
& & \text { Rs. } \\
\ldots & & \ldots \\
\cdots & & 15,66,845 \\
\cdots & \cdots & 2,83,804 \\
& \cdots, 65,854 \\
& \text { Total } & \ldots \\
& & 21,22,503 \\
\hline
\end{array}
$$
\]

The cost of Establishment charged to Works which is included in the expenditure on Works was Rs. 2,76,286. The net expenditure on Works (clearance and repairs) was Rs. 12,90,559, and compared with the prerious year, it shoms a decrease of Rs. 38,179.

The charges on account of Establishment and Tools and Plant during the year amounted to Rs. 2,88,804 and show a decrease of Rs. 81,175 as compared with those of the previous year.

> Expenditure on maintenance sopanately for canals and river embankments.

Outlay on new works.
10. Of the total charges shown in the preceding paragraph, Rs. 15,17,787 were spent on canals and Ps. $6,04,716$ on river embankments.
11. The outlay of the year on new works was Pis. 7,68,633 as under:-


Under Major head "Capital " representing Works, Rs. 10,000 and Rs. 12,929 were spent on the Unharwah and Begari, respectively. Under Mrinor Works "Capital" Ris. 4,043 represent expenditure on the Ghar Canal.
12. The regular establishment charges amounted to Rs. $4,43,649$ showing a decrease of Rs. 5,180 over those of the previous year :-

| Rs. $\quad$Percentage <br> on ontlas. |  |  |  |
| :---: | :---: | :---: | :---: |
| Executive |  | 3,80,181 | $17 \cdot 6$ |
| Rs. |  |  |  |
| Direction- |  |  |  |
| Superintending |  |  |  |
| Secretariat and |  |  |  |
|  |  | 63,468 | 2.9 |
|  | Total | ... 4,43,649 | $20 \cdot 5$ |

Financial Results.
13. The general financial results of all the irrigation works in this Division are shown in the fallowing statement D:-

Statement D.


13(a). The following statement $\mathbf{E}$ gives the information required as por Government Resolution No. W. I.-1815 of the 22nd August 1910:-

## Statement E.

| Total area irrigated by all classes of works. | Total working expenses and maintenance for canals. | Rate of working expenses per acre of area irrigated (column 2 ${ }^{\circ}$ column 1). | Expenditure on Agricultural works (excluding the cost of surveys for special projects). | Rate of expenditure on Agricultural works per acre of area irrigated (column 4 $\div$ colamn 1). | Total working expenses per acre of area irrigated including expenditure on Agricultaral works (column $3+$ column 5). |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 3 | 4 | 5 | 6 |
| $\begin{aligned} & \text { Acres } \\ & 1,658,388 \end{aligned}$ | $\begin{gathered} \text { Rs. } \\ 17,67,734 \end{gathered}$ | $\underset{1 \cdot 07}{\mathrm{Rs}_{1}}$ | $\underset{10,43,525}{\mathrm{Rs}}$ | $\begin{aligned} & \text { Rs. } \\ & 0.63 \end{aligned}$ | $\underset{1 \cdot 70}{\mathrm{Rs} .}$ |

14. There were $1,38 S$ miles of main and 1,959 miles of branch canals, Length of Carals ard Eands total 3,327 miles in operation during tio year against 3,326 miles in the previous jear. The net increase of 1 mile in canals is due to decimal figures.

The net increase in bunds as compared with last year's mileage of 503 is 5 miles and is the result of the folloring :-


Areas of principsl crops, Government, Foreign and Jighir.
15. The areas of principal crops irricated during the jear are given below: -

Stateinent F.


Compared with the average of the previous three sears this shows a decrease of 13,356 acres under rice in the kharif season, and 16,395 acres under other crops in the rabi season and an increase under jowári, bájri, cotion and other crops in kharif and also under wheat, barley and oil-seeds in rabi. As compared with the previous year, there mas an increase in kharif of 32,479 , 17,170, 246, 6,165 under rice, jowári, cotton and other crops respectirely, and a decrease in kharif of 20,073 under bajri. Under rabi there was an increase of $6,411,4,915,71,561,28,435$ under wheat, barley and oil-seeds and cther crops, respectirely. The total cultivation as compared mith the prerious year and the average of the prerious triennium shorss an increase of 147,309 and 119,165 acres, respectivels.
16. The percentage of kharif and rabi on the total area irrigated in this

## Percentage of hlarif and rabi.

 Division were $\mathbf{C 7}$ and 33 respectively. The hishest percentage, ciz., $\varepsilon 3$ of hharif was in the Karichi Canals District and the lowest 60 was in the Western Nára District, while the Begari, Shikárpur and Ghar Districts had, respectirely, C8, $G 4$ and C 2 per cent. The Karáchi Canals, the Ghar and the Testern Níra Districts had, as usual, tho largest rice areas with $224,575,217,313$ and 175,293 acres, respectively, out of the total rice cultivation of the Division of C:7,143 acres. The largest areas under jowári were in the Degari Canals and Shikárpur Canals Districts, ciz., 185,424 and 92,123 acres, while the largest under bajfi $91, \dot{5} \pm \mathbf{a}$ acres was inthe Begari Canals District and under cotton 1,050 acres in tho Shikírpur Canals District. Of the rabi crops wheat was largely grown in the Shikirpur, Western Nára, Begari and Ghar Canals Districts, barley in the Karáchi Canals District, and oil-seeds in the Begari, Western Nára and Ghar Canals Districts. Ten per cent. of the whole area was watered by lift and 90 per cent. by flow against 11 and 89 per cent. respectively during the previous year.
17. The duty and delta for the year were 66 and 4.7 , respectively, as Dsest Caunt. compared with 85 and 4, respectively of the previous year. The decrease in the duty is apparently due to disproportionate increases in the average discharge and the net area irrigated and the increase in the delta to an increase in the number of days. of How of the canal.

The duty and delta were 51 and $4 \cdot 5$, respectively, as compared with 60 and Unharwah. $4: 3$, respectively of the previous year. The decrease in the duty is due to the same cause as that on the Desert Canal. The delta 4.5 was only $\cdot 2$ in excess of that of the previous year.

The duity and delta were 82 and 5 , respectively, as compared with 43 and
Begari Canal. 4.4, respectively of the previous year. The increase in the duty was due to increase in the net area irrigated, and the increase insthe delta to an increase in the period of flow of the canal.

The duties and deltas obtained on the canals in this district were with the

Catals in the Shikarpur Cavals District. exception of the Mahirah, the Rajibwah and the canals in Rohri better than those of the previous year owing to full advantage having been taken of the supply available. The difference in the case of the Mahiwah is very little and so also in the case of the duties of the canals in Rohri, while in the case of the Rajibwais it is only the delta that is slightly higher, the duty being better than that of the previous year.

The kharif and rabi duties were 35 and 341 , respectively, as compared
Sukkar Canal. with 37 and 220 , respectively, of the previous year, and the deltas were 61 and $1 \cdot 1$ for kharif and rabi, respectively, as compared with $6 \cdot 1$ and $1 \cdot 5$, respectively, of the previous year. The increase in the duty for rabi and the decrease in the delta was due to increases in the average discharge and the net area irrigated, the former having become doubled and the latter trebled.

The duty and delta for the year were 129 and $2 \cdot 0$, respèctively, as Ghar Canai. compared with 88 and $3 \cdot 6$, resprectively, of the previous year. The increase in the duty and decrease in the delta was due to a decrease in the average discharge.

The duties of all the canals in this district, except the canals north of Kotri, on which there was an appreoiable decrease, compare favourably with those of last year which may be attributed to the best use having been made of the supply available. This is specially evident in the case of the Wahurwah the average discharge of which was only 42 cusecs as compared with 109 cusecs of the previous year, yet the net area irrigated was almost the same as last year, and the duty and delta were 57 and $3 \cdot 7$, respectively, as compared with 24 and 6.8 respectively of the previous year. The deltas of all the other canals particularly the Marviwah, the Phitto eanal, the Chario Wahur and the canals north of Kotri were higher than those of the preceding year which may bs attributed to the canals flowing for a longer period than in the previous year.

The duties obtained on the Sattah, Kalri, Pinyari and Baghar Canals were $16 \cdot 6,25 \cdot 2,23 \cdot 2$ and $7 \cdot 1$, respectively, as compared

[^1] with 14, 30, 32 and 6 , respectively, of the previous year, and the deltas were $12 \cdot 9,5 \cdot 5,9.2$ and 30 , respectively, as compared with $15,8 \cdot 1,9 \cdot 6$ and 60 , respectively, of the previous н 127 ¿ー 3
year. There was a slight improvement in the daties on the Sattah and the Baghar but all the duties were low owing to the cultivation being mostly rice. The deltas on the Sattah and the Pinyari show a slight improvement and that on Baghar a marked improvement, the delta on the last bsing reduced by onehalf. The delta in this canal is still high, and this is due to the large quantity of water which runs to waste into the sea.
18. On "Major Works" the incidence of working expenses on assessed revenue and per acre irrigated were $49: 50$ per cent.
Incidence of working expenses on the asiessed reranue. and Rs. 1.04 per acre against 63.5 and 1.33 of the last year.
Under " Minor Works" the incidence of the working expenses on assessed revenue and per acre irrigated were 24.30 per cent. and R3. 0.90 per acre against 25.54 and 0.88 of the last jear.
19. The total value of crops grown on the irrigated area of $1,937,355$ acres was estimated by the Revenue authorities at
Falue of each kind of crop irrigated. Rs. $4,26,66,170$ which gives an arerage of Rs. 22 per acre.
20. The agricultural and other conditions of the year as affecting the areas irrigated by the principal works, the nature of seasons, the state of demand and supply are giren in the following paragraph.
21. The principal irrigation works in this Dirision are the Desert Canal, the Unharwal, the Begari, the Mahiwah, the Sukkur Canal, the Ghar and the Sattah. The first four are Major (Productire) Works, and the remaining threo Minor Forks for which both Capital and Revenue Accounts are kept.

There are also other irrigation systems, siz., the Sind Canal, the Western Nára, the Baghar, the Kalri and the Pinyari. These, however, with a number of small canals taking off direct from the river, are classed as Works for which only Revenue Accounts are kept.

All the canals are inurdation canals with the exception of the Sukkur, which nominally has a perennial supply.

The inundation of 1913 was, if anything, a little worse than that of 1912, both on account of its being late and of short duration and on account of numerous fluctuations in the level of the river and the low water level in the middle and the end of July when water is usually in most demand.

The river began to rise in the beginning of June, but owing to the fluctuations referred to, the fair irrigatirg level of 13 feet on Bukkur Guuge was not reached before the 2nd August. This level and above was maintainel for 16 days only up to 17th August, as compared with 31 days, in the previous year and 43 dass, the average of the previous 10 years, and was never reached again during the inundation. The fair irrigating level of 17 feet on Kotri gauge was first registered on the 17th June and this level or above mas maintained for the following period during the inundation-17th June to 22nd June, 4th to 11th July, 21st to 23rd July and 25th July to 11th September, making togetber a total of 66 days as compared with 59 days in the previous year and 66 days (same as in 1913) the average of the previous ten years.

There was an abnormally heavy rainfall during the year; in many places this rain was very useful, was of much benefit to the crop and increased the area under cultivation; on the other hand, in lower Sind where it was excessive, much damage was caused bs flooding low-lying areas.

The supply in the Desert Canal was not very satisfactory owing to the great fluctuations of the river in June, July and August. The supply in the Unharwah was most precarious owing to active erosion above and below the mouth of the canal, resulting in a very heavy silt deposit in the canal. The work of excarating a new mouth to the Begari was completed in May 1914 and the supply passed into the canal during the year was one of the largest on record. In spite of the poor inundation, the Sukkur Canal has done well. This year owing to heary erosion at the mouth of the Rahuja Dhoro, it has
silted up hearily and ceased to flow on 15th September. Owing to the unsatisfactory state of the river at the new head, the old head regulator was opened on July 14th to supplement the supply coming through the Rahuja Head. This was of great benefit to the kharif crop and also afforded a good supply for rabi.

The supply in the Mahiwah was fairly good throughout the season. Oring to the early fall of the river the standing crops would have suffered much, but they were saved to a great extent by the rainfall in August and rotation in the supply to branches. The rotations also enabled some additional area to be cultivated in rabi. The Gudu Dhand which feeds the Mahiwah silted up to a certain estent during the abkalani, This silt was removed in the last cold season.

The supply in the Western Nára at the end of the season was insufficient to meet the keen demand for kharif crops and watering land for rabi. Rotational closures of branches and outlets to big karias had to be resorted to to meet the wants of the Zemindárs of Mehar and Kakar Tálukas which, as usual, suffer from deficiency due to the great draw-off in the upper reaches of tho canal. The project for a new feeder to supplement the supply in these tálukas is now ready with the Executive Engineer for submission, and it is believed that after the completion of this project the deficiency so bitterly complained of will disarpear and these tálukas will once again get the good supply of past years and will soon revert to conditions of prosperity and plenty. On account of the unusually low level of the river at the end of the season, the prospects of the standing crops looked gloomy, but the rains were just in time to save the situation and helped greatly in maturing the crops. The new cut excavated in 1912 to supply the Pritchard Canal did not work satisfactorily and failed to bring the designed discharge into the canal. On account of active erosion above, a large sand bank was formed across the mouth of the channel. Endeavours were made to rake out the silt by large scrapers, but to no purpose. Owing to the changes in the course of the river this mouth became very unfavourable in the year under reviem, and the work of escavating a new mouth to this canal, which is a feeder to the lower half of the Western Nára, was accordingly taken in hand after the inundation season. The result of its escellent working will form a subject for review in the next year's report.

In the Karáchi Canals District the inandation of the year was far from satisfactory owing to constant fluctuations. The rainfall of the year was very heary; in all, there were 4 heavy downpours and the first, which fell on the 18th and 19 th July, was the heaviest. The inadequate supply in the river was supplemented by this heavy rainfall but most of the low-lying lands were submerged and the progress of cultivation was much retarded. The rainfall therefore did more harm than good.

The Pinyari Canal has three regulators. The fluctuations of the river and the heavy rainfall made the regulation a difficult matter, but it was on the whole carried out satisfactorily. The Baghar Canal needs embanking and a regulator at its head. This is essential as found from the working of the canal and numerous breaches in its banks during the inundation of 1914. This will however form a subject for review in the next year's report. There is much wastage of water in the upper reaches of the Kalri owing to the karias not having masonry sluices at their heads and taking off excess supply, which causes some deficiency at the tail. Besides the absence of banks to the canal prerents more than a limited supply being let down for the lower reaches, and it has consequently been found desirable to construct sluices at the heads of karias, with vents according to the holdings on each, and to provide embankments along low-lying portions of the canal. Necessary data is being collected by the Executive Engineer, Karáchi Canals, and the project will be brought up as soon as possible. It is also proposed to restrict the openings of sluices in the first 12 miles of the Sattah Canal in order to meet the demands in the lower reaches, where there are complaints of deficiency, and this will shortly be carried out.

The areas irrigated in the whole Division under different crops are given in statement $F$, paragraph 15 above. The average areas of kharif and rabi of the previous triennium shown in the statement F above referred to, show a decrease of $67,2 \pm 4$ acres and 51,921 aores under kharif and rabi, respectively, and a decrease of 119,165 acres under total cultivation as compared with the year under report.
22. The following paragraphs give details of different works or groups of works.

## I.-MAJOR WORES.

Peodective Works.
A.-Desert Canal.
23. The expenditure was incurred under this head during the year under report.
A sum of Rs. 11,591 was spent during the year on (1) constructing Public Works Inspection Bungalows at Manjhi, Sanhri, Hairdin, (2) Telegraph Linemen's quarters at Kandhkot, (3) additions and alterations to Public Works Inspection Bungalow at Kandhkot, (4) reneming the roof with tiles, etc., of west side room of store at Kashmor, (5) metalling the semi-circular path in the compound of the Executive Engineer's office at Jacobabad, (6) constructing a Daroga's landhi at Manjhi (5th mile of Manuti branch), (7) providing Taki stones along Desert Canal and branches, (8) providing bench mark stones along canals in Kashmor and Toj sub-divisions.

Maintenance and repairs.
The main canal and its branches were maintained in gocd order at a cost of Rs. 1,03,887 including Work Establishment.

The total area irrigated during the year under report was 165,017 acres out Irrigation. of which 110,931 acres were under kharif, and $54,0 \leq 6$ acres under rabi, including Dubari, against $1,7+5,526$ acres being the average of past three years and 180,232 acres irrigated in the previous year 1012-13. The comparison of oultivation shows a decrease of 9,509 acres over the average and of 15,215 acres over the cultivation of the previous jear. The supply was not very satisfactory owing to the great fluctuation of the river in June, July and August.

The gross revenue from all sources amounted to hs. 3,26, 668 compared with Rs. $3,50,931$ of the last year and Rs. $3,37,814$, the average of the previous triennium. Deducting working expenses Rs. $1,51,221$ the net revenue during the jear was Rs. $1,75,647$ or $6 \cdot 46$ per cent. on the Capital outlay to end of the year as compared with 6.69 per cent, the average of the last triennium and 7.01 per cent. in the last year." Decrease in cultiration and revenue as compared with the last year was also due to the fact that people of Begari who had come and cultivated lands on this canal went back owing to good water-supply in Begari this year under report.

The remissions granted amount to Rs. 44,489 against Rs. 31,145 of the General remarks previous year and lis. 26,598 the average remissions of the past three years. The net increase in remission as compared with the last year was due to damage caused to rabi crops by insects and adverse winds. The principal crops grown were rice 12,892 acres, jowári 52,856 , bájri 32,723 , wheat 19,952 and oil-seeds 16,013 acres and the estimated value of the outturn was Rs. $40,13,529$ or Ris. 24 per acre.

## B.- Onhartoah.

24. The experditure incurred under this head during the year ander report Capital. $\quad$ Was Rs. 10,000 and ras spent on constructing a new Tangwani brancin.

A sum of Rs. 749 was spent during the year on (1) additions to cross Extensions and Improvements. Regulator at mile 20/2 of the Násir branch ex-Unbarwah, (2) fixing taki bricks at each taki in certain lengths of Unharwah and Branches, (3) providing, fixing and painting iron furlong posts along Hazaro and Khairowahs, (4) providing stone bench marks at every mile in connection with the fixing of taki bricks along canals in Unharwah sub-division.

Maintenance and repairs.
The main canal and its branches were maintained in good order at a cost of Rs. 40,931 including work establishment.
The total area cultivatod during the year was 62,062 acres out of which Irrigation. $\quad 45,280$ acres were under kharif and 16,782 acres under rabi as compared with the average of the past three years of 74,116 acres and with the previous year's cultivation of 78,737 acres. The comparison shows a decrease of 12,054 acres over the average of the previous triennium and of 16,675 acres over the cultivation of the previous year. The decrease was due to active erosion above and below the mouth of the canal, resulting in a very heary silt deposit in the canal.

Tho gross revenue amounted to Rs. 1,33,238 compared with Rs. 1,72,429

## Financial results.

 of the last year and Rs. $1,61,486$, the average of the previous triennium. Deducting working expenses Rs. 56,413 the net revenue daring the year was Rs. 76,825 or 10.62 per cent. on the Capital outlay to end of the year as compared with 15.85 per cent, the average of the previous triennium, and 17.05 of the last year. The decrease. in revenue is due to same causes stated above in the case of cultivation.The remissions granted amount to Rs. 12,41S against Rs. 3,472 of the previous year and Rs. 5,393 of the previous triennium. The principal crops grown were jowári 13,812, bajri 24,914 , wheat 8,547 and oil-seeds 1,563 acres and the estimated value of the outturn was Rs. 17,72,409 or J.ls. 29 per acre.

## C.-Begari Canal.

25. A sum of Rs. 12,929 was spent during the year on works in connection Capital. with the Choi branch project, such as land compensation, bridges and extension of Choi tail distributary.
During the year under report, Rs. 61,561 were spent on (1) widening Extensions and Improvements. Nurwah and constructing masonry works over it, (2) excavating a new cut to Mirzawah, (3) additions and alterations to 38th mile Regulator of the Begari Canal and to Public Works Department Inspection Bungalows class I at Khairo Garhi and Wakro, ( $t$ ) and on some other works such as constructing Telegraph office, and signaller's quarters at 13th mile Choi Branch, a well at Chana 29th mile Begari Canal and proriding T-iron mile and furlong posts, fixing and painting taki bricks, \&o.

The main canal and its branches were maintained in good order at a
Maintonance and repaira. cost of Rs. 1,72,767 including the Work Establishment against the sum of Rs. 2,39,133 spent during the previous year.
The total area cultivated during the year was 304,967 acres out of which 204,318 acres were under kharif and 100,649 acres under rabi as compared with 176,000 acres, the average of the previous triennium, and with the 137,591 acre3 of the previous year. The comparison shows an increase of 123,967 acres over the average and 167,376 acres orer the cultivation of the previous year. The increase was due to good water-supply in the canal owing to excavation of a new head.

The gross revenue of the year amounted to Rs. $\overline{6}, 78,462$ compared with Financial Results. Rs. $2,42,246$ of the last year and Rs. $3,3 \pm, 767$, the average of the previous triennium. Deducting
morking expenses Rs. $3,05,667$ and share due to cld irrigation Rs. 94,554 , the net revenue during the year due to improvements was Rs. $2,47,941$ or 10.57 per cent. on the capital outlay to end of the year as compared with a $-1 \div 9$ per cent. in last year and 3.79 per cent. the average of the prerious three years. The net revenue due to improrements last year was- 90,051 and of the average of the previous triennium 80,201 . The increase in the net revenue is due to same causes as giren abore under paragraph of cultiration.

The remissions during the year amounted to Re. $49,5 \underline{9} 9$ against Res. 64,544,

## General remarks

 the average of the prerious triennium, and Rs. 81,333 of the previous year. As compared with the last year, the decrease in the remissions in the kharif was due to the same causes as shomn under cultivation and an increase of remissions under rabi was due to damage caused by insects and adrerse winds. The principal crops grown were jomári 118,207, bájri 32,866, rice 16,896, oil-seeds 37,332 and wheat 19,911 acres, and the estimated ralue of the outturn was lis. $69,27,938$ or Rs. 23 per acre.> D.——yanicah.
$C_{\text {afital }}$
20. No es renditure mas incurred under this head during the sear under report.
The sum of Rs. 3,936 was spent on (1) constructing a new Public Works Inspection Bungalow with outhouses at Mirpur on Masuwah ex Mahiwah, (2) additions and alterations to Public Works Inspeotion Bungalors at Mirpur, Khai Kenji, Kander, Tangeji and Jado Pitafi and on some other smail works.

The canal and its branches mere maintained in
Msintenance and repairs. good order at a cost of Ris. 51,464 including Work Establishment.
The total area irrigated was C0,759 acres, of which 42,709 acres were under
Irrigation. kharif and 18,0 sl acres under rabi. As compared with the average of the previous triennium, there is an unappreciable decrease of 1,839 acres in kharif cultiration which was sared by timely rains and rotations and 8,502 acres in rabi, and a total decrease in cultivation 10,401 acres. The decrease in rabi is due to suduen fall of the river in the middle of August and to the silting of the Gudu Dhand daring the Abkalani, which was eleared in the cold season of 1913-14.

The gross rerenue amounted to Rs. $1,56,5 S 8$, and the working expenses to Ris. 74,328. Deducting working expenses and Rs. 89,217 of share due to old irrigation, the net revenue due to improvements comes to $\mathrm{R}_{\mathrm{s}} .-6,857$ and represents $-\cdot 45$ per cent. on the Capital outlay as compared with 1.46 per cent, the arerage of the prerious triennium. The arerage net revenue due to improvement, of the previous triennium is 20,640 . The decrease in revenue is due to the same causes as giren for cultivation above.

The remissions granted amounted to Rs. 2,034 of which Rs. 531 were on account of klarif and Ris. 1,563 on account of rali. The principsl crors grown were jowíri 23,197 acres, bajri 11,520 acres, rice 6,798, wheat 13,040 acres and oil-seeds $1,40 \pm$ acres. The estimated value of the outturn was Rs. $10,06,955$ or Rs. 15 per acre.

## II.-MINOR WORES AND NAVIGATION.

A- Wobes por maici Capital axd Revenee Accocnts abe eeft.
1.-Sulikur Canal.

Carial

Extenting ard Imiroyexinte
27. No expenditure mas incurred under this head during the year.

No experditure teas incurred under this heal during the yetr.

The main canal and its branches were maintained in good order at a cost
Maintenance and repairs. of Rs. 42,977 including work establisbment as compared with Rs. 44,936 in the previous year.
The total cultivation was 106,148 acres, of whioh 64,226 acres were under
Irrigation. kharif and 41,922 acres under rabi. The total cultivated area compared with the average of the previous triennium of 98,627 acres and of the previous year of 77,509 acres was more by 7,521 and 28,639 acres, respectively. The increase in cultivation is in rabi and is due to the good working of the old head regulator which was opened on July 14th. It afforded a very good supply for the crop as it did not cease to flow until the 18th Maroh 1914. The small decrease in kharif cultivation is attributed to poor inundation in kharif season.

The gross revenue realized amounted to Rs. 2,62,180 compared with
Financial results. Rs. $1,91,827$ of the last year and Rs. $2,37,070$, the average of the previous triennum. Deducting working expenses Rs. 75,969 and share due to old irrigation Rs. 71,444 , the net revenue during the year due to improvements was Rs. 1,14,767 giving a return of 8.05 por cent. on the capital outlay against 3.07 of the last year and 6.47 per cent. the average of the previous triennium. The net revenue due to improvement compared with average of previous triennium was more by Rs. 22,473. The increase in net revenue is partly due to the increase in cultivation and partly attributed to the enhanced rates according to the revised seitlement.

The remissions granted during the year amounted to Rss. 3,379 against
General Remarks. wheat 17,711 and oil-seeds 7,592 acres. The estimated value of the outturn was Rs. $21,44,431$ or Rs. 20 per acre.

## 2.-Ghar Canal.

28. A sum of Rs. 4,043 was spent under this head during the year Capital. on taking over and remodelling Kur Matal a zamindiri karia ex Naurang Canal mile 7/4 right bank.
The sum of Rs. 2,873 was expended under this head during the year on Extonsions and Improvements. (1) additions and alterations to the office block Bangalow at Lárkána, (2) renewing the roof of the stables attached to the Yublic Works Department Inspection Bungalow Class I at Lárkána, (3) providing fire buckets with stands for the office of the Executive Engineer, Ghar Canals at Lárkána, (4) widening and improving Mirwah No. 2 ex Chilo.

The total expenditure during the year was Rs. 1,19,135 including work Maintenance and repairs. establishment against Rs. $1,11,832$ as compared with that of the previous year. The increase is due to improvement to the Dhoro feeding the Ghar Dhand to replace the 1910 feeder on which Rs. 7,000 were spent.

The total cultivation was 357,548 acres, of which 223,756 acres were Irrigation. under kharif and 133, 792 acres were under rabi 255 6 万7 7 against 369,443 acres in the previous year and under report show a small increase in cultivation over those of the last triennium.

The gross revenue amounted to Rs. $10,01,379$ compared with Rs. $9,86,588$ of the last year and Rs, 9,38,907, the average of the previous triennium. Deducting working expenses Rs. 2,26,985 and share due to old irrigation Rs. 1,16,671, the net revenue during the year due to improvements was Rs. $6,57,723$ which represents a return of $113 \cdot 00$ per cent. on the capital outlay against $114: 90$ per cent. of the last year and $101 \cdot 9$ per cent., the average of the previous triennium. The net revenue due to improvement compared with average of the previous triennium was more by $\mathrm{Rs}_{\mathrm{s}}$. 74,128. The increase in net revenue is due to the enhanced rates according to the revised settlement.

The remissions granted during the year amounted to Rs. 12,740 against

Qenersl Remarke. and oil-seeds 32,654 Ris. 86,49,730.

Capital.

Extensions and Improvements.

Rs. 43,272 of the last rear. The principal crops grown were rice 183,101, jowári 32,584, whent 29,174 acres. The estimated value of the outturn was 3.-Sattah. 29. No expenditure was incurred under this head.

No expenditure was incurred under this head.

The sum of Rs. 8,589 was spent during the year under this head including Maintenance and repairs. work establishment, against Rs. 12,329 of the last year.
The total area inigated including Dubari in 1913-14 was 16,824 acres of which 14, 497 were under kharif and 2,327 under rabi. The increase in the total cultivation as compared with the average of the previous triennium of 14,413 acres is 2,411 aores, which is chiefly due to the fact that large areas which were submerged by the heavy rains were cultivated with rabi crops, the increase on which alone is 1,711 acres.

The gross revenue amounted to Rs. 21,877 compared with Rs. 27,069 , the
Financial results. average of the previous triennium. Deducting working expenses R. 10,573 and share due to old irrigation Rs. 6,927, the net revenue during the year due to improvement was Rs. 4,377 , which represents 2.43 per cent. on the capital outlay as compared with -2.76 per cent., the average of the previous triennium. 'The increase in the net revenue due to improvement is due to the reduction in the amount of working expenses as compared with the average of the last three years' expenditure, Rs. 25,124. It will, however, be seen that there is a reduction in the gross revenue of 1913-14 as compared with the average of last three years gross revenue, although the total cultivation during the year under report is more. This is due to heavy remissions Rs. 8,580 having been granted owing to the damage caused by rains.

The remissions during the year amounted to Rs. 8,580 against Rs. 442 in
General Remarks. the previous year and Rs. 7,990, the average of the previous triennium.

## B.-Works for which only Revende Accounts are kept.

## (1) Canals in the Shikarpur Canals District.

30. The principal canals are the Sind, Rajib, Chitti, and Garang on the right bank of the river and the canals in the Rohri Division on the lett bank.

The sum of Rs. 26,512 was spent under this head (1) constructing a regulator in the Adartakio loop over Colonel Fife's Channel ; (2) renewing a bad bund from mile $7 / 6$ to $8 / 3$ of Sind Canal; (3) raising and strengthening the left bank of Rajib Canal mile $1 / 4$ to 4 ; (4) constructing a regulator over the Garang Canal and on other small works.

The expenditure incurred under this head was Rs. 1,19,848 including work establishment against Rs. 1,16,481 in the previous year.
The total area irrigated under this head was 157,530 acres of which 102,577 acres were under kharif and 54,953 acres under rabi. $\Lambda \mathrm{s}$ compared with the average of the previous triennium of 156,721 aores, it shows an increase of 809 acres. The
increase as compared with the average is not appreciable, but the inundation was better than that of the preceding years and rainfall was more abundant and timely and most beneficial to all the crops.

The total canal revenue realized was Rs. 4,63,352, and the total revenue
Financial Results. charges Rs. $1,61,859$, which amounts to $31 \cdot 9$ per cent. of the revenue and Rs. $1 \cdot 1$ per acre of the area irrigated excluding Dubari. The corresponding figures for the previous triennium averaged 35.7 per cent. and Rs. 1.1, respectively. The comparison of the revenue of the year under report with that of the average of the previous triennium of Rs. $4,18,890$ shows an increase of Rs. 41,453 and with that of previous year of Rs. $3,83,917$, an increase of Rs. 70,435. The increase is due to the same causes as given above under cultivation paragraph.

The remissions granted amounted to Rs. 5,419 against Rs. 36,307 last
General Remarks
year. The principal crops grown were jowári, rice, bajri, wheat and oil-seeds. The estimated value of the outturn was Rs. 23,71,673.
(2) Canals in the Western Nara District.
31. The district comprises the following main canals, which take off direct from the river.

The Western Nára with its two feeders (the new feeder and the Pritchard Canal), the Marvi, the Wahur, the Phitta, the Chario Wahur with the Aral and the Dunster, the Dadu Canals and the canals north of Kotri.

The Muncher Lake is fed by the Aral, Dunster, Western Nára and rain water from the hills and again drained off for cultivation through the Aral and Dunster when the river falls.

A sum of Rs. 21,959 was spent under this head on (1) improvements to the Kudanwah ex the Western Nára mile 61/7, Extensions and Improvements. (2) improvements to Dhamrao Canal ex. the Western Nára, (3) improvements to Ganjrote Branch ex the Dhamráo Canal, (4) constructing regulators over the Ghariwah and Wadhuwah at mile $76 / 4$ and 79 of the extension of the Western Nára Bunds, and the rest on minor works consisting of constructing new banks and raising and strengthening of existing banks of canals, additions and alterations to Inspection Bungalows and constructing sluices over zamindári and forest karias.

The total expenditure under this head including special repairs amounted Maintenance and Bepairs. to Rs. 2,48,969 and was incurred on special and ordinary repairs to buildings, clearance of canals, clearing the channel of the Akil Dhand and the Gharo from the river to feed the Western Nara Canal and on excavating a ner head to the Pritchard Canal.

The total area irrigated was 413,200 acres of which 248,874 acres were Irrigation. under liharif and 164,326 under rabi. There was an - increase of $1,64 \mathrm{~S}$ acres under kharif and a deorease of 11,118 acres under rabi, and a decrease of 9,470 acres in the total cultivation as compared with 422,670 acres of the average of the total cultivation of the previous triennium. The decrease is due to the poor inundation which was the worst on record since 1907.

The total canal revenue realized during the year mas Rs. $10,30,678$ as compared with Rs. $10,55,277$, the average of the past three years. The revenue charges during the year were Rs. $3,55,456$, being $34 \cdot 5$ per cent. of the revenue and Rs. $1 \cdot 1$ per acre of the area irrigated excluding Dubari, the arerage corresponding figures of the prerious triennium being $23 \cdot 1$ and Rs. 7 respectively. The decrease in revenue is dus to the same causes as given abore for cultivation.

The remissions granted during the jear under review amountel to General Remarks. Rs. $1,24,778$ against Rs. 82,629 of last year, the average of the previous triennium being Rs, $69,0 \geq 0$. The principal crops grown were rice, jo wári, bájri, wheat and oil-seeds.

## 3.-Canals in the Karachi Canals District.

32. The principal canals are the Kalri, Baghar, Pinyari and Kokawari.

The expenditure incurred under this head was Rs. 81,718 and was spent Extesions axd Improcements on (1) constructing proposed Baghar head regulator, lators over Gunri, Ghari Chandan and Mirza Canal, (i) (3) constructing reguregulator over Kalri Canal, (5) constructing embankment along the left bank canal of the Baghar Canal, (6) constructing new head regulator orer the Chahatho Nandho in the new loop behind miles $45 / 7$ to 49 of Mulchand Shahbunder Bund and on some other small works.

[^2]The expenditure incurred under this head was The total area irrigated was 264,492 acres of which 217,343 were under Irrigation. kharif and 47,149 under rabi. As compared with the average of the previous triennium, there was an increase of 4,265 and 15,369 acres under kharif and rabi respectively, and an increase of 19,634 acres under total cultivation. The large increase under rabi is due to the areas flooded by rains having been cultivated with rabi crops.

The total canal revenue realized was Rs. $3,17,033$, and the maintenance
Financial Resits and revenue charges amounted to Rs. 2,07,206, Trhioh amounts to $6{ }^{\circ} \cdot 4$ per cent. of the revenue and .9 per acre on the area irrigated excluding Dubari ; the corresponding figure for the average of the three previous years being 33.3 and 9 rupees. The comparison of the revenue for the year under report with that of the previous triennium shows a decrease of Rs. 79,466 which, in spite of an increase in cultivation, is due to heavy remissions amounting to R.s. $1,66,403$ due to floods caused by the heary rains, the amount remitted on this account alone being as much as Rs. 1,63,677.

The remissions amounted to Rs. 1,66,403 against Rs. 59,331 of last year
General Remarks. and Rs. 87,646 , the average of the previous triennium. The principal crops grown under this head were rice, bájri, jowári, barley and oil-seeds.

## C. -Woeks for ifhich neither Capital nor Revende Accounts are kept.

33. The principal bunds in this Division on the right bank of the river are the Kashmor, SukkurBegari, Ghar, Nara, Bunds north of Kotri, and Right Bank Bunds in the Karíchi Canals District; and on the left bank, the Kasimpur and the Karáchi District Bunds.

The sum of Rs. 2,57,245 was spent during the year under this head. The principal works carried out were, constructing a bund along the boundary of Vazir Forest in the Shikárpur Canals District, extending Western Nára Bunds from mile $69 / 1$ to 80/6, Public Works Inspection Bungalow Class II on the Western Nara Bund, raising and strengthening the Manjhand Bund from 0 to mile $3 / 0$, raising and strenghtening Nara Bund at mile 61 to $67 / 2$, linking up Butho and Manjhand Bund and other works in the Western Nára District; raising and steengthening Baghar Uclinto Bund from mile 0 to 30/6, Panah Baghar Bund miles $2 / 5$ to $12 / 5$, portions between miles $20 / 4$ to 43 of the Mulchand Shahbunder Bund, and Mulchand Shshbunder Bund, Rajwah to Gungri miles 43-5 to 45-7 and 49 to 49-7 and 49-7 to 52 ; constructing Telegraph offices and Signaller's quarters at Pinyari Head Regulator, Kotalmo, Belo, Saidpur and Sattah in the Karaichi Canals District.

The expenditure of maintenance and repairs and special repairs to river

Jaintenance and Repairs.
of last year. embankments including Establishment and Tools and Plant charges tas Rs. 5,49,830 against Rs. 6,40,034

The cultivation in 1913-14 on the canals ex-Kashmor Bund, on Bunds Irrigation and Financial Results. in the Shikarpur Canals, Karáchi Canals, Western Nara, and Ghár Canals Districts was 2,985, 10,769, $9,928,3,936$ and 1,170 acres respectively, and the revenue Rs. $6,700,28,174$, 16,152, 9,727 and 437 respectively. The average cultivation and revenue of the previous triennium on the bunds in the above district were 4,395 acres, Rs. 10,731 ; 9,585 acres, Rs. 27,023; 9139 acres, Rs. 15,512; 3,548 acres, Rs. 12,365; 778 acres, Rs. 2,522.

The most important works classed under special repairs were the comple-
General Remarls. tion of the unfinished 1912 Unharwah loop, constructing bund along the toe and along the front slope of Gauspur loop for wetting the loop, constructing pumping station at Gauspur and constructing Haibat loop from Ghora Ghat to Tori stop gate regulator in the Begari Canals District, constructing a new loop to Sukkur Begari Bund from miles $16 / 4$ to 19, and from $4 / 6$ to $7 / 4$ (Garang loop) in the Shikárpur Canals District ; constructing Thahimani loop from mile 33 to 77 of the Baghar Uchito Bund, constructing new Uplanki loop and constructing new loop at mile 46 to $49 / 1$ of Mulchand Shahbunder Bund, Rajwah to Gungri in the Karáchi Canals District. A sum of Rs. 6,669 was spent on the Mathematical Instrument Depôt, on Establishment and Tools and Plant. A total sum of Rs. $2,35,677$ was spent by the Chief Engineer, Indus River Commission, of which Rs. 23,740 was spent on making surveys on the Indus, Rs. 65,142 on Sukkur Barrage Committee, Rs. 1,018 on constructing a detached store room at Kotri, Rs. 26,495 on maintenance and repairs of which Rs. 25,789 were spent on maintenance of steamers and gauges and snagging the river Indus, and small amount Rs. 706 on maintenance of other works; Rs. 1,01,576 under regular Establishment and Rs. 12,706 under Tools and Plant.
34. The expenditure on, and receipts from, gardens maintained in this

Expenditure and receipts of Division as compared with those of the previous three gardens. years are as follows:-

| Year. |  | Espenditure on <br> maintenanee of gardens <br> daring the year. | Receipts daring <br> the year. |  |
| :---: | :---: | :---: | :---: | :---: |
| $1910-1911$ | $\ldots$ | $\ldots$ | Rs. | 4,099 |
| $1911-1912$ | $\ldots$ | $\ldots$ | 3,729 | 1,918 |
| $1912-1913$ | $\ldots$ | $\ldots$ | 3,816 | 2,245 |
| $1913-1314$ | $\ldots$ | $\cdots$ | 3,712 | 2,043 |

35. The total number of trees planted during the year in this Division was $1,21,029$, of which 82,227 were babul, and the rest principally Talli and Nim. The number of trees alive at the end of the year was $4,85,313$ including 3,06,341 babul. The number of young trees transferred from nurseries for plantation on canal banks was $1,88,811$ including 69,400 babul.
36. The Division was in charge of the following officers in the year under report:-

| Livision. | Names of Officers. | Months. | Dsys |
| :---: | :---: | :---: | :---: |
| Indus Right Bank <br> Division. | Mr. F.St. J. Gebbie | $\cdots$ | 12 |

The following officers were in charge of the executive districts:-

| District. |  | Name of Executive Exgineer. |  | Months, | Days |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Karáchi Canals District $\quad . .\{$ |  | Mr. H. B. Evington | $\ldots$ | 10 | 15 |
|  |  | , J. M. Mackay | $\cdots$ | 1 | 16 |
| Ghár Canals District |  | \% S. R. Perfect | ... | 8 | 23 |
| Western Nára Distriot |  | " M. A. Mirza | ... | 3 12 | 8 |
| Western Nára Distriot |  | " B. E. Vachha |  | 12 |  |
| Shikárpur Canals Distriet | f | " D. R. H. Browne | -.. | 7 | 2 |
| Begári Canals District | ... | " R. B. Maclachlan | .... | 12 | 28 |

F. St. J. GEBBIE,

Superintending Engineer, Indus Right Bank Division.

No. 5020 of 1914.

> Public Works Department:
> Karáchi, 22ud December 1914.

## From

> F. St. J. GEBBIE, Esq., Superintending Engineer, Indus Left Bank Division ;

To

> The SECRETARY to GOVERNMENT, Public Works Department, Bombay.

## Sir,

I have the honour to submit the Irigation Revenue Report for Sind for the year 1913-14.

I have the honour to be,
Sir,
Your most obedient serrant,
F. St. J. GEBBIE, Superintending Engineer, Indus Left Bank Division.

Accompaniments:-
As per index attached.
Through
The Chief Exgineer in Sind
and
The Comaissioner in Sind.

## anNual irrigation revenue report, indtis left bank division, SIND, 1913-1914.

The inundation of 1913 was a little worse than that of 1912, both on Character of the inundation. account of its being late and of short duration and r, account of numerous fluctuations in the level of the river, and the low level in the middle and end of July.

The diagram sent in advance of this report compares the inundation of 1913 with the two previous years and with the 10 years' average.

The following table shows the principal features of the year compared with those of previous years :-


Area of cultivation-Gorernment 2. The gross assessed areas for the year are given and Jagbir.
in the subjoined statement A:-
Statement A.

| Year and Class of cropss | Major Works. | - Minor Works and Navigation. |  |  |  | Grand Total. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Productive Works. | Works for which Capital and Revenue Accounts are kept. | Works for which only Revenae Accoants are kept. | $\begin{gathered} \text { Agricultural } \\ \text { Worlss } \end{gathered}$ | Total. |  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| $\begin{array}{r} \begin{array}{c} \text { Averaze of } \\ \text { including } \\ 1912-13, \end{array} \end{array}\left\{\begin{array}{l} \text { Kharif... } \\ \text { Rabi } \end{array}\right] .$ | $\begin{aligned} & \text { Acres. } \\ & 526,627 \\ & 181,529 \end{aligned}$ | Acres. $\mathbf{4 3 3 , 8 4 7}$ $\mathbf{5 3 , 4 5 9}$ | Acres. $240,290$ $28,111$ | Acres. ........ | $\begin{aligned} & \text { Acres. } \\ & 699,127 \\ & 81,570 \end{aligned}$ | Acres. <br> 1,225,754 <br> 213,099 |
|  | 658,156 | 507,306 | 273,391 | ...** | 780,697 | - $1,438,853$ |
| 1912-13 $\quad . . \begin{aligned} \text { Kha } \\ \text { Kabi }\end{aligned}$ | $\begin{aligned} & 557,605 \\ & 133,035 \end{aligned}$ | $\begin{array}{r} 479,903 \\ 43,329 \end{array}$ | 238,975 26,289 | ........ | 738,878 69,618 | $\begin{array}{r} 1,866,483 \\ 202,653 \end{array}$ |
|  | 690,640 | 5 $\div 3,232$ | 285,264 | ...... | 808,496 | 1,499,136 |
| 1913-14 | $\begin{aligned} & 568,204 \\ & 123,228 \end{aligned}$ | $\begin{array}{r} 470,640 \\ 45,857 \end{array}$ | $\begin{array}{r} 255,709 \\ 25,268 \end{array}$ | -..... | $\begin{array}{r} 726,349 \\ 71,125 \end{array}$ | $\begin{array}{r} 1,294,553 \\ 194,3 \Sigma 3 \end{array}$ |
|  | 691,432 | 510,497 | 280,977 | .....* | 797,474 | 1,488,906 |
| Increase or decrease (Kharif... as compared withaverage. Rabi | $\begin{array}{r} +41,577 \\ -5,301 \end{array}$ | $\begin{array}{r} +16,793 \\ -7,602 \end{array}$ | $\begin{array}{r} +10,429 \\ -2,843 \end{array}$ | -•...* | $\begin{aligned} & +27,2: 2 \\ & -10,445 \end{aligned}$ | $\begin{array}{r} +68,799 \\ -18,716 \\ \hline \end{array}$ |
|  | +33,276 | +9,191 | + 7,586 | ....a | +16,777 | +50,053 |
|  | $\begin{array}{r} +10,599 \\ -9,507 \end{array}$ | $-9,263$ $+2,528$ | $-3,266$ $-1,021$ | . ${ }^{\circ} \cdot$ | $\begin{array}{r} -12,529 \\ +1,507 \end{array}$ | $-1,930$ $-8,300$ |
|  | +792 | -6,735 | -4,287 |  | -11,022 | 10,230 |

The area under both kharif and rabi compared with the previous year's areas shows a decrease of 1,930 and 8,300 acres respectively, while comparing with the average of previous three years' areas the kharif shows an increase of ©8,799 acres and rabi a decrease of 18,746 acres.

The area under 'Major Works' under kharif exceeds that of the previous year and of the average, while that under rabi shows a decrease in both cases. Under 'Minor Works', there is an increase under kharit, when compared with the average, but a decrease when compared with the previous year; under rabi the comparative results are just the opposite.
3. The area of 'Dubari' or twice cropped land which, is not included in

Area of Dubari coltivation. Statement A was 28,809 acres, of which 7,272 acres were watered 'Dubari', 6,899 acres being in the Thar and Párkar District and 373 acres in the Nawabshah District. The 'Dubari' figures for the previous year and the average of the . previous triennium were 26,919 and 29,246 acres, while those of ' watered Dubáre' were 6,518 and 6,602 acres respectively.

Irrigation Assessment-Government and Jághir.
statement B:-
4. The total irrigation assessment for the year including 'Hakabo' for Jághir lands is given in

Statement B.

| Year and Class of crops. | Wajor Works | Minor Works and Navigation. |  |  |  | Grand Total. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Productive Works. | Works for which Capital and Revenue Accounts are kept. | Works for which only Revenue Accounts are kept. | $\begin{aligned} & \text { Agricultural } \\ & \text { Works. } \end{aligned}$ | Total. |  |
| 1. | 2 | 3 | 4 | 5 | 6 | 7 |
| Arerage of 3 year $s$including 1912-13. $\left\{\begin{array}{l}\text { Kharif .. } \\ \text { Rabi }\end{array}\right.$ | $\begin{gathered} \text { Rs. } \\ 15,94,982 \\ 3,84,078 \end{gathered}$ | $\begin{gathered} \text { Rs. } \\ 10,85,942 \\ 1,09,862 \end{gathered}$ | Rs.$\begin{array}{r} 6, C 0,215 \\ 80,865 \end{array}$ | Rs. <br> ~ь... <br>  | $\begin{gathered} \text { Rs. } \\ 16,86,157 \\ 1,90,727 \end{gathered}$ | $\begin{gathered} \text { Rs, } \\ 32,81,139 \\ 5,74,805 \end{gathered}$ |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Total ... | 19,79,060 11,95,804 |  | 6,81,080 | - 0. | 18,76,884 | 38,55,944 |
| 1912-13 $\quad \therefore\left\{\begin{array}{l}\text { Khar }\end{array}\right.$ | $\begin{array}{r} 16,66,764 \\ 3,96,259 \end{array}$ | $\begin{array}{r} 11,53,126 \\ 82,915 \end{array}$ | $\begin{array}{r} 6,37,032 \\ 72,220 \end{array}$ |  | $\begin{array}{r} 17,90,158 \\ 1,55,135 \end{array}$ | $\begin{array}{r} 34,56,922 \\ 5,51,394 \end{array}$ |
|  |  |  |  |  |  |  |
| Total ... | 20,63,023 | 12,36,041 | 7,09,252 | -••• | 19,45,293 | 40,08,316 |
|  | $\begin{array}{r} 16,49,694 \\ 3,49,753 \end{array}$ | $\begin{array}{r} 10,51,005 \\ 91,100 \end{array}$ | $\begin{array}{r} 6,27,678 \\ 68,463 \end{array}$ |  | $\begin{array}{r} 16,78,683 \\ 1,59,563 \end{array}$ | $\begin{array}{r} 83,28,377 \\ 5,09,310 \end{array}$ |
|  |  |  |  |  |  |  |
|  | 19,99,447 | 11,42,105 | 6,96,141 | $\cdots$ | 18,38,246 | 38,37,693 |
| Increase or decreaseas compared withaverage. $\left\{\begin{array}{l}\text { Kharif... } \\ \text { Rati ... }\end{array}\right.$ | $\begin{aligned} & +64,712 \\ & -34,325 \end{aligned}$ | $\begin{aligned} & -34,937 \\ & -18,762 \end{aligned}$ | $\begin{aligned} & +27,463 \\ & -12,402 \end{aligned}$ |  | $\begin{array}{r} -7,474 \\ -31,164 \end{array}$ | $\begin{aligned} & +47,298 \\ & -65,489 \end{aligned}$ |
|  |  |  |  |  |  |  |
| \|Total ... | +20,387 | -53,699 | +15,061 | -*..* | -38,638 | -18,25! |
| $\begin{gathered} \text { Increase or decreace } \\ \text { as compared } \\ \text { 1912-13. } \end{gathered}\left\{\begin{array}{l} \text { Kharif:.. } \\ \text { Rabi ... } \end{array}\right.$ | $\begin{aligned} & -17,070 \\ & -46,506 \end{aligned}$ | $\begin{array}{r} -1,02,121 \\ +8,185 \end{array}$ | $\begin{aligned} & -9,354 \\ & -3,757 \end{aligned}$ | - 0 电 ***** | $\begin{array}{r} -1,11,475 \\ +4,428 \end{array}$ | $\begin{array}{r} -1,28,545 \\ -42,078 \end{array}$ |
|  |  |  |  |  |  |  |
| Total ... | $-63,576$ | -03,936 | -13,111 | -*.0.0 | $-1,07,047$ | -1,70,623 |

There was a decrease in the net assessed revenue of Rs. $1,70,623$ and Rs. 18,251 compared with that of the previous year and the average of the previous three years respectively, due mainly to heavy remissions sranted during the year, owing to floods caused by abnormal rains and to postpoucment of levy of the revised assessed rates in the Fuleli Canals District.
4. (a) The area cultivated on 'spill' water was 3,374 acres as compared chativation from epill. with the previous year's area of 1,871 acres and 4,909 acres, the average of the previous throe years.
5. The average net consolidated assessment per acre on Government land Ascesment rate per acre on as compared with the previous year and the average Goverament land. of the previous three years is shown below :-

|  | Average of provious three years. | 1913-14. | 1912-13. |
| :---: | :---: | :---: | :---: |
|  | Rs. | Rs. | Rs. |
| Major Works-Productive ... | $3 \cdot 08$ | 2.97 | 3.05 |
| Minor Works for which Capital and Revenue Acconnts are kept. | 2.70 | $2 \cdot 51$ | 2.71 |
| Minor Works for which only Revenue Accounts are kept. | $2 \cdot 74$ | 2.74 | 2.74 |
| Average for all works ... ... | $2 \cdot 89$ | $2 \cdot 78$ | 2.88 |

Actual realizations under all heads and the balances outstanding.
6. The following statement shows the realizations under all heads and the balances outstanding at the end of the year :-

Statement $C$.


The balance outstanding at the end of the year is less by Rs. 38,553 and Rs. 74,518 when compared with the previous year's balance and the average balance of the three previous years respectively. These outstanding balances are partly due to postponements granted to cultivators on account of their poor circumstances and partly to instalments due after the olose of the financial year. There was a satisfactory reduction in the Jamrao Canal District, the balance outstanding at the end of the year being Rs. 27,654 against last year's balance of Rs. 52,708 . The average outstanding balance of the three previous years was Rs. 75,759.
7. The remissions granted during the year amounted to Rs. 3,22,822 Remissions on Government against Rs. 62,705 remitted last year and Rs. 65,079 , landes the arerage remissions of the previous three years. The heavy remissions granted during the year were dae to floods cf ased by abnormal rains and to postponement of levy of the revised assessment rates.

The following statement gives the causes of the remissions with a comparison of the previous year's figures:-

H 1275-7

## Remissions.


7. (a) The remissions on Jághir lands amounted to Rs. 6,832 compared Remissions on Jághir lands. with Rs. 3 remitted in last year and Re. 1, the average remissions in the previous three years. The majority of the remissions during the year, viz., Rs. 6,804 were granted on rabi in Bakar Jághir on the Nára Supply Channel and Rs. 28 on kharif on Thar Canal in the Eastern Nára District.
8. The difference between the 'Hakabo ' or water rate assessed on Jághir Loss to canals by Jaghir lands. cultivation and the assessment at full rates on these loss of canal revenue during the year owing to the low rates charged to Jághirdârs.

Expenditure on maintenance and repaira and establishment charged to works.
9. The total charges during the year on account of maintenance and repairs amounted to Rs, 14,83,531 as shown below:-

$$
\begin{array}{lcc} 
& & \text { Rs. } \\
& \ldots & 9,25,103 \\
& \ldots & 3,51,162 \\
& \ldots .07,206 \\
& & \\
\text { Total } & \ldots & 14,83,531
\end{array}
$$

Works ... ... ... ... ... 9,25,103
Establishment and Tools and Plant ... ... ... 3,51,162
Percentage charges for revenue collection ... ... 2,07,266

The Establishment charged to 'Works' amounted to Rs. 1,73,063 and is included in the expenditure on 'Works' while the net expenditure on ' Works " (clearance and repairs) was Rs. 7,52,040. Compared with the previous year and with the average of the previous three years, the net expenditure on clearance and repairs shows an increase of Rs. 33,394 and Rs. 39,716 respectively; the charges on account of Establishment and Tools and Planti also show an increase of Rs. 14,665 and Rs. 6,507.
10. Of the total charges shown in the eoparately for canals and river embankmenta, preceding paragraph, Rs. 13,93,464 were spent on canals and Rs. 90,067 on river embankments.

Oatlay on new works.
11. The outlay of the year on new works was Rs. 3,08,015 as shown below:-
Major Works $\quad . . \quad \ldots\left\{\begin{array}{lll} & & \text { Rs. } \\ \text { Capital } & \text {... } & 1,11,006 \\ \text { Revenue } & \text {.... } & 1,02,675\end{array}\right.$

## Ilinor Works and Navigation.



Under Major Head-Capital, Rs. 96,152 represent the " Works" expenditure, of which Rs. 45,843 were spent on the Jamrao Canal, Rs. 45,074 on the Dad Canal and the Ren Distributary ex: Dad, Rs. 3,984 on the Nasrat and the balance Rs. 1,251 on works in the Eastern Nára District. The expenditure under Revenue Account pertained to Nasrat Canals, Eastern Nára and Jamrao Canal Districts.
12. The regular establishment charges? as shown below amounted to

Regular establishment charges.
three years :-

13. The general financial results of all the Irrigation Works in this Financial Resalts. Division are shown in the following statement :-

Statrient 1.

| Clase of Workse | Gross Revenae. | Working Expenseat. | Net Bertanue. | Simple Interest. | Net proat, 1913-14. | Net proft 1912-19. | Increase. | Decrease. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 3 | 4 | 5 | 0 | 7 | 8 | $\bigcirc$ |
|  | Rs. |  | Rs. | Res. | Re. | Hes. | Rs, | Re. |
| Major Works-Productive -.. | 19,84,009 | 9,32,399 | 10,62,230 | 0,44,368 | 4,07,862 | 4,18,737 | ... | -10,875 |
| Minor Works for which Capital and Bevenua Accounta ara kept | 10,03,051 | 4,09,396 | 6,58,655 | $\cdots$ | 6,58,655 | 6,63,528 | +5,127 | .- |
| Total ... | '30,52,600 | 13,41,785 | 17,10,875 | 0,44,358 | 10,66,517 | 10,72,265 | +5,127 | -10,975 |
| Worke for Which only Revenue Ac- coanta are Eept | 6,47,987 | 2,07,730 | 3,80,257 | ..... | 3,80,257 | 4,48,789 | "• | -02,538 |
|  | 260 | 1,14,866 | -1,15,006 | ...... | -1,14,006 | -1,00,423 | $\cdots$ | -16,183 |
| 1919-16 ... ... | 37,00,907 | 17,24,381 | 10,70,528 | 0,4,358 | 13,32,163 | 16,14,632 | -83,403 |  |
| 1019-13 .. -- | 38,24,097 | 17,47,867 | 20,77,0\%0 | 0,60,430 | 14,16,631 | - | ...... |  |
| Increane or docresse | -1,44,020 | -23,476 | -1,00,544 | -18,091 | -88,403 | ..... | --8,4c3 |  |

13. (a) The following statement shows the rate of expenditure on Agricultural Works per acre of area irrigated after excluding the cost of the surveys for definite project:-

Statement E.

| Total area irrigated by all clases of works. | Total working expenses and maintenance for canals. | Rate of working expenses per acre of ares irrigated (column 2 $\div$ column 1). | Expenditure on Agricultural Works (excluding the cost of surveys for special projects). | Rate of expenditure on Agricultural Works per acre of area imigated (columu 4 column 1). | Total working expenses per acre of area Irrigated expenditure on Agricultural Works (columu $3+$ column 5). |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 3 | 4 | 5 | 6 |
| Acres. | Rs. | Rs. | Rs. | Rs. | Rs. |
| 1,488,906. | 16,09,515 | 1.08 | 1,14,866 | 0.08 | $1 \cdot 16$ |

The total working expenses including expenditure on Agricultural Works comes to Rs. $1 \cdot 16$ per acre of total area irrigated, compared with Rs. $1 \cdot 17$ per acre of area irrigated in the previous year and Rs. $1 \cdot 17$ per acre of the average area irrigated during the past three years.
14. There were 1,021 miles of main canals and 2,993 of branch canalstotal 4,014 miles in operation during the year against the previous year's total mileage of 3,988 (main Length of canals and bands. canals 1,023 miles and branch canals 2,965 miles). The total length of river embankments was the same as in last year, viz., 369 miles though there was a shortage of 1 mile in the Eastern Nára District and a corresponding increase in the Nasrat Canals District. The decrease'and increase in mileage is explained at the bottom of Table VI accompanying this report.

Ares of principal crops, Government and Jaghir.
15. The areas of the principal crops grown during the year were-

Statement F.


As compared with the previous year there was a very small decrease of of 1,821 acres under kharif and 6,448 acres under rabi. When compared with
the average of the previous three jears the rosult was an increase of 68,930 acres under kharif and a decrease of 19,153 acres under rabi or a total net increase of 49,772 acres. With the exception of jowári, cotton, " other crops" bharif and oil-seeds, there was a decrease under all crops as compared with the last year, while comparison with the average of the previous three jears shows an increase in all the kharif crops and a decrease in all the rabi crops.
16. The proportions of kharif and rabi of the total area irrigated in the
Division were the same as last year, viz., S5 and 15 , Division were the same as last year, viz., 85 and 15. The highest kharif percentage of 91 was in the Hyderabad Canals District and the lowest 74 in the Jamrao Canal District, while the Fuleli Canals, Nasrat Canals and Eastern Nára Districts had respece tively 90,84 and 83 per cent. The Fuleli Canals and the Eastern Nára Districts had as usual the highest rice areas with 264,078 acres and 122,454 acres respectirely out of the total rice cultivation of the Division of 405,120 acres. The largest areas under bájri were in the Hyderabad Canals and Fuleli Canals Districts, viz., 155,589 and 83,619 acres. The largest area under jowíri was, as usual, in the Nasrat Canals District with 111,279 acres. Out of the total cotton area of 322,840 acres in the Division, 124,657 aeres were irrigated in the Jamrao Canal District, the Hyderabad Canals District as usual coming next with 80,552 acres.

Of the rabi crops, wheat was largely grown on the Jamrao and the Eastern Nára systems, the Jamrao accounting for 49,175 acres and the Eastern Nára for 24,427 acres out of 106,543 acres, the total for the Division. The smallest area cultivated with wheat, viz., e, 367 acres, was in the Hyderabad Canals District. The largest area under oil-seeds was in the Nasrat Canals District, viz., 24,571 acres, the second being the Fuleli Canals District with 17,270 acres out of the total for the Division of $\mathbf{6 5 , 7 7 3}$ acres.

Out of the total area cultivated during the year 40 per cent. was watered by lift and 60 per cent. by flow against 39 and 61 per cent. respectively daring the previous year.

Duties and deltas of Canals.
17. The duties and deltas of canalse in this Division show the usual fluctuations of values.
The kharif duty and delta on the Jamrao were 82 and 4.2 as compared with 74 and 4.9 in the previous year. The increase in duty and decrease in delta is due to a deorease in the a verage discharge of the canal at its head. The rabi duty has fallen from 45 to 36 and the deita has risen from 8.0 to 9.3. The high rabi delta is due to the fact that kharif cotton is watered for a few months in the rabi season. The average discharge measured for 342 days, on which the canal was flowing, was 1,903 cusecs, and as the total area brought to maturity was 236,354 acres, each cusec irrigated 124 acres against 123 acres in the previous year.

On the Dad, the duty and delta were 43 and $5 \cdot 0$ against 37 and $5 \cdot 3$ in the previous year. The increase in duty and slight decrease in delta are due to decrease in the average discharge and increase in area cultivated.

On the Nasrat, the duty and delta were 65 and 3.4 against 50 and $3: 7$ in the previous year. The increase in duty and slight decrease in delta are due to same causes as on the Dad Canal.

On the Mithrao, the kbarif duty and delta were 56 and 6.0 against last year's figures of 51 and $5 \cdot 8$. This favourable result as regards duty is due to good rain and to kharif area being about 3,000 aores more than in the previous year. The delta is only 0.2 in excess of that of the previons year. The rabi duty and delta were 22 and 1311 against last year's figures of 20 and $9 \cdot 6$. The high rabi delta is due partly to shrinkage in rabi area but mostly to the canal flowing for a longer period, viz., for 14it days against 86 days in the previous rabi season.

On the Hiral Canal, the kharif duty and delta of 95 and 3.5 compare favourably with the previous year's figures of 88 and 3.8 . The rabi duty 19 and delta 136 compare unfarourably with the previous year's figures of н $1975-8$

71 and $2 \%$. This is due to (1) the net area under rabi having decreased from 2,474 acres to 1,620 aores, (2) the canal flowing for a longer period, i.e, 129 days against 77 in the previous year, and (3) the rabi duty being considerably less than that of last year owing to increased discharge.

On the Thar Canal, which is closed every year on 1st December to prevent waterlogging round about Umarkot and to give water for rabi cultivation lower down, the duty and delta were 61 and $6 \cdot 3$, which are nearly the same as the previous jear's figures of 60 and $6 \cdot 5$.

On the Khipro Canal, the duty and delta were 34 and $7 \cdot 2$ against 48 and $5 \cdot 1$ in the last year. The fall in duty and rise in delta are due to the quantity of water being more, while the area of cultivation remained nearly the same.

On the Fuleli, the kharif duty and delta were 51 and 7.2 against the previous year's figures of 55 and 6.7 . The low duty and high delta are due to decrease in area of cultivation due to heavy remissions. The rabi duty and delta were 63 and $5 \cdot 7$ against the last year's figures of 43 and 4.3. The increase in duty is due to less discharge utilized due to greater portion of rabi supply running to waste through the escapes, while the high delta is due to the canal running for 182 days against 92 days in the previous year.

On the Hasanali, the duty and delta were 30 and $9 \cdot 5$ against 32 and 7.2 in the previous year. The decrease in duty and increase in delta are due to less cultivation owing to heavy remissions and to the canal flowing for 142 days against 116 in the last year.
18. On "Major Works" the incidence of working expenses on assessed revenue and per acre irrigated were 47.34 per cent.

Incidence of working expenses on the assessed revenue. and Rs. 1.35 per acre as compared with 47.26 per cent. and Rs. $1 \cdot 36$ per acre in the previous year.
Under "Minor Works" the figures were 38.49 per cent. and Re. 0.79 per acre as compared with $42 \cdot 18$ per cent. and Re. 0.92 per acre in the last year.
19. The total value of crops grown on the irrigated area of $1,517,285$ acres was estimated by the Kevenue Authorities at
Value of each kind of crop irrigated. Rs. 3,63,73,865 which gives an average of Rs. 24 per acre.
20. The agricultural and other conditions of the year as affecting the areas irrigated by the principal works, the nature of seasons, the state of demand and supply are given in the following paragraph.
21. The principal irrigation works in the Division are the Eastern Nára system, the Jamrao, the Dad, the Nasrat, the Fuleli, the Hasanali, the Alibhar Kacheri, the Great Marak and the Sarfraz.

The Eastern Nára system consists of the Nára, Mithrao, Hiral, Thar, Heran and Khipro Canals; the first four are perennial, while the last two flow only during the inundation. The Jamrao has also a perennial supply. The Eastern Nára system and the Jamrao are both fed by the Nára Supply Channel. All the other canals are inundation canals getting their supply direct from the river; the Fuleli though not perennial flows nearly throughout the year and gets a rabi supply.

The inundation of 1913 was, if anything, a little worse than that of 1912, both on account of its being late and of short duration and on account of numerous fluctuations in the level of the river, and the low water level in the middle and the end of July when water is usually in most demand. What saved the season from being a total failure was the fact that fluctuations were fairly rapid and a fresh rise in the river came when crops were beginning to suffer. The abnormal rainfall was also very useful; it greatly helped the crops in northern Sind though in southern Sind being excessive, it caused damage by flooding low-lying lands. The Jamrao in no way suffered from the variable inundation.

The areas irrigated in the whole Division under different crops aregiven in Statement $F$, paragraph 15, above. There was a very small decrease of

8,269 acres as compared with the figures of last year but there was an increase of 49,772 acres when compared with the average of the previous triennium.
22. The following paragraphs give details of different works or groups of works and comparison of the agricultural and financial results of the year 1913-14 with the previous year and the average of the previous triennium, and the main causes of any important differences in results.

## I.-MAJOR WORKS.

## Productive Public Works.

23. 

> A.-Eastern Nára System.

Capital.-A sum of Rs, 1,251 was spent under this head during the year.
Extensions and Improvements.-A sum of Rs. 18,022 was spent during the year on raising and strengthening the Rata Bund and the Bakbora Bakar Bund, Karia heads on Nára and Mithrao and additions to P. W. D. Inspection bungalow at the head of Thar Canal.

Maintenance and Repairs.-All the canals were maintained in good order at a cost of Rs. $1,24,315$ on "Works" and "Works Establishment."

Irrigation.-The area irrigated during the year was 260,034 acres of which 216,945 were under kharif and 43,149 acres were under rabi as compared with 256,767 acres (kharif 212,490 and rabi 44,277 acres) in the last year and with 250,4 48 acres (kharif 194,114 and rabi 56,334 acres), the average of the previous three years.

Financial Results.-The gross revenue for the year amounted to Rs. 6,41,514 as compared with last year's revenue of R.s. $6,83,430$ and Rs. $6,73,681$, the average revenue of the previous triennium. Deducting working expenses Rs. 2,26,2s6 and share due to old irrigation Rs. 3,100, the net revenue during the year due to improvements was Rs. 4,12,128 or 6.05 per cent. on the capital outlay to end of year as compared with $6 \cdot 67$ per cent. in the last year and 6.11 per cent., the average of the previous three years.

General Remarks.-The remissions granted during the year amounted to Rs. 56,642 against Rs. 8,620 remitted last year and Rs. 9,136, the average remissions of the previous three years. The year's remissions were due mostly to floods caused by abnormal rains.

The principal crops grown were-

|  |  |  |  |  | Acres. |
| :--- | :---: | :---: | :---: | :---: | ---: |
| Rice | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 122,454, |
| Cotton | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 52,561 |
| Bajri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 36,556 |
| Wheat. | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 24,427 |
| Oil-seeds | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 11,970 |

and the total value of the whole outturn is estimated at Rs. $67,55,820$ or Rs. 26 per acre.
24.
B.-Jamrao Canal.

Capital.-The expenditure during the year was Rs. $45,8 \pm 3$ which was spent on works in connection with the 17 th mile project and Dalore Distributary.

Extensions and Improvements.-A sum of Rs. 9,393 was spent during the year on "Works" only mainly on constructing bungalows at 6th mile Silore and 23rd mile Puran Minors.

Maintenance and Repairs.-The canal and its branches, were maintained at a cost of Rs. 1,57,824 including "Work Establishment". Regrading and clearance of minors was done where necessary. The conditions at the Head Works continued to be satisfactory and the groynes in the first seven miles wera maintained and extended.

Irrigation.-The total area irrigated during the rear was 239,617 acres (kharif 1 77,927 and rabi 61,690 acres) compared with $949,2 \leq S$ acres (kharif 173,110 and rati 76,175 ) in the last year and with 226,117 acres (kharif $150, i 50$ and rabi 66,361 acres, the arerage cultivation of previous three jears.

Financial Results.-The gross revenue of the rear smounted to Rs. $5,-0,056$ compared with Rs. 8,28,237 in the last year and Rs. 7,41,93:, the averaye revenue of the previous triennium. Deducting working expenses Rs. 3, $53,7=9$, the net revenue during the sear was Rs. $4,66,267$ or $5 \cdot 55$ per cent. on the capital outlay to end of year as compared with 5.69 per cent. during the last year and 4.91 per cent., the average of the prerious three years.

General Remarks.-The amount remitted during the year mas Rs. 10,519 against Rs. 2,349 remitted last year and Rs. 8,560, the arerage remissions of the previous three years. The year's remissions were mainly due to flows owing to heary rains.

The principal crops grown were-

|  |  |  |  |  | Acrex |
| :--- | :--- | :--- | :--- | :--- | ---: |
| Cotton | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 124,657 |
| Wheat | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 49,175 |
| Bájri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 44,642 |

and the estimated ralue of the outturn was Rs. $91,12,523$ or Rs .39 per acre.
25.

> C.-Dad Canal.

Capital.-The expenditure during the year was Rs. 45,074 and mas mainly spent on the Ren Distributary works. The other works undertaken were excarating a new mouth to Guri Dad and Karia heads.

Extensions and Improrements.-A sum of Rs. $29,0: 6$ was spent on "Works" only, on the construction of the Executive Engineer's Bungalow at Nawabshah, the P. W. Inspection bangalors at Gopehani and Sarhari and on excarating new moaths to Hazarimah and Mirwah Sahro ex: Dad.

Maintenance and Repairs.-The canal and its branches were maintained at a cost of Rs. 96,995 including " Work Establishment ". The rear's expenditure on new head to Bhorti Dhand and clearance of the Dhand to feed the Dad is included in the abore amount.

Irrigation.- The total area irrigated during the rear was 109,179 acres (kharif 88,670 and rabi 20,503) against last rear's cultiration of 102,011 acres (kharif 85,791 and rabi 16,220 ) and 100,978 acres (kharif 90,710 and rabi 16,268, the average of the previous three years.

Financial Results.-The gross revenue for the rear amounted to Rs. $2,60,901$ as compared with Rs. $2,37,157$ in the last year and Rs. $2,54,40$, the arerage of the prerious three years. Deducting working expenses Rs. $1, \bar{i}, 0,1$ and share due to cld irrigation Rs. 38,699 , the net revenue due to improrements was Rs. 50,181 or Rs. $1^{-96}$ per cent. on the capital outlay to end of the year as compared with 0.91 per cent. in last year and 3.22 per cent., the arerage of the previous triennium.

General Remarks.-A sum of Rs, 3,490 was remitted during the year against Rs. 13,392 remitted last rear and Ms. 6,375, the arerage remissions of the previous three years.

The principal crops grown were-

|  |  |  |  | scrow |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Bájri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | $35,(90$ |
| Jowári | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 25,155 |
| Oil-seeds | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 12,140 |
| Cotton | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 11,503 |

and the estimated ralua of the outtorn mas Rs. $27,15,445$ or Rs. 25 per acre.
26.

> D.-Nasrat Canal.

Capital.- $A$ sum R Rs. 3,931 was spent on converting the Chanhi bridge into a regulator in mile 25, Nasrat.

Extensions and Improvements.-The expenditure during the year was Rs. 22,326 on "Works" only and was chiefly spent on the construction of a bungalor and office for the Executive Engineer at Nawabshah (the cost of which is divided between Dad and Nasrat) and on completion of the P. W. Inspection bungalows, Class I, at 68th and 72nd miles, Nasrat.

Maintenance and Repairs.-The canal and its branches were maintained at a cost of Rs. 1,12,363 including "Work Establishment". This expenditure includes the amount spent on completion of the new month to the Lundi Dhand and clearing the feeder cut.

Irrigation.-The area irrigated during the year was 99,176 acres (kharif 84,580 and rabi 14,596 ) as compared with 98,000 acres (kharif 86,008 and rabi 11,992) in the previous year and with 90,626 acres (kharif 81,849 and rabi 8,777 ), the average of the previous three years.

Financial Results.-The gross revenue amounted to Rs. $2,62,138$ as compared with Rs. 2,69,804 of the previous year and Rs. 2,57,185, the average of the previous three years. Deducting working expenses Rs. 1,80,293 and share due to old irrigation Rs. 53,016, the net revenue during the year due to improvements was Rs. 25,799 or 1.53 per ceint. on the capital outlay to end of the year as compared with 1.67 per cent. in the last year and $0.9 \pm$ per cent., the average of the previous three years.

General Remarks.-The remissions granted during the year amounted to Rs, 17,891 against Rs. 15,920 remitted last year and Rs. 16,616 , the average remissions of the previous three years. The increase in remissions is due to damage done by locusts.

The principal crops grown were-
dcres
and the estimated value of the outturn was Rs. $19,49,546$ or Rs. 20 per acre.

> II.-MINOR WORKS AND NAVIGATION.
A.-Wores for which Capital and Revenue Accounts are kept.
27.

## I.-Fuleli Canal.

Extensions and Improveinents.-A sum of Rs. 15,397 was spent on "Works" only on completion of the Inspection bungalows at Pangrio and Serani and the Executive Engineer's bungalow at Hyderabad.

Maintenance and Repairs.-The canal and its branches were maintained at a cost of Rs. 1,70,481 inclusive of "Work Establishment". This expenditure includes the amount spent on completing the cut through the sand bank at the mouth of the Fuleli New commenced last year.

Irrigation.-The area irrigated during the year was 385,943 acres (kharif 345,251 and rabi 40,692 ) compared with 392,082 acres (kharif 350,101 and rabi 41,981 ) irrigated in the previous year and with 381,967 acres (kharif 330,974 and rabi 50,993 ), the average of the previous triennium.

Financial Results.-The gross revenue amounted to Rs. 7,59,131 against Rs. $8,23,780$ realized last year and Rs. $8,26,045$, the average of the previous three years. Deducting working expenses Rs. $3,13,578$ and share due to old irrigation Rs. 1,23,188, the net revenue due to improvements was Rs, 3,17,363
or,Rs. 15.99 per cent. on the capital outlay to end of the year compared with 16.27 per cent. in the last year and with 18.42 per cent., the average of the previous three years.

General Remarks.-The amount remitted during the year was Rs. 2,21,540 against Rs. 17,794 remitted last year and Rs. 9,840 , the average remissions of the previous three years. The year's remissions were mainly due to floods and to postponement of lery of the revised assessment rates.

The principal crops grown were-

|  |  |  |  | Acres. |  |
| :--- | :---: | :---: | :---: | :---: | ---: |
| Riee | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 235,095 |
| Bajri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 73,563 |
| Cotton | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 23,092 |
| Oil-seeds | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 15,899 |

and the estimated value of the outturn was Rs. $58,27,770$ or Rs. 15 per acre.
28.
2.-Hasanali Canal.

Extensions and Improvements.-A sum of R. 1,438 was spent on "Works" only.

Maintenance and Repairs.-The canal and its branches were maintained in good order at a cost of Rs. 18,604 inclusive of "Work Establishment".

Irrigation.-The area irrigated during the year was 17,881 acres (kharif 17,608 and rabi 273) compared with 17,929 acres (kharif 17,690 and rabi 239) in the previous year and with 17,537 acres (kharif 17,211 and rabi 326 ), the average cultivation of the past three years.

Financial Results.-The gross revenue amounted to Rs. 42,338 compared with Rs. 48,351 realized last year and Rs. 48,354, the average realizations of the previous three years. Deducting working expenses Rs. 23,587 and share due to old irrigation Rs. 2,458, the net revenue due to improvements was Rs. 16,293 or 5.35 per cent. on the capital outlay to end of the year against 5.67 per cent. in the last year and $6 \cdot 16$ per cent., the average of the previous three years.

General Remarks.-The sum remitted during the year was Rs. 7,364 against Rs. 24 only remitted last year and Rs. 2,442, the average remissions of the past three years. The heavy amount remitted this year was due to floods caused by heavy rains and to postponement of levy of revised assossment rates.

The principal crop grown was-

$$
\text { Rice ... ... ... ... } 14,24.5
$$

and the estimated value of the outturn was Rs. $5,86,505$ or Rs, 33 per acre.
29.

## Alibhar Kacheri.

Maintenance and Repairs.-The canal and its branches were maintained at a cost of Rs. 2,729 including "Work Establishment".

Irrigation.-The area irrigated was 14,998 acres (kharif 13,739 and rabi 1,259 ) against last year's area of 13,291 acres (kharif 12,556 and rabi 735) and 14,068 acres (kharif 12,268 and rabi 1,800), the average area irrigated in the previous three years.

Financial Results.-The gross revenue amounted to Rs 30,847 against Rs. 28,995 in the last year and Rs. 30,722 , the average revenue of the previous three years. Deducting working expenses Rs. 6,366 and share due to old irrigation Rs. 8,239, the net revenue due to improvements was Rs. 16,242 or 67.91 per cent. on the capital outlay to end of year against last year's percentage of 47.80 and $62 \cdot 42$ the average percentage of the previous three years.

General Remarks.-The sum remitted during the year was Rs. 300 against Rs. 40 remitted last year and Rs, 200, the average remissions of the last three years.

The principal crop was bajri 8,553 acres and the value of the whole outturn was estimated at Rs. $4,91,984$ or Rs. 33 per acre.
30.
4.-Great Marak.

Extensions and Improvements.-A sum of Rs. 3,884 was spent on " Works" only.

Maintenance and Repairs.-The canal and, its branches were maintained - at a cost of Rs. 19,743 inoluding "Work Establishment".;

Irrigation.-The area irrigated was 72,203 acres (kharif 64,514 ana rabi 7,749 ) against 72,333 acres (kharif 67,181 and rabi 5,152) in the last year and 69,247 acres (kharif 63,777 and rabi 5,470 acres), the average of the previous three years.

Financial Results.-The gross revenue amounted to Rs. 1,72,883 against Rs. $1,73,140$ in the last year and Rs. $1,67,158$ the average of the previous three years. Deducting working expenses Rs. 45,932 and share due to old irrigation Rs. 36,032 , the net revenue due to improvements was Rs. 90,919 or 42.14 per cent. on the capital outlay to end of the year. compared with 37.93 per cent. in the previous year and $38 \cdot 29$ per cent., the average of the last three years.

General Remarks.-The sum remitted during the year was Rs, 1,480 against Rs. 1,094 remitted last year and Rs. 1,431, the average remissions of the last three years.

The principal crops were-

| Bájres |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Bájri | $\ldots$ | $\ldots$ |  |  |  |
| Cotton | ... | ... | ... | ... | 26,105 |
|  |  | 22,592 |  |  |  |

and the value of the whole outturn was estimated at Rs. $23,23,936$ or Rs. 32 per acre.

## 31.

## Sarfraz.

Haintenance and Repairs.-The canal and its branches were maintained at a cost of Rs. 10,910 including " Work Establishment".

Irrigation.-The area irrigated during the year was 30,726 acres (kharif 28,823 and rabi 1,903 ) against 33,655 acres (kbarif 32,376 and rabi 1,279) in the last year and 30,799 acres (kharif 29,580 and rabi 1,219), the average of the previous three years.

Financial Results.-The gross revenue was Rs. 62,852 against last year's figure of Rs. 62,944 and Rs. 59,949 , the average revenue of the previous three years. Deducting working expenses Rs, 19,933 and share due to old irrigation Rs. 10,985 , the net revenue due to improvements was Rs. 31,934 or $25 \cdot 61$ per cent. on the capital outlay to end of the year compared with $27 \cdot 41$ per cent. in the previous year and 23.82 per cent. the average of the previous three years.

General Remarks.-The sum remitted during the year was Rs. 2,895 against Rs. 102 remitted last year and Rs. 50, the average remissions of the previous three years.

The principal crops were-

$$
\begin{array}{lclllr}
\text { melpar crops were- } & & & & \text { scres. } \\
\text { Bajji } & \text {... } & \text {... } & \text {... } & \text {... } & 18,670 \\
\text { Cotton } & . . & \text {... } & \text {... } & \text {.. } & 6,963
\end{array}
$$

and the value of the whole outturn was estimated at Rs. $4,42,077$ or Res. 14 per acre.
B.-Woris for which only Revende Accounts are kept.
32.

## 1. Nasrat Canals District.

The principal canals under this classification are the Mehrab, the Naulakhi and the Dambhro.

Extensions and Improvements.-A sum of Rs. 6,235 was spent on "Works" only chiefly on the construction of a P. W. Inspection bungalow, Class II, at Phul and a small regulator over Mirwah Duro ex: Dambhro and on completion of the P. W. Inspection bungalow, Class II, at Mehrabpur.
"Maintenance and Repairs.-The expenditure was Rs. 58,853 including "Work Establishment".

Irrigation.-The total area irrigated during the year was 93,553 acres (kharif 80,675 and rabi 12,878) against last year's area of 94,421 acres (kharif 81,179 and rabi 13,242) and the three years' average area of 93,373 acres (kharif 79,384 and rabi 13,989).

Financial Results.-The total canal revenue amounted to Rs. 2,36,280 and the total revenue charges were 84,857 which represents $39 \cdot 9$ per cent. on revenue and Re. 0.9 per acre irrigated against last year's figures of 30.0 per cent. and Re. 0.8 per acre. The corresponding figures for the previous three years averaged 37.6 per cent. and Re. 0.9 per acre.

General Remarks.-The remissions granted during the year amounted to Rs, 907 against Rs. 1,678 remitted last year and Rs. 5,796 the average remissions of the previous three years.

The principal crops grown were-

|  | . |  |  |  | Acres. |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Jowári | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 52,095 |
| Bajjri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 16,774 |
| Wheat | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 9,506 |

and the estimated value of the outturn was Rs. $13, \$ 4,654$ or Rs. 15 per acre.
33. 2.-Hyderabad Canals District.

The principal canals are the Ren, Gharo Mahmudo, Kari Shumali and Nasir.

Extensions and Improvements.-A sum of Rs. 23,569 was spent during the year chiefly on the Executive Engineer's bungalow and office at Hyderabad "charged to Gharo Mahmudo.

Maintenance and Repairs.-All the canals were maintained in good order at a cost of Rs. 67,099 including "Work Establishment". Of this amount Rs. 7,990 were spent on widening Sangrowah and connecting it by a new out with Gharo Mahmudo, which was cut into two parts at its 8th mile by erosion of the river. The work was in progress at the end of the year.

Irrigation.-The total area irrigated was 166,998 acres (kharif 151,732 and rabi 15,266) against 170,971 acres (kharif 155,217 and rabi 15,754) in the last year and 162,336 acres (kharif 144,645 and rabi 17,691), the average of the past three years.

Financial Results.-The total canal revenue amounted to Rs. 3,38,875 and the revenue charges were Rs. $1,12,176$ being $33 \cdot 1$ per cent. on the revenue and Re. 0.7 per acre irrigated against last year's figures of $29 \cdot 6$ per cent. and Re. 0.6 per acre irrigated. The corresponding figures for the previous three years were 28.2 per cent. and Re. 0.6 per acre irrigated.

General Remarks.-The remissions amounted to Rs. 1,188 against Rs. 1,398 remitted last year and Rs. 2,039, the average remissions of the previous three years.

The principal crops were-

$$
\begin{array}{llllll} 
& & & & & \text { Acrea. } \\
\text { Baj!i ... } & \ldots & \ldots & \ldots & \ldots . & 92,281 \\
\text { Cotton... } & \ldots & \ldots & \ldots & . . & 47,747
\end{array}
$$

and the value of the outturn was estimated at Rs. $37,75,984$ or Rs, 23 per acre.
i4.

## 3.-Fuleli Canals District.

Thore are only a few small canals under this head taking off direct from the Iudus.

Extensions and Improvements.-A sum of Rs, 1,251 was spent on " Works" only.

Maintenance and Repairs.-The canals were maintained in good order at a cost of Rs. 18,995 inclusive of "Work Establishment".

Irrigation.-The total area irrigated during the year was 26,857 acres (kharif 23,795 and rabi 3,063 ) against 24,806 acres (kharif 22,380 and rabi 2,426 ) in last year and 24,018 acres (kharif 21,061 and rabi 2,957 ), the average of the previous three years.

Financial Results.-The total canal revenue amounted to Rs. 59,918 and the revenue charges were Rs. 29,190 representing 48.5 per cent. on the revenue and Rs. 1.2 per acre irrigated against last year's figures of 35.9 per cent. on the revenue and Re. 0.9 per acre irrigated. The corresponding figures for the previous three years were $47 \cdot 4$ per cent. and Rs. $1 \cdot 1$ per acre.

General Remarks.-A sum of Rs. 5,152 was remitted during the year against Rs. $1,29 \pm$ remitted last year and Rs. 2,595, the average remissions of the previous three years. The year's heavy remissions are due to floods and to postponement of levy of revised assessment rates.

The principal crop grown was rice 14,733 acres and the value of the outturn was estimated at Rs. $7,08,317$ or Rs. 26 per acre.

## C. -Works for which neither Capital nor Revende ACCOUNTS ARE KEpt.

## 35.

> Agricultural Works.

Extensions and Improvements.-A sum of Rs. 19,955 was spent on " Works" only, mainly on raising and strengthening the Hajipur Bund mile 8 to $11 / 6$ in the Fuleli Canals District and on constructing the Mikaro and Tirchi bunds in the Nasrat Canals District.

Maintenance and Repairs.-All the bunds were maintained in good order at a total cost of Rs. 71,192 including "Work Establishment". Of this sum Rs. 62,769 were spent on bunds in the Fuleli Canals District, Rs. 5,617 on bunds in the Nasrat Canals District and Rs. 2,806 on the Ren bund in the Hyderabad Canals District.

General Remarks.-Water stood against all the river embankments which stood well and there was no cause for anxiety.
36. The expenditure on and receipts from gardens during the year are Expeniture and reeeipts on compared below with the three previous years' gsrdens. expenditure and receipts :-


There is an increase in receipts from gartens in the Division of Rs. 295 and Rs. 422 compared with the last year's receipts and the average receipts of the past three years.

$$
\text { н } 19: 5-10
$$

37. During the year about 9,250 new young trees of various kinds other than babul were reared in canal gardens and nurseries and about 8,120 trees of various kinds were planted along canals and bunds during the year. Of these about 6,550 are alive. Besides these about 12,850 babul trees were also planted along canals and river embankments.
38. The Division was in charge of Major F. M. Westropp, R. E., for the whole year.

The following officers were in charge of Executive Districts:-


All these officers worked satisfactorily.

> F. St. J. GEBBIE, Superintending Engineer, Indus Left Bank Division.

Below No. 5920, dated 22nd December 1914, from the Superintending Engineer, Indus Left Bank Division.

No. C. E.-2155 of 1914.
Pubic Works Department. Office of the Chief Engineer in Sind, In Camp, 30th December 1914.

Subject.-Irrigation Revenue Report for Sind for the year 1913-14.
Forwarded, with compliments, to the Secretary to Government, Public Works Department, Bombay.
2. The report was received in this office on the 27th December 1914.

> G. McC. HARRISON, Chief Engineer in Sind.

## Documents accompanying:-

One roll containing Tahles by Registered post.
(Through the Commissioner in Sind.)

TABLEI.

TABLE
Area of Cultivation and Consolidated Revenue for 1913-1914 and comparison with
Irrigation share of

1.
the average of the previous three years showing Increase or Decrease under Heads-Kharif, Rabiand
Net Consolidated Assessment.

| Bemiamions. |  |  |  | $\begin{gathered} \text { Irrigation } \\ \text { share } \\ \text { on per cent. } \end{gathered}$ | Aserage of provious three years. |  |  |  | Resulty as compared with the arerage of the previous three jeark |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Kharit. | Rabi. |  | Consoi-dntedassessument. |  | Cultivation. |  |  | $\begin{aligned} & \text { Irrigation } \\ & \text { share of } \\ & \text { Net oon- } \\ & \text { somildated } \\ & \text { ampesment. } \end{aligned}$ | Cultivation. - |  |  | Irrigation ahare of Net Conea: dated$\qquad$ |
|  |  |  |  |  | Khant. | Rabl | Total. |  | Eharif. | Rabl | Total. |  |
| 8 | 9 | 10 | 11 | 13 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| R. | Re. | Ra. | Rs. | Rs. | Acres. | Acres. | Acres. | B. | Acrees. | Acres. | Acres. | Hs. |
| 30,450 | $\underset{\substack{27,685 \\ 8,430}}{ }$ | $\underset{\substack{38,334 \\ 12,48}}{\text { a }}$ | 2,65,080 |  | 89,327 49.368 | 33,969 80.782 | 116,688 | 3,47,020 <br> $\mathbf{1 , 5 8 , 0 5 6}$ | -8,388 | 6,298 $\mathbf{5 , 5 1 5}$ | 2,080 | -8.502 |
| 1,823 | 38,381 | 35,204 | 5,89,865 | 6,30,869 | 109,735 | 21,376 | 194, 111 | 3,10,627 | -64, | 40,446 | 103,848 | - $2,20,462$ |
| 10,461 | 68,405 | 85,968 | 9,87,068 | 8,97,361 | 238,420 | 78,417 | 520,897 | 0,15,009 | 46,951 | 60,189 | 97,080 | 1,81,748 |
| 691 | 1,503 | 2,031 | 1,61,003 | 1,46,407 | 49,539 | 20,249 | 68,778 | 1,60,879 | $-1.960$ | -6,406 | -8,968 | -88,88\% |
| 0,748 | 1,073 | 10,819 | 7,57,580 | 6,61,777 | 167,474 | 68,93, | 216,405 | 6,49;901 | 18,198 | -4,818 | 13,583 | 37,878 |
| $\begin{aligned} & 2,473 \\ & 11,224 \end{aligned}$ | -1,017 | $\begin{gathered} \text { 9,400 } \\ 17,891 \end{gathered}$ | 2,7,429 2,79,200 | $\begin{aligned} & 2,44,281281 \\ & 2,51,300 \end{aligned}$ | $\begin{aligned} & 81,956 \\ & 81,510 \end{aligned}$ | $\begin{aligned} & 11,017 \\ & 7,000 \end{aligned}$ | $\begin{aligned} & 99,873 \\ & 88,616 \end{aligned}$ | $\begin{aligned} & 2.38,661 \\ & 2,42,919 \end{aligned}$ | $\begin{array}{r} -1,614 \\ -1,738 \end{array}$ | $\begin{aligned} & 4,164 \\ & 4,663 \end{aligned}$ | $\begin{aligned} & 2,550 \\ & 7,385 \end{aligned}$ | $\begin{aligned} & 5,680 \\ & 8.637 \end{aligned}$ |
| 13,737 | 7,614 | 21,881 | 5,50,623 | 4,95,68! | 106,488 | 18,983 | 185,989 | 4,81,604 | 1,118 | 8,827 | 9,915 | 13,957 |
|  | 947 | -947 | 11.715 | 10,544 | ${ }^{895}$ | 4,408 | ${ }^{5,309}$ | 19,979 |  |  |  |  |
| 1,035 | ${ }_{348}^{483}$ | ${ }_{\text {1, }}^{1,623}$ |  | ¢17.1222 <br> 3,39788 | ${ }_{90}^{21,308}$ | 15,863 17.312 1,38 | 37, $\mathbf{1 1 6 , 9 1 8}$ |  | 16,471 | -1.859 | 1,119 10,211 |  |
| 20,684 | 348 15 | 21,012 18,197 | $3,77.548$ $1,74,961$ | $3,39,788$ $\mathbf{1 , 5 7 , 4 5 6}$ | 99,001 | $\begin{array}{r}17,312 \\ \hline 1583 \\ \hline 1.159\end{array}$ |  | 3,40,243 | 15,534 | -5.243 | 10,211 | -16.859 |
|  | 118 | 200 |  | ${ }_{4}^{4} 8838$ | 2, 1565 | 1,128 | 3,781 | \% 5 | -100 | -186 | -286 | - 412 |
| 8.093 | 409 | 8,582 | 54, 62 | 48,658 | 13,333 | 4,767 | 18,090 | 53,887 | -6,688 | -3440 | ${ }^{80} 8$ | - $2,0,200$ |
| 47,898 | 1,813 | 40.811 | 0,90,337 | 6,21,304 | 190,393 | 48,127 | ${ }^{236,525}$ | 6,40,998 | 21,650 | -13,027 | 8,623 | -25,694 |
| 91,473 | 78,623 | 1,70,001 | 91,58,209 | 88,41,480 | 800,287 | 224, 817 | 1,024,094 | 28,56,485 | 85,957 | 3,711 | 120,863 | 1,85,005 |
| 1,884 11,918 | 1,405 | $\begin{array}{r} 3,379 \\ 13,740 \end{array}$ | $\begin{array}{r} 2,86,884 \\ 10,89,451 \end{array}$ | $\begin{aligned} & 9,58,198 \\ & 9,80,507 \end{aligned}$ | $\begin{array}{r} 65,612 \\ \mathbf{2 0 7 , 6 0 4} \end{array}$ | $\begin{array}{r} 7,436 \\ 24,040 \end{array}$ | $\begin{gathered} 73,048 \\ 21,094 \end{gathered}$ | $\begin{aligned} & 2,55,769 \\ & 8,20,488 \end{aligned}$ | $\begin{array}{r} -3,447 \\ 2,509 \\ \hline 20 \end{array}$ | $\begin{aligned} & 8,011 \\ & \mathbf{3 , 0 1 9} \end{aligned}$ | $\begin{aligned} & \mathbf{4 , 5 6 4} \\ & 5,413 \end{aligned}$ | 23,427 60,019 |
| 13,803 | 8,317 | 17,119 | 13,76,385 | 12,38,703 | 273,506 | 31,476 | 30, 883 | 11,56,257 | -1,058 | 11,030 | 9,877 | 88,446 |
| 8,617 | 63 | 8,580 | 20,372 | 21,095 | 13,700 | 261 | 19,001 | 24,822 | 748 | 1,351 | 2,099 | -3,787 |
| 1,155 | 300 325 | 300 1,480 | 33,870 $1,83,988$ | $\xrightarrow[\substack{\text {, } \\ 1,65,004 \\ \hline 0,489}]{ }$ | 11,061 56,814 | $\xrightarrow{1,403}$ | 12,464 60,680 | -29,882 | 1,409 | -792 | ${ }^{6177}$ | 1,201 5,110 |
| 2,845 | ... | 8,896 | 1,64,099 | 158,400 | 25,443 | 1,054 | 26,502 | 156,188 | 476 | . 600 | 1,038 | 2,292 |
| 4,050 | 825 | 4,675 | 8,81,187 | 2,63,077 | 93,323 | 6,823 | 80,846 | 2,45,374 | 2,554 | 1,630 | 4,174 | 8,003 |
| $\begin{array}{r} 2,19,793 \\ 7,364 \end{array}$ | 1,747 $\cdots$ | $\begin{array}{r} \mathbf{3 , 2 1 , 6 4 0} \\ 7, \mathbf{3 6 1} \end{array}$ | $\begin{aligned} 7,79,739 \\ 46,149 \end{aligned}$ | $\begin{array}{r} 7,01,769 \\ \hline 41,634 \end{array}$ | $\begin{array}{r} 274,283 \\ 16,617 \end{array}$ | $\begin{array}{r}\text { 39,744 } \\ \hline 237\end{array}$ | $\begin{gathered} 314,027 \\ \mathbf{3 6 , 8 5 4} \end{gathered}$ | $\begin{array}{r} 7.57,368 \\ 42,823 \end{array}$ | $\begin{array}{r} 18,702 \\ 355 \end{array}$ | $\begin{array}{r} -8,319 \\ -67 \end{array}$ | 6,383 | $-55,607$ -789 |
| 3,27,157 | 1,747 | 2,28,904 | 8,25,881 | 7,43,203 | 290,900 | 39,081 | 380,891 | 7,09,689 | 14,057 | -8,386 | 5,671 | -58,938 |
| 2,53,538 | 5,763 ${ }^{\circ}$ | 2,58,278 | 25,07,765 | 22,57,008 | 671,420 | 78,041 | 740,470 | 22,26,142 | 16,903 | 5,015 | 21,921 | 30,856 |
| ${ }_{2}^{6,548}$ | 1,107 | $\underset{3,69}{1,818}$ | ( ${ }_{\substack{\text { 1,45,776 } \\ 2,37,107}}$ |  | (28,789 | 13.291 10,847 | 61,075 | 1,32,653 | $-2,085$ | ${ }_{-1,818}^{618}$ |  | $-1.468$ |
|  | 108 | 196 | 45, 683 | ${ }^{41,295}$ | 5,458 | $2{ }^{2} 797$ | ${ }_{8,255}$ | 1, 31,907 | 664 | 1,881 | 1,515 | ${ }^{24,383}$ |
|  | 40 | 65 | 45,354 | 41.689 | 5,173 | 3,687 | 8,760 | 33,488 | $-113$ | 1,737 | 1,944 | 7773 |
| 25 | 178 | 201 | 27,091 | 24,352 | 2,540 | 2,400 | 4,440 | 18,152 | 181 | 1,237 | 1,421 | 6,230 |
| 3.469 | 1,9:0 | 6,419 | 5,01,711 | 4,51,583 | 93,037 | 33,028 | 125,059 | 4,04,742 | -1.311 | 6,089 | 3,778 | 40,791 |
| $\stackrel{80.039}{\substack{2 \\ \hline, 21}}$ | $\underset{\substack{10,350 \\ 5,3,5}}{5,5}$ | 03,389 $10,0 \rightarrow 0$ | 8,11,3*0 |  | $\underset{\substack{198,564 \\ 8,363}}{ }$ | 42;492 11,883 | $\underset{\substack{238,956 \\ 15,236}}{ }$ |  | ${ }^{3,077}$ | -5.9053 | -1.076 | - 13.105 -8.418 |
|  | 1.499 | 1,499 | 21,089 | 18,080 | 2,014 | 5,737 | 8,671 | 23,8*3 | 197 | -1,639 | -1.518 | -4863 |
| 2,091 | :180 | 2,381 | 31,203 | 28083 | 7.574 | 859 | 8.433 | 27,8:8 | -263 | 451 | 178 | 247 |
| 179 |  | ${ }_{39}^{179}$ | 8,133 | 7,324 | 913 | 880 | 1,783 | 5,189 | ${ }^{48}$ | 409 | 655 | 2,13\% |
| 150 | 11* | 319 | 14,423 3,871 | - | 2,8898 | ${ }^{1,372}$ |  | 11.559 <br> 403 <br> 103 | -68 | -207 | - | ${ }^{1,59}$ |
| 4 | 37 | 77 | - 39.851 | - 4 4,682 | 8,176 | 88.817 | -18,983 | 42,037 | -640 | - 73 | - 56 | 9,565 |
| b, 1109 0,390 | 281 | 4,109 6,680 | 14,613 | 13,152 20,513 |  | ${ }_{4}^{1,293}$ | 5,317 | 12,394 | - 489 | -1.109 | 1.216 -1.398 | $\begin{array}{r}\text {-753 } \\ -10.658 \\ \hline\end{array}$ |
| 1,08; $\mathrm{E}_{\mathbf{i}}$ | 17,986 | 1,91,713 | 11,12,600 | 10,01,9:0 | 295.423 | 77,824 | \$13,246 | 10,28,449 | 3,412 | -3.608 | -190 | -25,499 |
| 22,159 |  | 23, +19 |  |  |  |  |  |  |  |  | 1.438 | -5.289 |
| 15,630 7,418 | 1,093, | 15,455 | $55^{58.110}$ | 8, 3,363 | 20,137 | 2, $2,1,14$ | 31.468 | 51.15619 | -998 | 3.618 |  | 7\%0 |
| 7,418 87,369 | ${ }_{0}^{323}$ | 80,443 |  |  | - 86.13 .140 | (2, |  |  |  | -140 | 4, 4.6 | 8,699 -61.119 |
| 34,179 | 301 | 31,450 | 76,037 | ${ }_{6} \mathbf{6 7 , 5 3 4}$ | 51,031 | $\stackrel{\text {, }}{2}$ | 63,912 | ${ }^{1} 86,414$ | -4.313 | 1,085 | -2.378 | $-18.880$ |
| 1,64, 6 2 2 | 2,111 | 1,66, 203 | 3,42,803 | 3, $\leqslant, 003$ | 2000.460 | 13,810 | 230,305 | 3,84,638 | 6,945 | 11,736 | 15,671 | -76,063 |

TABLE


I-concluled.

| Remissions. |  |  |  | Irtigntion share 0 per cent. | Average of previons three jears. |  |  |  | Results ats compared with the average of the previous three years. |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Cultivation. |  |  | Irrigation share of Net Consolidated asseresment. | Coltivation. |  |  | Irrization hlare of Net cansolidated lasećsinert. |
|  |  |  |  |  | Kıarif. | Rabl. | Total. |  | Kharit. | Rabi. | Total. |  |
|  | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | ${ }^{17}$ | 18 | 19 | 30 |
| Hes. | Ro. | Rs. | Hs. | R⿴囗 | Acres. | Aeres. | Acres. | Rs . | Acres, | Acres. | Acres, | Rs. |
|  | 73 | 73 | 85,000 | 81.581 | 10,619 | ${ }^{683}$ | 11,302 | 24,997 | 1,709 | $-50$ | 1.659 | 6,584 |
| 731 50 | 13 | 717 50 | 1,55,496 | $\begin{array}{r}1,40,3196 \\ \hline 32,763\end{array}$ | 40,678 <br> 11.278 | 5,370 1,390 | 52,048 12,646 11,68 | $\begin{array}{r}1,40,507 \\ \hline 3,93\end{array}$ | - ${ }^{8}$ | - ${ }_{-211}^{174}$ | 192 -326 | -111 |
| 38 | .** | 9 | 32,500 | 29,258 | 7,474 | 4110 | 11,584 | 29,293 | 114 | -1,001 | -887 | -35 |
| 829 | 85 | 907 | 2,50,087 | 2,33,988 | 76,047 | 11,553 | 87,600 | 2,27,8:0 | 1,76 | -1,088 | 688 | 6,168 |
| 470 346 3 |  | 781 986 | 1,81,477 | 1,83,329 | 50,447 <br> 30,313 <br> 0,4 | 6,150 1,594 1,68 | 65,697 31,107 | 167,654 <br> 72,171 | 3,563 $\mathbf{2 , 3 6 7}$ | -501 -58 | 3,082 9.919 |  |
| 31 | ... | s1 | 78, 454 | 70,609 | 29,638 | 1,800 | 31,438 | 72,566 | -528 | -194 | -722 | -1,957 |
| .....* |  |  | 2,280 | 1,938 | ${ }_{3}{ }^{3} 8$ | ${ }^{6} 97$ | 1,1185 | 2,876 |  | -318 | -307 | -878 |
| ...... | so | 30 | 12,6̄55 | 11,390 | 4,817 | 1,084 | 8,631 | 10,073 | -347 | -1,349 | -1.696 | -4.683 |
| 84. | 341 | 1,188 | 3,59,010 | 3,23,919 | 124,431 | 32,235 | 136,656 | 3,21,340 | 5,066 | -2,420 | 2,646 | 2,579 |
| 5,137 | $\cdots$ | 5,137 | 61,769 | 58,286 | 18,856 | 1,646 | 20,532 | 53,977 | 1,070 | 178 | 2,148 | 4,309 |
| 2,31,334 | 22,433 | 3,03,767 | 26,41,862 | 23,77,679 | 753,312 | 160,056 | 803,393 | 24,19,394 | 26,798 | 9,883 | 26,681 | -41.715 |
| 118 | 815 | 733 | 5,941 | 5,347 | 2,451 | 1,944 | 4,395 | 8,695 | -663 | -765 | -1,429 | -3.348 |
| $\cdots{ }^{-\cdots . .} 5$ | ${ }^{. .}{ }^{46}$ | ${ }^{\text {m..... }} 51$ | 9251 $\mathbf{2 3 , 8 9 8}$ 4,438 |  | 1,810 | 377 3,29 746 | 377 5,093 1,305 |  | 87 -1.079 69 | -368 $\mathbf{2 , 0 6 5}$ -23 | -281 996 36 | $\begin{array}{r}-753 \\ \hline 3,738 \\ \hline 185\end{array}$ |
| 3 | 48 | 51 | 23,585 | 25,738 | 2,369 | 4,405 | 6,774 | 22,531 | -933 | 1,675 | 741 | 3,195 |
| ... | 3) | 30 | 4,493 | 4,044 | 411 | 219 | 630 | 8,520 | 46 | 245 | 291 | 1,524 |
| $\ldots{ }^{2 . . .}{ }^{213}$ | $\ldots$ | ${ }^{213}$ | 10,336 | ${ }^{9,302}$ | 2,361 142 | 750 295 | 3,111 | 10.087 $.1,313$ | -323 -142 | -291 | -414 -437 | -785 $-1,318$ |
| 213 | $\cdots$ | 213 | 10,336 | 9,3c2 | 2,503 | 1,015 | 3,548 | 11,399 | -465 | -386 | -851 | -2,097 |
| 2,507 435 | $\cdots$ | 8,597 435 | 8,596 8,300 | $\mathbf{8 , 9 9 8}$ 7,470 | 4,247 3,998 | 398 190 | 4,645 | 7,461 | $\begin{array}{r}-295 \\ \hline 212\end{array}$ | $\begin{array}{r}-174 \\ \hline 6\end{array}$ | $\begin{array}{r}-469 \\ \hline 218\end{array}$ | -1,525 |
| 3,632 | ... | 3,032 | 14,896 | 13,406 | 8,243 | 683 | 8,831 | 14,030 | -83 | -168 | -251 | -1.524 |
| 3,368 | 891 | 4,669 | 64,851 | 57,825 | 15,977 | 8,201 | 24,178 | 60,075 | -2,098 | 599 | -1,499 | -2,250 |
| 19,579 | 67,110 3,499 | 80,689 | $10,02,997$ $6,91,049$ | ${ }_{\substack{\text { 9,0,0,698 } \\ 6,968}}$ | 244,871 | 80,361 <br> 57.678 | ${ }_{195,611}^{325,238}$ | $7,24,929$ $6,9,6,653$ | $\begin{array}{r}46.283 \\ -4.204 \\ \hline\end{array}$ | 40,383 | 95,651 $-3,47$ | 1,78,400 |
| 13,312 | 3,347 | 17,149 | 13,50,828 | 12,42,747 | 273,917 | 31,605 | 305,612 | 11,53, in 7 | -1,007 | 11,2\%5 | 10.2:3 | 83,970 |
| 1.05,9\% | 17,966 | 1,24,926 | 11,2, 2, \% ${ }^{\text {a }}$ | 10,10,65: | 237,025 | 78,869 | 316, 799 | 10,33.2:8 | 2,917 6,610 | -3,983 | $-18.519$ | - |
| 1,7i,811 | 2,174 | 1,78,015 | 3,81,160 | 3,43,04 | 228,438 | 14,666 | 243,097 | 4,24,418 | 6,610 | 12,309 | 19,519 | -81,314 |
| 3, 20,207 | 94,076 | 4,14,259 | 45,70,880 | 41,21,807 | 1,123,030 | 263,266 | 1,396,346 | 33,41,393 | 50,834 | 69,016 | 120,550 | 1,80,503 |
| 9,7.76 | 1,073 | 10,819 | 7,57.590 |  | 157,474 | - 68,931 | 216.405 | 6,43.971 | 18,198 | -4.812 | 13,383 | ${ }^{37.876}$ |
| 47,0.3 | 1,313 | 49.812 | 8.90. 337 | 6,21,304 | 100.393 | 48,127 | $2 \times 8535$ | A. 46009 | 21,670 | -13.027 | $8,6.3$ 10,773 | $\begin{array}{r}-25.694 \\ \hline 20.125\end{array}$ |
| ${ }_{4}^{14.569}$ | 7,749 | 24, ${ }_{5}$ |  |  | 242.513 | 30,476 | $278,48,9$ $23,3,2$ | 7,6\%,74 | 7,620 | -8, | 6 cm | 11.143 |
| 2,32,204 | 1,747 | 2,34,041 | $8,90,6+3$ | 8801,579 | 303,786 | 41,637 | 351,413 | 8,53,606 | 18, 127 | $-8.208$ | 7,819 | -52,057 |
| 3,09,404 | 13,323 | 3,22,823 | 37,91,227 | 34,12,105 | 1,117,925 | 197,209 | 1,315,634 | 34,20,7 3 | 66,339 | -19,108 | 47,221 | -8.598 |
| 6,39,701 | 1,07,64 | 7,37,105 | 83,71,107 | 75,31,002 | 2,241, 05 | 400,975 | 2,701,080 | 73,62,096 | 116,963 | 50.513 | 16, 3 , | 1,71,9\% |

TABLE II.
Area of Cultivation and Canal Revenue for 1913-1914 and the previous five years.

| Years, | Cultivation. |  |  | Water-share of net consolidated Assessment. | Hakabo. | Miscellaneous. | Total, Canal Revenue. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Government. | Jaghir. | Total. |  |  |  |  |
| 1 | 2 | 3 | 4 | 5 | 6 | $\boldsymbol{7}$ | 8 |
|  | Acres. | Acres. | Aores. | Rs. | Rs, | Rs. | Rs. |
| ¢1908-1909 ... | 1,658,500 | 183,725 | 1,842,225 | 44,38,125 | 1,27,506 | 62,923 | 46,28,554 |
| 1809-1910 ... | 1,436,564 | 159,940 | 1,596,504 | 41,01,857 | 1,67,169 | 67,439 | 43,36,465 |
| 1910-1911 ... | 1,547,985 | 168,784 | 1,716,769 | 44,62,502 | 1,39,770 | 81,268 | 46,83,540 |
| 1911-1912 ... | 1,207,427 | 113,061 | 1,320,488 | 35,08,669 | 1,15,918 | 71,848 | 36,95,835 |
| Division. ${ }^{\text {a }}$ 1912-1913 $\ldots$ | 1,403,629 | 136,452 | 1,540,081 | 38,53,603 | 1,17,473 | 72,311 | 40,43,387 |
| Average $\quad .$. | 1,450,821 | 152,392 | 1,603,213 | 40,72,831 | 1,33, 667 | 71,158 | 42,77,556 |
| 1913-1914 | 1,506,896 | 151,472 | 1,658,368 | 41,91,897 | 1,3-1,647 | 72,942 | 43,29,486 |
| Increase or Decrease as compared with 1912-1913 | 103,267 | 15,020 | 118,287 | 2,68,294 | 17,174 | 631 | 2,86,099 |
| Do. do. with average .. | 56,075 | -920 | 55,155 | - 49,066 | 1,080 | 1,784 | 51,930 |
| (1908-1.909 ... | 1,370,193 | 132,131 | 1,502,324 | 33,24,091 | 48,261 | 75,880 | 34,48,232 |
| 1909-1910 | 1,207,819 | 122,592 | 1,330,411 | 31,17,380 | 54,624, | 68,856 | 32,40,870 |
| 1910-1911 | 1,284,046 | 121,080 | 1,405,126 | 33,16,494 | 63,400 | 69,905 | 34,46,789 |
| 1911-1912 | 1,292,142 | 120,157 | 1,412,299 | 33,87,512 | E8,9\%2 | 78,2:8 | 35,24,712 |
| Indus Left Bank Division. | 1,370,713 | 128,423 | 1,499,136 | 35,58,105 | 55,352 | 70,408 | 36,83,865 |
| Average ... | 1,304,982 | 124,877 | 1,429,859 | 33,40,719 | 55,522 | 72,655 | 34,68,896 |
| 1913-1914 ... | 1,362,855 | 126,051 | 1,488,906 | 34,12,105 | 54,471 | 98,445 | 35,65,021 |
| Increase or Deorease as compared with 1912-1913 <br> Do. do. with average.. | $-7,858$ 57,873 | $-2,372$ 1,174 | $-10,230$ 59,047 | $-1,46,000$ 71,386 | -881 $-1,051$ | 28,037 25,790 | $\begin{array}{r} -1,18,844 \\ 96,125 \end{array}$ |
| (1908-1909 | 3,028,693 | 315,856 | 3,344,549 | 77,62,216 | 1,75,767 | 1,38,803 | 80,76,786 |
| 1909-1910 | 2,644,383 | 282,532 | 2,926,915 | 72,19,247 | 2,21,793 | 1,36,295 | 75,77,335 |
| 1910-1911 | 2,832,081 | 289,864 | 3,121,895 | 77,78,996 | 2,00,1.70 | 1,51,173 | 81,30,339 |
| , 1911-1912 ... | 2,479,569 | 233,218 | 2,732,787 | 68,95,581 | 1,74, $\mathrm{E}^{\text {90 }}$ | 1,50,076 | 72,20,547 |
| otal for sind $\cdots\left\{\begin{array}{l}1912-1913\end{array}\right.$ | 2,774,342 | 264,875 | 3,039,217 | 74,11,708 | 1,72,825 | 1,42,719 | 77,27,252 |
| Average. ... | 2,755,803 | 277,269 | 3,083,072 | 74,13,550 | 1,89,089 | 1,43,813 | 77,46,452 |
| - 1913-1914 ... | 2,869,751 | 277,523 | 3,147,274 | 75,31,002 | 1,89,118 | 1,71,387 | 78,94,507 |
| Incr ase or Decrease as compared with 1912-1913 | 95,409 | 12,648 | 108,057 | 1,22,294 | 16,293 | 28,668 | 1,67,255 |
| Do. do. with average. | 113,948 | 254 | 114,202 | 1,20,452 | 29 | 27,574 | 1,48,055 |

TABLE III.
Area of Cultivation and Canal Revenue Direct and Indirect for the year 1913-1911.


TABLE III-concluded.


## TABLE IV.

Area of Cultivation, Assessment, Realizations and Balances outstanding in respect of Lands in Khelàt and Jághir Lands in Sind for 1113-1114.


TABLE V.
Rerenve Exponditure on New TForks, Maintenance and Repairs; and Establishment Charges in the Public Works and Revenue Departments on Irrigation Works in Sind for the year 1913-1914.


TABLE IV—coneluded.


* The diference as compercd mith last year is dae to adjastments made by the Civil Department.

TABLE V -continued.


[^3]TABLE V-concluded.


TABLE V-continued.


TABLE VI-concluded.


[^4]
## TABLE VII.

Statement shouing Reccipts from Sale of Occupancy Rights in Waste or other Lands not belonging to Major and Minor Works, but directly benefited by their construction for the year 1913-1914.


[^5]TABLE VII-continued.


TABLE VII-concludted.


> TABLE VIII.

ㅍ $12: 5-15$

Abstract of Crop Return of Government,


VII!.
loreign and Jüghir Lands for five yoars.


TABLE

| Canals, Districts and Crops. |  | 1009-1910, |  |  | 1910-191. |  |  | 1911-1912. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Lift. | Flow, | Tutas. | Lift. | Flow. | Total, | Lift. | Flow. | Total. |
| Western Náraoontd. | $\left\{\right.$Rabi.  <br> Wheat $\ldots$. <br> Barley $\ldots$ <br> Oil-seeds $\ldots$. <br> Other Crops..  <br> Total ... <br> Grand Total.  | Acres. | Acres, | Acres. | Acres, | Acres. | Acres. | Acres, | Acres. | Acres, |
|  |  | 6,555 | 36,161 | 42,716 | 11,801 | 48,322 | 60,123 | 6,375 | 39,412 | 44,787 |
|  |  | 217 | 1,035 | 1,252 | 168 | 2,267 | 2,435 | 897 | 2,111 | 2,5u8 |
|  |  | 2,049 | 35,120 | 37,214 | 2,084 | 55,959 | 58,043 | 1,007 | 46,779 | 47,786 |
|  |  | 1,325 | 69,377 | 70,742 | 401 | 60,662 | 66,963 | 355 | 79,125 | 73,4e0 |
|  |  | 10,191 | 141,693 | 151,884 | 14,454 | 173,110 | 187,564 | 7,134 | 161,427 | 168,561 |
|  |  | 58,868 | 326,581 | 385,399 | 65,816 | 372,162 | 437,978 | 49,477 | 348,665 | 393,142 |
| Kıráchi Canals, $\{$ |  |  |  |  |  |  |  |  |  |  |
|  |  | 273 | 186,331 | 186,604 | 118 | 214,003 | 214,121 | 233 | 213,851 | 214,084 |
|  |  | 724 | 301 | 1,025 | 1,283 | 38 | 1,3\%1 | 313 | 4-10 | 753 |
|  |  | 21,179 | 6,257 | 26,436 | 14,590 | 1,949 | 16,539 | 7,225 | 2,598 | 9,823 |
|  |  | 2,206 | 3,498 | 6,704 | 3,041 | 1,401 | 4,442 | 2,315 | $\dddot{1,679}$ | 3,894 |
|  |  | 24,384 | 195,387 | 219,771 | 19,039 | 217,391 | 236,430 | 10,114 | 218,468 | 298,582 |
|  |  | 33 | 169 12756 | 169 12789 | 1,025 | 182 10,486 | 182 11.511 | 10 | 82 3,098 | 82 3108 |
|  |  |  | 7,899 | 12,8,899 | 1,025 | 6,283 | 11,811 |  | 5,544 | 3,108 5,544 |
|  |  | 257 | 15,412 | 15,669 | ... | 19,806 | 19,806 | 78 | 19,109 | 19,187 |
|  |  | 290 | 36,236 | 36,526 | 1,025 | 36,757 | 37,782 | 88 | 27,883 | 27,921 |
|  |  | 24,674 | 231,623 | 256,297 | 20,064 | 254,148 | 274,212 | 10,202 | 246,301 | 256,503 |
| Indus Right Bank Division. | $\left\{\right.$ |  |  |  |  |  |  |  |  |  |
|  |  | 281 | 722,842 | 723,123 | 300 | 752,117 | 752,417 | 233 | 674,182 | 674,415 |
|  |  | 122,894 | 212,040 | 334,934 | 134,808 | 201,358 | 396,168 | 102,627 | 158,223 | 260,850 |
|  |  | 50,840 | 68,405 | 119,245 | 39,568 | 58,237 | 97,775 | 36,405 | - 50,713 | 87,118 |
|  |  | 240 | 602 | 842 | 458 | 713 | 1,171 | 1,460 | 788 | 2,248 |
|  |  | 7,828 | 55,406 | 63,234 | 10,744 | 63,057 | 73,801 | 10,465 | 59,773 | 70,238 |
|  |  | 182,083 | 1,059,295 | 1,241,378 | 185,878 | 1,135,452 | 1,321,330 | 151,190 | 943,679 | 1,094,869 |
|  |  | $\begin{array}{r} 9,008 \\ 273 \\ 6,247 \\ 2,003 \\ \hline \end{array}$ | $\begin{array}{r} 183,147 \\ 14,314 \\ 117,935 \\ 368,372 \end{array}$ | $\begin{array}{r} 192,155 \\ 14,587 \\ 124,182 \\ 370,375 \end{array}$ | $\begin{array}{r} 13,791 \\ 1,205 \\ 2,851 \\ 704 \end{array}$ | 290,438 13,355 <br> 134,198 <br> 359,903 | $\begin{array}{r}  \\ 234,229 \\ 14,560 \\ 137,049 \\ 360,607 \end{array}$ | 7,436 | $\begin{array}{r} 140,833 \\ 6,635 \end{array}$ | 148,269 <br> 6,047 <br> 105,819 <br> 241,76 |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | 412 |  |  |
|  |  |  |  |  |  |  |  | $\begin{array}{r} 1,859 \\ 855 \end{array}$ | $\begin{aligned} & 103,960 \\ & 240,912 \end{aligned}$ |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  | 17,531 | 683,768 | 701,299 | 18,551 | 727,894 | 746,445 | 10,562 | 491,340 | 601,902 |
|  |  | 199,614 | 1,743,063 | 1,942,677 | 204,429 | 1,863,346 | 2,067,775 | 161,752 | 1,435,019 | 1,596,771 |
| Eastern Nára... | $\left\{\begin{array}{rr} \text { Kharif. } \\ \text { Rice } & \ldots \\ \text { Jowári } & \ldots \\ \text { Bajri } & \ldots \\ \text { Cotton } & \ldots \\ \text { Other Crops.. } \\ \text { Total } & \ldots \\ & \\ \text { Rabi. } \end{array}\right.$ | 1 113,002 <br> 235 150 <br> 24,563 9,707 <br> 5,618 14,925 <br> 1,389 336 |  | $\begin{array}{r} 113,003 \\ 385 \\ 34,270 \\ 20,543 \\ 1,725 \end{array}$ | $\begin{array}{r} 122 \\ 1,345 \\ 17,722 \\ 8,364 \\ 1,777 \end{array}$ | $\begin{array}{r} 124,084 \\ 311 \\ 11,819 \\ 13,137 \\ 564 \end{array}$ | $\begin{array}{r} 124,156 \\ 1,656 \\ 29,541 \\ 21,501 \\ 2,341 \end{array}$ | $\begin{array}{r} 280 \\ 1,143 \\ 13,120 \\ 10,874 \\ 1,070 \end{array}$ | $\begin{array}{r} 129,366 \\ 247 \\ 11,006 \\ 22,559 \\ \mathbf{8 9 1} \end{array}$ | $\begin{array}{r} 120,640 \\ 1,390 \\ 24,120 \\ 33,433 \\ 2,061 \end{array}$ |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | 31,806 | 138,120 | 169,926 | 29,330 | 149,865 | 179,195 | 26,487 | 164,169 | 100,656 |
|  |  |  |  |  |  |  |  |  |  |  |
|  | $\left\lvert\, \begin{array}{lr}\text { Wheat } & \ldots . \\ \text { Barley } & \ldots \\ \text { Oil-seeds } & \ldots . \\ \text { Other Crops.. }\end{array}\right.$ | 2,082 | 29,986 | 32,068 |  | 41,727 | 43,746 | 3,362 | 34,069 |  |
|  |  | 2, 36 | 270 | 306 | -58 | 255 | 31216,062 | 56764 | 3,0837,394 | $\begin{array}{r} 3 \times 9 \\ 8,168 \end{array}$ |
|  |  | 446 | 7,137 | 7,583 | 328 | 15,734 |  |  |  |  |
|  |  | 474 | 9,090 | 9,564 | 551 | 8,523 | 9.079 | 547 | 9,001 | $0,648$ |
|  | Total ... | 3,038 | 4f,483 | 49,521 | 2,057 | 66.244 | 69,199 | 4,729 | [0,797 | 65,526 |
|  | Grand Total. | 34,844 | 184,603 | 213,447 | 32,285 | 216,109 | 248,394 | 31,216 | 214,266 | 216,182 |

VIII-conlinued.


ㅍ 1275-16

TABLE


VIII-continued.

table


VIII—concluded.


Rainfall in the Province of Sind for the year 1913-1914.


Memoranibm showing the amounts of loss to Canals on account of difference between the assesso ments of water-rates on Jughir Lands and assessments at the ordinary rates in force for Government Lands.

R. A. O'CONNOR,

Deputy Accountant General.

Statement showing Actual Receipts during 1913-14 on account of Irrigation Share of Land Revenue from Canals in Sind.


Statement of Mighest Readings on Bukkiur and Kotri gauges from 1SSO to 1313.


No. W-74 of 1915.
Puplio Works Department.
Office of the Commissioner in Sind:
Government Mouse, Karáchi, ${ }_{2}^{\text {gith }}$ gith Junuary 1915.
Submitted to Government together with a comparative statement showing the area irrigated and the assessment thereon for the
Irrigation Revenue Report of the Province of Sind for 1913-14. three years ending 1913-14 and the average of the three years ending 1912-13.
2. The inundation compared with that of the previous year was unfavourable. The river rose late, its level constantly fluctuated, and was particularly low at the end of July, when water is most required. The first rise began in the latter part of May, but owing to fluctuations the fair irrigating level of $13^{\prime}$ at the Bukkur gauge was not reached until the 2nd august. This level was maintained upto the 17 th August (for 16 days only as compared with 31 days in the previous year and 43 days, the average of the previous 10 years) ; on the 18th the river fell to 10.9 feet and thereafter, except for a few days, continued to fall till the end of the season. This sudden fall at a time when the sharif crops were in need of a final watering would have had disastrous results but for timely and copious rainfall in July and August. The fair irrigating level of 17 feet at the Kotri gauge was first registered on the 17 th June and was maintained for 66 days as compared with 69 days in the previous year and 66 days, the average of the previous 10 years. Except in the delta portions of the Karáchi and Hyderabad Districts the season, on the whole, was a favourable one owing to the good rains, and the results as shown in the comparative statement indicate an improvement both in the area of cultivation and assessment in comparison with the figures of the last year. The increase in area amounts to 108,057 acres or $3 \cdot 56$; and in assessment to Rs. $1,40,503$ or $1 \cdot 67$ per cent. A comparison of the current year's figures with the average figures of the past three years indicates an increase of $6 \cdot 16$ per cent. in area and $2 \cdot 12$ per cent. in assessment.
3. The following table shows the results of each Division separately :-

| Division. |  |  | As compared with 1912-13. |  | As compared with the average of 3 years. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | .. | Eharif. | Rabi, | Kharif. | Rabi. |
|  |  |  | Acres. | Acres, | Acres. | Acres. |
| Right Bank |  | $\cdots$ | + 35,987 | +82,300 | +67,242 | +65,316 |
| Left do. | - | $\cdots$ | - 1,930 | -8,300 | $+68,799$ | - 18,74.6 |

4. There has been a striking increase in the cultivated area on the following canals:-

| Begari Canal | ... | ... | ... | Acres. |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | 103,842 |
| Jamrao do. | ... | ... | ... | ... | 13,383 |
| Nasrat do. | -.. | ... | ... | ... | 7,395 |
| Mitbrao do. | ... | $\cdots$ | ... | ... | 10,211 |
| Gbar do. | ... | ... | ... | ... | 5,413 |
| Fuleli do. | ... | ... | ... | ... | 5,383 |
| Pinyari do. | ... | ... | ... | ... | 10,687 |

The increase in kharif cultivation was general ; the rabi increase occurred on the Begari, Nasrat, Ghar and Pinyari canals. On the other hand, the Unharwah and the Mahiwah show a considerable decreaso particularly in rabi.
5. During the year remissions of land revenue amounted to Rs. 7,64,482 as against Rs. 4,45,719 in the previous year and Rs. 4,19,525, the average of the three preceding years. The remissions include Rs. $1,42,090$ on account of the difference between the new rice rates sanctioned for the Tando division, and the old rates, the levy of which was postponed for one year under Government Resolution (Confidential) No. 4147/101, dated the 4th May 1914, and Rs. 6, 804 on account of arrears of hakabo for previous years written off during the year. With the esclusion of these items the actual remissions for the year under report amount to Rs. $6,15,588$ or Rs. $1,44,231$ more than in the previous year. Of this, floods and erosion are responsible for Rs. 3,48,203 as against Rs. 67,95j in the previous year and Rs. $1,0,0,581$, the average of the three preceding years, and deficiency of water for Rs. $1,37,055$ or Rs. $1,57,180$ less than that of the previous year and Rs. 97,366 less than the average of the last three years. Other important items were damage by insects (Rs. 28,458), damage by locusts (Rs. 12,617), kalar soil (Rs. 10,217), adverse winds (Rs. 27,764) and frost (Rs. 5,857).
6. The outstanding balances at the end of the year aggregated Rs. $2,43,866$ (Rs. 1,28,366 in the Right Bank Division and Rs. 1,15,500 in the left Bank) as against Rs. 3,06,212 in the preceding year and R.s. 4,82,254, the average of the past three years. The subject will be discussed in detail in the Land Revenue Administration Report, Part I.
7. The more important items of expenditure on new works are detailed below: -


Over and above these a sum of Rs. $2,57,245$ was spent on constructing a bund along the boundary of Vazir forest in the Shikárpur Canals District, extending Western Nara bunds, raising and strengthening Manjhand and Nara bunds and on other works in the Right Bank Division. A sum of Rs. 19,955 was also spent in the Left Bank Division on raising and strengthening the Hajipur bund and constructing Mikaro and Tirchi bunds in the Nasrat Canals District.
8. The subjoined statement shows the expenditure on maintenance and repairs during the year as compared with that in the previous year and the average figure of the three preceding years:-


Of this the actual cost of clearance and repairs of "works" was as follows :-

|  |  |  | 1913-14. | 1912-13. | Arerage of thre gears |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Rs. | Rs. | Rs. |
| Right Bank | ... | $\cdots$ | 12,90,559 | 13,28,738 | 12,72,951 |
| Left do. | ... | -• | 7,52,040 | 7,18,646 | 7,12,324 |

9. The following table shows the area cultivated with the principal crops as compared with the figures of the previous year and the average of the past three years:-

| Rice |  |  | 1913-14. | 1912-13. | Average of the three years ending 1912-13. |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Rs. | Rs. | Re. |
|  | .." | $\cdots$ | 10,82,263 | 10,67,508 | 10,94,732 |
| 'Jowári | ... | ... | 5,29,257 | 5,04,451 | 4,59,520 |
| Bajri | ... | $\cdots$ | 5,25,881 | 5,89,107 | 4,87,625 |
| Cottou | ... | ... | 3,24,921 | 2,80,502 | 2,94,088 |
| Wheat | ... | $\cdots$ | 3,05,538 | 3,13,762 | 3,12,274 |
| Bariey | ... | $\cdots$ | 15,742 | 12,802 | 14,375 |
| Oil-seeds | ... | $\cdots$ | 2,37,847 | 1,54,660 | 1,80,694 |

R. P. BARROW,

Commissioner in Sind.
To
The Secretary to Government,
Public Works Department, Bombay.

STATEMENT.

- 1275-19

Statement showing cultivated Area and Asesssment of Government, Jaghir and Forsign Lands for the year

| Year. | Gotrrnarma Lands. |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Indua Right Bank Division. |  |  | Indus Left Bank Division. |  |  | Kharif. |
|  | Kharif. | Rabi | Total. | Kharif. | Rabl. | Total. |  |
| 1911-1912 | Acres. | Acres. | Acres,$1,207,427$ | Acres. | Acres. | Acres. | Ar |
|  |  |  |  |  |  |  | Acres. |
|  | 1,013,852 | 193,575 |  | 1,037,991 | 204,151 | 1,292,142 | 2,101,843 |
| 1912-1913 | 1,152,336 ${ }^{\prime}$ | 251,293 | 1,403,629 | 1,191,915 | 188,798 | 1,370,713 | 2,934,251 |
| 1913-1914 | 1,173,714 | 333,182 | 1,506,896 | 1,184,254 | 178,601 | 1,352,855 | 2,357,968 |
| Average of 3 years ending 1912-1913. | 1,123,080. | 268,266 | 1,386,346 | 1,117,925 | 197,709 | 1,315,634 | 2,241,005 |
|  | Rs. | Rs. | Rs. | Re. | Rs. | Rs. | Rs. |
| 1011-1912 | 31,53,051 | 7,44,804 | 38,97,855 | 31,71,849 | 5,92,054 | 37,63,903 | 63,24,900 |
| 1912-1913 ... | 34,08,144 | 8,73,637 | 42,81,781 | 34,08,338 | 5,47,111 | 39,53,449 | 68,14,482 |
| 1913-1914 | 35,31,471 | 10,48,409 | 45,79,880 | 32,80,250 | 5,10,977 | 37,91,227 | 68,11,721 |
| Average of 3 years ending 1912-1913. | 34,32,197 | 9,47,126 | 43,79,323 | 32,31,839 | 5,68,943 | 38,00,782 | 66,64,036 |


| Year. | Forbion Latids. |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Indus Right Bank Division, |  |  | Indua Left Bank Division. |  |  |
|  | Kharif. | Rabi. | Total. | Kharif. | Rabi, | Total. |
| , | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. |
| 1911-1912 ... | 25,334 | 18,144 | 43,478 | ..... | .... | *....* |
| 1912-1913 ... | 36,334 | 19,381 | 55,715 | ...... | ... | ...... |
| 1913-1914 -.. | 56,276 | 13,160 | 69,436 | *... | ....• | -0. $\cdot \square$ |
| Averace of 3 years ending 1912-1913. | 36,966 | 20,523 | 57,489 | -..... | ..... | Asses. |
|  | Rs. | Rs. | R8. | Re. | Rs. | $\mathrm{H}_{\text {s. }}$ |
| 1911-1912 - .. | 68,176 | 30,763 | 98,933 | ...... | ...... | ...... |
| 1912-1913 ... | 48,869 | 33,942 | 82,811 | ...... | .....• | ...... |
| 1013-1914 ... | 60,333 | 27,207 | 87,546 | ...... | ...... | -....0 |
| Arerecte of 3 years ending 1912-1913. | 64,909 | 35,686 | J,00,685 . | -•...* | ....." | -..... |

1011.1012, 1912-1013 and 1313-1314, tugether with the average of the three years enling 1913-1913.

|  |  | Jigeig Laspd. |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total |  | Indus Right Bank Diviston |  |  | Indue Left Bank Division |  |  | Total. |  |  |
| Rabi. | Total. | Kbarif. | Rabi. | Total. | Kharif. | Rabi. | Total. | Kharit. | Rabi. | Total |
| ea. |  |  |  |  |  |  |  |  |  |  |
| Acres. | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. |
| 397,726 | 2,499,569 | 55,686 | 13,807 | 69,583 | 104,577 | 15,580 | 120,157 | 160,263 | 23,477 | 189,740 |
| 440,091 | 2,774,342 | 66,314 | 14,423 | 80,737 | 114,568 | 13,855 | 128,423 | 180,882 | 28,278 | 209,150 |
| 511,783 | 2,869,751 | 60,981 | 21,055 | 82,036 | 110,299 | 15,752 | 126,051 | 171,280 | 36,807 | 208,087 |
| 460,975 | 2,701,980 | 63,683 | 18,260 | 81,943 | 107,829 | 15,391 | 123,220 | 171,512 | 33,551 | 205,163 |
| ment. |  |  |  |  |  |  |  |  |  |  |
| Rs. | Rs. | Rs. | Re. | Rs. | Rs. | Rs. | Rs. | Rs. | R. | Re. |
| 18,86,858 | 76,61,758 | 19,492 | 3,459 | 22,951 | 51,619 | 6,829 | 58,448 | 71,111 | 10,283 | 81,393 |
| 14,20,748 | 82,35,230 | 21,253 | 4,926 | 26,179 | 50,584 | 4,283 | 54,867 | 71,837 | 9,209 | 81,045 |
| 15,59,356 | 83,71,107 | 20,799 | 6,863 | 27,667 | 48,127 | 5,143 | 53,270 | 68,926 | 12,011 | 80,937 |
| 15,16,069 | 81,80,105 | 20,848 | 5,594 | 26,442 | 49,300 | 5,862 | 55,162 | 70,143 | 11,456 | 81,C01 |
|  |  |  |  |  |  |  |  |  |  |  |

Grand Total.

| Indus Right Bant Divisiou. |  |  | Indas Left Bank Division. |  |  | Total. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ELarif. | Rabi. | Total | Kharif. | Rabi. | Total | Kbarif. | Rabi. | Total. |
| ea. |  |  |  |  |  |  |  |  |
| Acres, | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. | Acres. |
| 1,094,872 | 225,616 | 1,320,488 | 1,192,568 | 219,731 | 1,412,299 | 2,287,440 | 445,347 | 2,732,787 |
| 1,254,984 | 285,097 | 1,540,081 | 1,296,483 | 202,653 | 1,499,136 | 2,551,467 | 487,750 | 3,039,217 |
| 1,290,971 | 367,397 | 1,658,968 | 1,294,553 | 194,353 | 1,488,906 | 2,585,524 | 561,750 | 3,147,274 |
| 1,223,720 | 302,049 | 1,525,778 | 1,225,754 | $6^{213,100}$ | 1,438,854 | 2,449,48.3 | 515,149 | 2,964,632 |
| ment. |  |  |  |  |  |  |  |  |
| Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | R. | Rs. |
| 32,40,719 | 7,79,028 | 40,19,745 | 32,23,468 | 5,98,883 | 38,22,351 | 64,64,187 | 13,77,909 | 78,42,023 |
| 84,78,265 | 9,12,505 | 43,90,771 | 34,56,922 | 5,51,394 | 40,08,316 | 63,35,188 | 14,63,893 | $83,93,007$ |
| 36,12,609 | 10,82,484 | 46,95,093 | 33,28,377 | 5,16,120 | 33,44,497 | 69,40,985 | 15,98,604 | 85,39,590 |
| 35,18,044 | 9,89,406 | 45,06,450 | 32,81,133 | 5,74,805 | 38,55,944 | 67,99,183 | 15,63,211 | S3,62,394 |
|  |  |  |  |  |  |  |  |  |

## HYDROGRAPH OF THE RIVER INDUS AT BUKKUR AND KOTRI




Kularturas

## Revenue Report of Irrigation Works in Sind for 1913-14-Review of

No. W. I. $-5{ }^{28} 3$.
PUBLIC WORKS DEPARTMENT.
Bombay Castle, 4th May 1915.
Letter from the Superintending Engineer, Indus Right Bank Division, No. 7315, dated 15 th December 1914.

Submits the Revenue Report for his Division for 1913-14 and makes remarks.
Letter from the Superintending Engineer, Indus Left Bank Division, No. 5920, dated 22nd December 1914.

Submits the Revenue Report for his Division for 1913-14.
Memorandum from the Chief Engineer in Sind, No. C. E.- ${ }^{21} 55$, dated 3 oth December 1914

Forwards the above Revenue Reports for the Indus Right and Left Bank Divisions and makes remarks.

Memorandum from the Commissioner in Sind, No. W.-74, dated 28th January 1915.
Submits the above with his remarks.
Letter from the Chief Engineer in Sind, No. C. E.-248, dated 23 rd February 1915.
With reference to Government Memorandum No. 1834-I., dated 15th February 1915, forwards two statements in connection with the Irrigation Revenue Report, Sind, for 1913-14 therein called for.

Resolution.-The reports by the officers in charge of the Indus Right and Left Bank Divisions have been reviewed by the Commissioner in Sind, and the general results summarised in the statement which accompanied his No. W.-74, dated 28th January 1915.
2. The total area irrigated for the year under review and for the five previous years is as follows :-

3. The financial results of the year based on actual receipts for all the Irrigation Works in the Province may be thus summarised.

|  | Gross Revenue. | Working Expenses. | Net Revenue. |
| :---: | :---: | :---: | :---: |
| Major Works-Productive ... ... | $\begin{gathered} \text { Rs. } \\ 3^{1,79,865} \end{gathered}$ | $\begin{gathered} \text { Rs. } \\ \text { I5,20,0 } 8 \end{gathered}$ | $\begin{gathered} \text { Rs. } \\ \text { I } 6,59,847 \end{gathered}$ |
| Minor Works and Navigation-Works for which both Capital and Revenue Accounts are kept | 23,53,487 | 7,22,923 | 16,30,564 |
| Works for which only Revenue Accounts are kept | 24,97,505 | 11,33,791 | 13,63,714 |
| Agricultural Works | 67,287 | 12,19,408 | -11,52,121 |
| Grand Total ... | 80,98,144 | 45,96,140 | 35,02,004 |

The minus figure under net revenue apainst Agricultural Works is due to the cost of maintenance of the Protective River embankments being included under the head-Working Expenses.
4. The information contained in Statement E, included by the Superintending Engineers, in their Divisional Reports under paragraph ${ }_{13}$, is grouped together as shown below:-

| Total area irrigated by all classes of works. | Total working expenses and maintenance for canals. | Rate of working expenses per acre of area irrigated (column 2: column 1.) | Expenditure on Agricultural works (excluding the cost of surveys for special projects.) | Rate of expenditure on Agricultural works per acre of area irrigated (column $4 \div$ column 1.) | Total Working expenses per acre of area irrigated including expenditure on Agricultural works (column $3+$ column 5) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 3 | 4 | 5 | 6 |
| Acres. $3,147,274$ | $\begin{gathered} \text { Rs. } \\ 33,77,249 \end{gathered}$ | Rs. 1.07 | $\begin{gathered} \text { Rs. } \\ \text { I I }, 58,391 \end{gathered}$ | Rs. $0.37$ | Rs. <br> $1 \cdot 44$ |

The whole cost per acre of irrigation in Sind must in clude as shown above, the expenditure on river embankments as these have to be maintained in order to protect the area of cultivation from floods.
5. The totals of the Financial results for the year under review and the previous five years are as follows:-

|  | Gross Revenue. | Working expenses, | Net Revenue. |
| :---: | :---: | :---: | :---: |
| 1908-09 | $\begin{gathered} \text { Rs. } \\ 80,39,03 \mathrm{I} \end{gathered}$ | $\begin{aligned} & \text { Rs. } \\ & 37,65,95 \mathrm{I} \end{aligned}$ | $\begin{gathered} \text { Rs. } \\ 42,73,080 \end{gathered}$ |
| 1909-10. | 78,29,012 | $40,42,671$ | 37,86,341 |
| 1910-is | 82,84, 130 | 42,59,535 | 40,24,595 |
| 1915-12 | 74,19,419 | 40,32,2¢9 | 33,87,120 |
| 1912-13 | 79,80,904 | 43,29,549 | $3^{6,51: 355}$ |
| 5913-14 | - $80,98,144$ | 45,96,140 | 35,02,004 |

The net profit $35,02,004$ shows a falling off of nearly $1 \frac{1}{2}$. lakhs of rupees when compared with the previous year while it shows an increase of more than r lakh when compared with 191-i2.

The capital invested in works for which Capital Accounts are kept, up to: the end of the year under review, was:-

|  |  |  | Rs. |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Major Works | .. | $\ldots$ | $\ldots$ | .. | $2,68,94,586$ |
| Minor Works | $\ldots$ | $\ldots$ | $\cdots$ | .. | $\frac{48,37,619}{}$ |
|  |  | $\cdots$ |  |  | $\underline{3,17,3^{2,205}}$ |

The net revenue for the year on the above capital expenditure amounted to Rs. $27,00,55 \mathrm{I}$, which is equal to 8.5 ' per cent. ${ }^{\prime}$ The percentages in the previous years were as follows :-

| $1910-11$ | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 9.12 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $1911-12$ | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 7.25 |
| $1 y 12-13$ | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 7.51 |

The Major Works show a return of 5.39 against 4.50 of the last year. The Minor Works-Capital show a return of $25.8_{3}$ against 24.24 during the previous year.
6. The gross working expenses excluding the cost of surveys for special projects amounted to Rs. $45,35,640$ (Rs. $33,77,249$ for canals and Rs. $11,58,391$ for embankments) against Rs. $42,91,050$ in the previous year (Rs. $3^{2,71,017}$ for canals and Rs. $10,20,133$ for embankments) and the rate per acre was 1.44 which is slightly more than that of last year.
7. The average net consolidated assessment per acre on Government land in the Right Bank Division shows an advance from 3.02 to 3.10 rupees. In the Left Bank Division the amount was 2.78 against 2.88 of last year.
8. The estimated value of crops grown is Rs. $7,90,40,036$ ( $£ 5,269,335$ ) as compared with Rs. $7,57,94,009$ ( $65,052,934$ ) the average of the previous five years.
9. The inundation of 1913 was not particularly good. The Bukkur 13 1 et level was maintained for 16 days only against an average of 43 days in the previous ten years, but the Kotri level was maintained for the average period of 66 days. The rainfall for the year, however, was both abnormally heavy and opportune, and this largely made up for the deficiency of canal water and greatly helped the crops in the northern Sind, though in the south of Sind it did considerable damage by flooding low-lying lands. The area cultivated and the gross revenue realized therefore showed better results than those of last year which was also a year of poor inundation. Though the rainfall during the year was very heavy, no serious breaches occurred in the bunds. In consequence of threatened erosion, work was however resumed on the Unharwah loop, and a new loop had also to be made from mile $4 / 6$ to mile $7 / 4$ of the Sukkur Begari Bund. In the Karachi Canals District, where numerous breaches occurred last year, the work of raising and strengthening of bunds to 4 feet above the highest recorded flood level was proceeded with.
10. The officers in Sind are thanked for their efficient administration of the canals.
11. A project for making a protective hund to divert the Ghotki flood water from the Eastern Nara Supply Channel has been received from local officers and submitted to the Government of India for sanction.
12. Copies of the Report and of this Review should be forwarded to the Government of India and the Secretary of State.

W. N. CARTLAND, Under Secretary to Government, Irrigation and Railways.

To
The Revenue Department, Secretariat.
The Political Department, Secretariat.
The Commissioner in Sind.
The Director of Agriculture.
The Settlement Commissioner and Director of Land Records.
The Chief Engineer in Sind.
The Superintending Engineer, Indus Right Bank Division.
The Superintending Engineer, S. D.
The Superintending Engineer, C. D.
The Superintending Engineer, N. D.
The Superintending Engineer, Deccan Irrigation Division.
The Superintending Engineer, Indus Left Bank Division.
The Accountant General, Bombay.
All Executive Engineers in Sind.
The Government of India.
The Under Secretary of State for India. $\}$ (By letter).
Class A.
Exd. c. s. P.

## ANNUAL IRRIGATION REVENUE REPORT,

SIND,
1914-1915.

## I N D EX.

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No. 7532 or 1915.

> PUBLIC WORKS DEPaRTMENT.
> Superintending Engineer's Orfice,
> Indus Right Bank Division, Camp Larkana, 20th December 1915.

Prom

> B. KRISHNARAO, Esquire,
> Superintendinğ Engineer ; Indus Right Bank Division, To

THE CIIIEF ENGINEER IN SIND.

Subject:-Annual Irrigation Revenue Report for 1914-15.
Sir,
With reference to Government Resolution No. W. I.-5362 of the 7th May 1915, I have the honour to forward herewith the Revenue Report for Irrigation Works in this Division for the year 1914-15.
2. Crop Return VIII-A will follow.

> I have the honour to be, Sir,
> Your most obedient servant,
B. KRISHNARAO, Superintending Engineer, Indus Right Bank Division.
Accompaniments:-
Annual Irrigation Revenue Report.
Tables I to IX.
Through
The Superintending Engineer, Indus Left Bank Difision.

## aniual inrigation revenue report. indus rigelit bank division, 1914-1915.

The inundation of 1914, as described in the Irrigation Administration
Character of inandation. Report for 1914-15, and under para. 21 of this report, was exceptionally favourable.

The diagram sent in advance of the report compares the inundation of 1914 with those of the previous two years and with the average of the provious ten years.

The following table shows the principal features of the year as compared with the previous year and with the averages of the previous three and the previous ten years:-


Area of cultivation-Govern ment, Jagir and Foreign.
2. The gross assessed areas for the year are given, according to the classification of works, in the following statement A:-

Statement A.

| Year and class of crops. | Major <br> Works. | Minor Worer and Navigation, |  |  |  | Grand total. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Productive works. | Works for which Capital and Revenue Accounts are kept. | Worka for Which only Revanue Accounts are kept. | $\left\lvert\, \begin{gathered} \text { Agricultural } \\ \text { works. } \end{gathered}\right.$ | Total. |  |
| 1 | 8 | 3 | 4 | 5 | 6 | 7 |
| Average 1913-14. | Acres. 396,141 103,517 | Acres. 299,541 $\mathbf{3 6 , 1 9 6}$ | Acres. <br>  <br> 561,292 <br> 124,117 | $\begin{array}{r}\text { Acres. } \\ \text { 16,635 } \\ \text { 8,573 } \\ \hline 8.5\end{array}$ | Acres. <br> 877,468 169186 <br> 169,186 | $\begin{array}{r} \text { Acres. } \\ 1,213,6 n 9 \\ 292,703 \end{array}$ |
| $\ldots$ Total $\ldots$ | 459,658 | 335,737 | 685,709 | 25,208 | 1,046,654 | $1,506,312$ |

Stateyent A-continued.


The statement shows that the area under both Kbarif and Rabi are in excess of the previous year's areas and the areas of the average of the previous triennium by total cultivation of 169,256 and 321,312 aores, respectively.
3. The area of "Dubari" or twice-oropped land, which is not inoluded in statement A, was 360,788 acres.
4. The total net consolidated assessment and "Hakabo" on Foreign and

Assessment-Government, Foreign and Jagir.

Jagir lands, after deducting remissions, is shown in the following statement $\mathrm{B}:-$

- Statement B.

| Year and clasa of crops. | Major <br> Works. | Minor Works and Natigation. |  |  |  | Grand total. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Productive worke. | Works for which Capital and Revenue Accounts are kept. | Works for which only Revonue Aocounts are kept. | $\underset{\text { works. }}{\substack{\text { Agricultural }}}$ | Total. |  |
| $-1$ | 2 | 3 | 1 | 5 | 6 | 7 |
|  | Rs. | Rs. | Rs. | Rs. | Rs. | Rs, |
| A rerage of 1913-14. years inculding $\begin{cases}\text { Kharif } & . . . \\ \text { Rabi } & \text {... }\end{cases}$ | $7,31,673$ $2,94,136$ | $11,19,901$ $2,02,228$ | $15,55,320$ $4,04,357$ | 37,140 23,781 | $27,12,361$ $6,30,366$ | $\begin{array}{r} 34,44,034 \\ 9,24,502 \end{array}$ |
| Total | 10,25,809 | 13,22,129 | 19,59,677 | 60,921 | 33,42,727 | 43,68,536 |
| 1913-14 - ... $\begin{aligned} & \text { Kharif } \\ & \text { Rabi } \\ & \text {... }\end{aligned}$ | $\begin{aligned} & 8,97,436 \\ & 3,54,930 \end{aligned}$ | $\begin{array}{r} 11,67,685 \\ 2,38,012 \end{array}$ | $\begin{gathered} 15,15,173 \\ 4,57,400, \end{gathered}$ | $\begin{aligned} & 32,727 \\ & 31,730 \end{aligned}$ | $\begin{array}{r} 27,15,585 \\ 7,27,142 \end{array}$ | $\begin{aligned} & 30,13,021 \\ & 10,8,2,(172 \end{aligned}$ |
| Total | 12,52,366 | 14,05,697 | 19,72,573 | 61,457 | 34,42,727 | 46,95,093 |
| 1914-15 ... $\begin{array}{lll}\text { Kharif } & . . \\ \text { Rabi } & \ldots\end{array}$ | $\begin{aligned} & \mathbf{9 , 5 3 , 7 5 5} \\ & \mathbf{5}, 23,542 \end{aligned}$ | $\begin{array}{r} 11,69,830 \\ 2,81,161 \end{array}$ | $\begin{array}{r} 15,26,171 \\ 7,31,244 \end{array}$ | 41,159 45,288 | $\begin{aligned} & 27,37,160 \\ & 10,57,713 \end{aligned}$ | $\begin{aligned} & 36,30,015 \\ & 10,61,255 \end{aligned}$ |
| Total | 14,77,277 | 14,50,991 | 22,57,435 | 86,447 | 37,94,873 | 52,72,170 |
| Inorease or docrease compared with average. as $\begin{cases}\text { Kharif } & \ldots \\ \mathrm{R}_{a} \mathrm{bi} & \ldots\end{cases}$ | $\begin{aligned} & 2,22,082 \\ & 2,29,406 \end{aligned}$ | $\begin{aligned} & 49,929 \\ & 78,933 \end{aligned}$ | $\begin{aligned} & -29,149 \\ & 3,26,907 \end{aligned}$ | $\begin{array}{r} 4,019 \\ 21,507 \end{array}$ | $\begin{array}{r} 24,799 \\ 4,27,317 \end{array}$ | $\begin{aligned} & 2,46,8,81 \\ & 6,56,7,7 \times 3 \end{aligned}$ |
| Total | 4,51,488 | 1,28,862 | 2,97,758 | 25,520 | 4,52,146 | 9,03,6:4 |
| Increase or decrease compared with 1913-14. as $\begin{cases}\text { Kharif } & \text {... } \\ \text { Rabi } & \text {... }\end{cases}$ | $\begin{array}{r} 56,319 \\ 1,68,612 \end{array}$ | $\begin{array}{r} 2,145 \\ 43,149 \end{array}$ | $\begin{array}{r} 10,998 \\ 2,73864 \end{array}$ | $\begin{array}{r} 8,432 \\ 13,558 \end{array}$ | $\begin{array}{r} 21,575 \\ 3,30,571 \end{array}$ | $\begin{array}{r} 77,896 \\ 4,99,1<8 \end{array}$ |
| Total | 2,24,031 | 45,201 | 2,81,862 | 21,990 | 3,52,166 | 5,77,077 |

The total net assessed revenue as compared with the prerious year and the average of the previous trienninm was more by Ris. 5,77,077 and 9,03,631, respectirely.

4(a). The area cultivated on "spill" water from the river was 137,897 Cultivation on spill. acres as compared with $\mathbf{5 3 , 6 7 3}$ acres in the previous year.
5. The average net consolidated assessment per acre on Government land, as compared with the averages of the previous year Aswesument rate per acre on Government land.

|  |  |  | $\begin{gathered} \text { Avergige of } \\ \text { proryious. } \\ 3 \text { joaral. } \end{gathered}$ | 191415. | , 1913-14. |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Rs. | Rs. | Rs. |
| Works for which Carital and Revenue accounts are kept. |  |  | $2 \cdot 40$ | $2 \cdot 59$ | $2 \cdot 45$ |
|  |  |  | 4.15 | 4.22 | $4 \cdot 23$ |
| Works for which only Revenue accounts are kept |  |  | 3.02 | 2.98 | 2.88 |
| Agricultural works | ... | ... | 2.75 | 2.58 | $2 \cdot 83$ |
| Average for all works |  |  | $3 \cdot 08$ | 3.09 | 3.10 |

Actual realizations ander all heads and the balances outstanding.
6. The following table shows the actual realizations of Trigation Revenue under all heads, and the balances outstanding at the end of the year:-

## Statement $\mathbf{C}$.



The balance outstanding at the end of the year shows an increase of Rs. 17,707 when compared with the previous year, and a decrease of Rs. 50,137 when compared with the average of the previous three years.
7. The remissions granted during the year amounted to Rs. 4,12,863, of which Rs. $3,21,978$ were on Kharif and Rs. 90,885 on

Finemission on Grovernment land. Rabi. The total remissions are less than that of last year by Rs. 1,420 and more by Rs. 35,606 than the arerage of the previous triennium.

L (IV) 530-2

The following statement shows details of causes, and the amount of remission due to each as compared with the figures of the previous year:-


Remmission on Jagir lands.
7 (a). No remissions on Jagir lands were granted.

7 (b). Remissions on lands in Foreign territory (Khelat) amounted to Rs. 8,363 , of which Rs. 4,400 were on account of Kharif and Rs. 3,963 for Rabi.
8. The difference between the "Hakabo" assessed on Foreign and Jagir cultivation, and the full rate of assessment for these
Loss to canals, Foreign and Jagir lands. areas amounted to Rs. $4,23,319$. This amount represents the loss of canal revenue during the year due to the low rate at which water is allowed to jagirdars and to zamindars in Khelat.

Expenditure on Maintenance and Repairs and Establishment. charged to Works.
9. The total charge of the year, on account of Maintenance and Repairs amounted to Ks. 20,32,024 and is divided as under:-

Rs.

| Works |  | . ${ }^{\circ}$ | 14,49,763 |
| :---: | :---: | :---: | :---: |
| Establishment and Tools and Plant |  | ... | 2,86,022 |
| Percentage charges for revenue collection |  | . ${ }^{\prime}$ | 2,96,239 |
|  | Total | ... | 20,32,024 |

The cost of establishment charged to works which is included in the expenditure on works was Rs. 2,70,877. The net, expenditure on works (clearance and repairs) was Rs. 11,78,886, and compared with the previous year it shows a decrease of Rs. 1,11,673.

The charges on account of Establishment and Tools and Plant during the year amounted to Rs. 2,86,022, showing a decrease of Rs. 2,782 as compared with those of the previous year.

Expenditure on maintenance speperately for canals and river embankments.
10. Of the total charges shown in the preceding paragraph, Rs. 14,43,065 were spent on canals and Rs. $\overline{5}, 88,059$ on river embankments.
11. The outlay of the year on new works was , Ontay on new works. Re. 6,66,191 as under:-


Under Major" head "Capital," representing works, Rs. 52,619 and Rs. 79,559 were spent on the Unharirah and Begari Canals, respectively. The expenditure on Mahiwah is a minus figure, viz., ifs.-lȳ7.

Under Minor works "Capital" Rs. 1,412 represent expenditure on the Ghar Canal.
12. The regular establishment charges amounted to Rs. $4,24,753$, showing a decrease of Rs. 18,896 over those of the previous year:-

|  |  | Rs. | Percentage <br> on outlas. |
| :---: | :---: | :---: | :---: |
| Executive | $\ldots$ | $3.70,811$ | 189 |

Direction
Superintending Engineer... Rs. 15,826
Secretariat and Accounts ... \% 38,116

| Total $\ldots$ | $\frac{53,942}{4,24,753}$ | $\frac{2.8}{21.7}$ |
| :---: | :---: | :---: |
|  | - | - |

Financial results.
13. The general financial results of all the irrigation works in this Dívision are shown in the following statement D :-

Statement D.


13 (a) The following statement E gives the information required as per Government No. W.I.-1815 of the 22nd August 1910 :--

Statement E.

| Total area irrigated by all clabses of works. | Total working expenses and maintenance for <br> - canals. | Rate of working expenses per acre of area irrigated (col. $2+\mathrm{col}$. 1.) | Expenditare on agricaltaral worka (excluding the cost of earveys for special projeote). | Rate of expenditura on agricaltural works per, gere of area irrigated (col. 4 $\div$ col. 1) | Total working expenses per acre of area irrigated inclading erpenditure on agricultaral works. (col. $3+5$. ) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 3 | 4 | 5 | 6 |
| Acres. | Rs. | Rs. | Rs. | Rs. - | Rs. |
| 1,827,624 | 16,43,843 | 0.90 | 9,08,234 | 0.50 | 1.40 |

14. There were 1,411 miles of main and 1,928 miles of branch canals Lengths of canals and bunds. total 3,339 miles, in operation during the year against 3,327 miles in the previous year.
The net increase of 12 miles in canals is due to-
(1) 7 miles of Kur Matal branch of Naurangwah, a zamindari karia, having been taken over by Government.
(2) increase of 5 miles of Baghar canal as a result of the Public Works Department boundary of the canal having been settled this year by the Revenue Authorities.
The net increase in the mileage of bunds (530) as compared with that of last year is 22 miles, and is the result of the following :-

Areas of principal crops- 15. The areas of principal crops irrigate during Government, Foreign and Jagir. the year are given below :-

## Statriment F.



Compared with the average of the previous triennium, this shows a decrease of 372 acres under cotton in the Kharif season and an increase under all sorts of other crops under Kharif and Rabi. As compared with the previous year there was a decrease of 34,736 acres under juari and 399 acres under cotton in the Kharif season and an increase under all sorts of other crops under Kharif and Rabi. The total cultivation as compared with the previous year and the average of the previous triennium shows an increase of 271,047 and 413,681 acres, respectively.
16. The percentages of Kharif and Rabi on the total area irrigated in this Division were 60 and 40 , respectively. The highest percentage, viz., 84 of Kharif, was in the Karachi Canals District and the lowest 48 was in the Western Nara District; while the Begari, Shikarpur and Ghar Canals Districts had, respectively, 73, 57 and 58 per cent. The Karachi Canals, the Ghar and the Western Nara Districts had, as usual, the largest rice areas, with 209,816, 217,195 and 169,652 acres, respectively, out of the total rice cultivation of the Division of 699,524 acres. The largest areas under juari were in the Begari Canals and Shikarpur Canals Districts, viz., 141,860 and 93,217 acres, while the largest under bajri 127,700 acres was in the Begari Canals District and under cotton 831 acres in the Shikarpur Canals District. Of the Rabi crops, wheat was largely grown in the Begari, Western Nara, Shikarpur and Ghar Canals Districts, and oil-seeds in the Western Nara, Begari and Ghar Canals Districts. Nine per cent. of the whole area was watered by.lift and 91 per cent. by flow against 10 and 90 per cent., respectively, during the previous year.

## Duties and Deltas of Canals.

17. The duties and deltas of canals in this Division show the usual variations of values as compared with previous years, but there was a general increase in the net area irrigated owing to the favourable inundation.

## Desert Canal.

The duty and delta for the year were 83 and $4 \cdot 4$, respectively, as compared with 66 and 4.7 , respectively, of the previous year. The increase in the duty and decrease in the delta may be attributed to proper use having been made of the supply available.

## Unharwah.

The duty and delta were 51 and 3.8 as compared with 51 and 4.5, respectively of the previous year. The increase ir the duty and decrease in the delta are due, as in the case of the Desert Canal, to full advantage having been taken of the supply available.

## Begari Canal.

The duty and delta were 96 and 43 ; respectively, as compared with 82 and 5, respectively, of the previous year. The better duty and delta are to be attributed to the same cause as that mentioned above under Desert Canal and Unbarwah.

## Canals in the Shikarpur Canals District.

The duties and deltas on all the canals in Rohri as well as the Sind and Garang Canals show an improvement over those obtained in the previous year. This was due to full advantage having been taken of the supply available.

The duty obtained on the Mahiwah was slightly better than that of the previous year; on the Chitti Canal it was the same as in the previous year; on the Rajib it was slightly less; and there were small increases in the delta obtained on this and the other two canals as compared with those of the previous year.

L (TV) $539-3$

## Sukkur Canal.

The Kharif and Rabi duties were 36 and 179 as compared with 35 and 340 , respectively, of the previous year, and the deltas were 6.1 and 2.0 as compared with $6 \cdot 1$ and $1 \cdot 1$, respectively, of the previous year. The large decrease in the Rabi duty and increase in the delta' is attributed to disproportionate increases in the average Rabi discharge and the net area irrigated.

## Ghar Canal.

The duty and delta for the year were 98 and 3.9 as compared with 129 and $2 \cdot 9$, respectively, of the previous year. As in the case of the Sukkur Canal, the decrease in the duty and increase in the delta is attributed to disproportionate increases in the average discharge and the net area irrigated.

## Canals in the TVestern Nara District.

The duties on the Western Nara, including its two feeders, called the new feeder and the Pritchard Canal, as well as on the Phitto Canal, were slightly higber than those of the previous year, but those on all the other canals were less; while the deltas on all the canals excepting the Phitto Canal were higher than those of the previous year. The decrease in the duty and increase in the delta is attributed to disproportionate increases in the average discharge and the net area irrigated and to the protratacted period the canals were in flow. No observations of discharge could be taken of the Chario Wahur (Manchur, Aral and Dunstar) for the greater part of the season owing to the country being all under flood.

## Canals in the Karachi Canals District.

The duties obtained on the Sattah, Kalri, Pinyari and Baghar Canals were 19, 31, 27 and 7, respectively, as compared with $16 \cdot 6,25 \cdot 2,23 \cdot 2$ and $7 \cdot 1$, respectively, of the previous year, and the deltas were $11 \cdot 3,6 \cdot 9,7 \cdot 9$ and $30 \cdot 6$, respectively as compared with $12 \cdot 9,8 \cdot 5,9 \cdot 2$ and 30 , respectively; of the previous year. There was a slight improvement in the duties and deltas on the first three canals, but all the duties were low owing, as stated in pre vious reports, to the cultivation being mostly rice. The large delta on the Baghar is attributed, as also stated in previous reports, to a large quantity of water running to waste into the sea.
18. On" Major Works" the incidence of working expenses on assessed revenue and per acre irrigated were 34.09 per cent.
Incidence of working expenses on the assessed revenue. Rs. 0.75 per acre against 49.50 and Rs. 1.04 of the last year.

Under " Minor Works" the incidence of the working expenses on assessed revenue and per acre irrgated were 22.23 per cent. and Rs. 0.81 per acre against $24: 30$ and 0.90 of the last year.
19. The total value of crops grown on the irrigated area of 2,185,412 acres was estimated by the Revenue Authorities at Rs. 4, $80,67,073$, which gives an average of Rs. 20 per acre.
20. The agricultural an other conditions of the year under revien as affecting the areas irrigated by the principal works, such as the nature of the season, the state of demand and supply, etc., are given in the following paragraph.
21. The principal irrigation works in this Division are the Desert Canal, the Unharwah, the Begari, the Mahiwah, the Sukkur Canal, the Ghar and the Sattah.

The first four are Major (Productive) works and the remaining three Minor works, for which both Capital and Revenue accounts are kept.

There are also other irrigation systems, viz., the Sind Canal, the Western Nara, the Bagher, the Kalri and the Pinjari. These, however, with a number of small canals taking off direct from the river, are classed as works for which only Revenue accounts are kept. All the canals are inundation canals, with the exception of the Sukkur Canal, which nominally has a perennial supply.

The inundation of 1914 was an exceptionally good one. It may bi regarded as a record year as regards height and duration of supply, though the highest gauge at Bukkur recorded during the year has twice been exceeded (in 1852 and 1897) since 1848.

The river commenced to rise about the middle of April and continued to do so, with some fluctuations, reaching the fair irrigating level of 13 feet on the Bukkur gauge on the 2nd July. This level and above was maintained for 45 days in July and August as compared with 16 days in the previous year, 21 days in the year before and 39 days the average of the previous 10 years.

The fair irrigating level of 17 feet on the Kotri gauge was first registered on 12th June and this level and above was maintained from 12th to 14th June and from 28th June to 2nd October, i.e., for a total period of 100 days, against 66 days in the previous year, 59 days in the year before and 68 days the average of the previous 10 years.

The highest readings for the year were $17 \cdot 4$ feet on the 3rd August on the Bukkur gauge and 23.8 feet on the 11th August on the Kotri gauge against the recorded maxima of 17.9 feet and 22.9 feet, respectively.

The rainfall of the year was below the average. A few showers in the months of June, July and September, however, materially helped the Kharif cultivation in certain areas. It amounted to 5.32 inches as compared with 14.84 inches in the previous year and an arerage of 620 inches in the previous 10 years.

The supply in all the three canals-Desert, Unhar and Begari-in the Begari Canals District was very satisfactory throughout-l'he supply in the Mahiwah in the Shikarpur Canals District was very good throughout the season: In the Ghar Canals District a new head to the Rahuja Dhoro was given from the river as the previous dhoro had been heavily silted in a length of about $1 \frac{1}{2}$ miles. This new head was opened on 20th. May 1914 when Bukkur gauge read 6.20 feet The "katcha" through which the dhoro passes is very low-lying, consequently in full Abkalani it is submerged under 3 to 4 feet of water. When the river went down in August, it was found that the dhoro had been heavily silted. On the 12th of August there was only 3 feet of water in the Rabuja Dhoro, but with the rise of the river the full supply rose to 17 feet at Shikarpur Road Bridge. It was hoped, therefore, that the silt had been shifted; when, however, the river went down again, it was found on the 22nd of August that there was only 1.5 feet of water at Rahuja Head. Consequently the old head Sukkur Canal was opened on the 27th of August which gave good supply of water to Kharif crop as well as to Rabi. The inundation was the best one on record, and rarely has the river-rising been so favourable for crops as it was during the inundation under report. In the Western Nara District the effect of the inundation was good on all the canals, and the Kharif results would have been much better than those obtained, had it not been for floods and breaches due to unusually heavy rains both in the plains and in the hills. The floods were, however, not an unmixed blessing, for though they ruined a large area of Kharif, they resulted in an unusually extensive Rabi crop, with the net result that there was an increase of about 25 per cent. on the average total cultivation.

[^6]ments, but a large breach in the left bank in Baphi Gharko and a breach in the Thahimani Loop of the Bahgar-Uchito. Bund destroyed a greater part of the cultivation on this canal.

There is much wastage of water in the upper reaches of the Kalri Canal owing to the karias not having masonry sluices at their heads and consequently drawing off excessive supply and thus causing some deficiency at the tail. The canal has no banks which prevents more than a limited supply being let down for the lower reaches; consequently it appears desirable to provide masonry sluices to karias with vents according to the areas on each and to construct banks along the low-lying portions of the canal, for which necessary data are being collected by the Executive Engineer. The work of reduction of openings of sluices in the first 12 miles of the Sattah has been carried out in the year under report and the canal is now working fairly satisfactorily.

The total area irrigated in the Indus Right Bank Division during the year under report was $2,188,412$ acres as compared with the average of the previous triennium of $1,774,731$ acres; thus there has been an increase of 413,681 acres in cultivation during 1914-15. The areas irrigated in the whole Division under different crops are given in statement F: paragraph 15 above.

The estimated value of crops during $1914-15$ was Rs. $4,80,67,073$ and the average estimated value of crops of the previous triennium was Rs. $4,09,78,612$; thus there was an increase of Rs. 70,88,431 during the year under report.
22. The following paragraphs give details of different works or groups of works.

## I.-MAJOR WORKS.

## Productive Works.

## A.-Desert Canal.

23. No expenditure was incurred under this head during the year Capital. , under report.
A sum of Rs. 1,892 was spent during the year on '(1) additions and
Extensions and Improvements. alterations to Public Work Department Inspection bungalow at Kandhkot and (2) providing taki bricks along Desert Canal and its branches.

The main canal and its branohes were maintained in good order at a Maintenance and Repairs. . cost of Rs. 97,697, including Work esfablishment.
The total area irrigated during the year under report was 213,650 acres, Irrigation. $\quad$ out of which 125,805 aores were under Kharif and
$87,84 \dot{5}$ aores under Rabi, including Dubari, against 167,375 acres being the average of the past 3 years and 165,017 acres irrigated in the previous year. The increase is due to the very satisfactory water-supply in the canal.

The gross revenue from all sources amounted to Rs. $3,77,265$ compared Financial Results. with Rs. 3,29,868 of the last year and Rs. 3,27,482 Financial Resalts. the average of the previous triennium. Deducting working expenses Rs. $1,36,423$, the net revenue during the year was 2,40,842 or 8.85 per cent. on the Capital outlay to end of the year as compared with 6.36 per cent. the average of the last triennium and 6.46 per cent. in the last year. The increase in revenue is due to the same cause as given above under paragraph on cultivation.

Remissions granted amounted to Rs. 45,816 against Rs. 4,489 of the
General remarks.
previous year. Increase in remissions as compared
with the previous year is due to adverse winds and insects to Kharif crops and smaller Rabi remissions are due to the good water-
supply and farourable crop. The principal crops grown were rice, juari, bajri, wheat and oil-seeds and the estimated ralue of the outturn was Ps. $48,13,893$ or lis. 23 per acre.

## B. - Unharicah.

21. A sum of Rs. $\mathbf{5 2 , 6 t 9}$ was spent during the year on the construction Capital. of a Head Regulator at mile 7 of Unharwah and on constructing a sluice at mile 2/5 of Gauspur Branch ex Unharmah in the New Unharwah Loop.

During the year under report Rs. 983 were spent on fixing taki bricks Extetsions and Improvements. and bench-mark stones along Unharwah and its branches.

The main canal and its branches were maintained in good order at a cost Maintenance and Repairs. of Hs. 38,936, including Work establishment.

The total area cultirated during the year was 78,409 acres, out of which Irrigation. 47,858 acres were under Kharif and 30,551 acres under Rabi as compared with 67,623 aores of the past 3 years' average and 62,062 acres of the past year. The increase is due to the excellent supply in the canal.

The gross revenue amounted to Rs. 1,63,118 compared with Rs. 1,33,238
Financial resaltg. of the last jear and Rs. $1,47,544$ the average of the previous triennium. Deducting working expenses Rs. 56,467, the net revenue during the year was Rs. 1,11,651 or $14 \cdot 15$ per cent. on the Capital ontlay to end.of the year as compared with 13.18 per cent. the average of the previous triennium and $10 \cdot 62$ of the last year. The increase in rerenue is due to same causes stated above in the case of cultivation.

The remissions granted amounted to Rs. 12,242 against Rs. 12,418 of the
Guneral remarks. previous year and Rs. 5,863 , the average of the past 3 years. Increase in remissions as compared with the average was due to damage done by insects and adverse winds. The principal crops grown were rice, juari, bajri, wheat and oil-seeds. The value of the outturn of crops grown during the year is estimated at Rs. 16,45,478 or Rs. 21 per acre.

> C.-Begari Canal.
25. A sum of Rs. 79,559 was spent during the year on works in connection Capital. with the Choi Branch project such as water-courses, karia heads, bridges, \&c.

During the year under report Rs. 14,639 were spent on (1) additions. and

- Extensions and Improvements. alterations to the 6th and 38th mile Regulators of Begari Canal and to Sonewah Regulator; (2) raising and strengthening the right bank of Begari from mile 1 to 6; (3) additions and alterations to Public Works Department Inspection bungalow at Khairo Garbi and Wakro; (4) constructing a well at Chana (29th mile Begari Canal); (5) providing a gate to the compound of Public Works Department Inspection bungalow at Faizu; and (6) providing mile and furlong posts and bench-marks and taki stones along Begari and its branches.

The main canal and its branches were maintained in good order at a'cost
Maintenance and Remairs. of Ris. 1,04,669, including Work establishment, against the sum of Rs. 1,72,767 spent during the previous year.

The total area cultivated during the year was 312,174 acres, out of which Irrigation. 201,266 acres were under Kharif and 110,903 acres under Rabi including Dubari as compared with 180,413 acres the average of the previous triennium and with 304,967 acres
of the previous year. The increase is due to the very excellent supply passed into the the oanal from the new mouth.

The gross revenue of the year amounted to Rs. $6,28,521$ compared with
Financial resalts. Rs. 5,78,462 of the last jear and Rs. $\mathbf{3 , 4 2 , 4 2 5}$ the average of the previous triennium. Deducting working expenses Rs. 1,77,816 and share due to old irrigation Rs. 21,854, the net revenue during the year due to improvements was Rs. $4,25,821$ or 17.35 per cent. on the. Capital outlay to end of the year as compared with 10.57 per cent. in last year and $2.55 \cdot$ per cent. the average of the previous three years. The increase in the net revenue due to improvements as compared with the average of three years and last year was Rs. $3,66,171$ and Rs. 1,77,880, respectively, and is due to the same causes as given above under paragraph on cultivation.

The remissions during the year amounted to Rs. 28,305 against Rs. 49,529 of the previous year and Rs. 63,162 the averago of the previous triennium. The principal crops grown were rice, juari, bajri, wheat and oil-seeds, and the estimated value of the outturn was Rs. $54,86,480$ or Rs. 18 per acre.

## D.-Maliwah.

Capital.
26. No expenditure was incurred under this head during the year.

The sum of Rs. 11,574 was spent during the year on constructing a new Pubic Woiks Department Inspection bungalow with outhouses at Mirpur on the Masuwah ex Mahiwab and on other small works.

The canal and its branches were maintained in good order at a cost of Maintenance and Repairs. . Rs. 61,737 including Work establishment.
The total area irrigated was 74,621 acres, of which 45,507 acres were under Irrigation. Khaxif and 29,114 acres under Rabi. When compared with the average of the previous triennium 62,348 acres and 60,789 acres of the previous year, the total cultivation shows an increase of 12,273 and 13,832 acres, respectively, which is due to the excellent inundation.

The gross revenue amounted to Rs. $1,80,634$ and the working expenses to Financial results. Rs. 1,00,345. Deducting working expenses and Rs. 89,217 being the share due to old irrigation, the net revenue due to improvements comes to Rs. $-8,919$, and represents - 62 per cent. on the Capital outlay as compared with -26 per cent. the average of the previous triennium. The decrease in revenue, nowithstanding an increase in cultivation, is due to more working expenses during the year under report.

The remissions granted amounted to Rs. 1,654 , of which Rs. 973 were on
General remarks. account of Kharif and IRs. 681 on account of Rabi. The principal orops grown were juari, bajri, rice, Rs. 20 per acre.

## II.-MINOR WORKS AND NAVIGATION.

## A.-Works for which Capitai and Revenue accounts are fept. - I.-Sukkur Canal.

27. No expenditure was incurred under this Capital. head during the year.

No expenditure was incurred under this head

The main canal and its branches were maintained in good order at a cost Mainterance and Repairs. of Rs. 56,643 , including Work establishment.

The total cultivation was 114,820 acres, of which 65,957 acres were under Irrigation. Kharif and 48,863 aores under Rabi. The total cultivated area, compared with the average of the previous triennium of 90,788 acres and of the previous year of 106,148 acres, was more by 24,092 aanes and 8,672 acres, respeotively. The increase in cultivation is due to a favourable inundation. The increase of 21,687 acres in Rabi over the past triennium is due to the opening of old Head Regulator Sukkur Canal whioh flowed upto March 15th.

The gross revenue realized amounted to Rs. 2,85,606 compared with
Finjncial results. Rs. $\mathbf{2 , 6 2 , 1 8 0}$ of the last year and Rs.2,23,456 the average of the previous trienniam. Deducting working expenses Rs. 91,785 and share due to old irrigation Rs. 71,444, the net revenue during the year due to improvements was Rs. $1,22,377$, giving a return $8 \cdot 58$ per cent. on the Capital outlay against 8.05 of the last year and $5 \cdot 36$ per cent. the average of the previous trienninm. The net revenue due to improvement compared with the average of the previous triennium was more by Rs. 45,961. The increase in revenue is due to the same cause as given above under paragraph on cultivation.

The remissions granted during the year amounted to Re. 5,237 against
General remarks. Rs. 3,379 in the previous year. The principal crops grown were rice, juari and wheat. The estimated value of the outturn was Rs. $27,03,104$ or Rs. 24 per acre.

> 2.-Ghar Canal.
28. A sum of Rs. 1,412 was spent under this head during the year on Capital. taking over and remodelling Kar Matal, a zamindari karia e:c the Naurangwah mile 7/4 right baik. This work was completed at the total cost of Rs. 6,455.

The sum of Rs. 1,512 was expended under this head on (1) renewing
Extensions and Improvements. the roof of the stables attached to the Public Works Department Inspection bungalow, class I, at Larkana, (2) providing fire buckets in the offioe of theqExecutive Engineer, Ghar Canals, and (3) constructing 2 wolls in the compounds of the Inspection bungalows at Naundero and Pakho.

The total expenditure during the year was Rs. 97,199, including Works Maintenance and Repaiss. establishment, against Rs. 1,19,435 of the last year.
The total cultivation was 389,572 acres, of which 225,867 acres were under
Irrigation. Kharif and 163,705 aores under Rabi against 357,548 acres in the previous year and 353,032 acres the average of the previous triennium. This shows 32,024 acres more than the previous year and 36,540 acres more than the average of the past triennium. The increase is due to the good inundation.

The gross revenue amounted to Rs. $10,19,108$ compared with Rs. $10,01,379$
Financial results. of the last year and Re. 9,58,495 the average of the previous triennium. Deducting working expenses Rs. $1,90,117$ and share due to old irrigation Rs. $1,16,671$, the net revenue during the year due to improvements was Rs. $7,12,320$, which represents a return of 122.97 per cent. on the Capital outlay against 113.90 per cent. of the last year and 109.89 per cent. the average of the previous triennium. The net revenue due to improvements compared with the average of the previous triennium was more by Rs. 81,381 . The increase in net revenue is due to good inundation.

The remissions granted during the year amounted to Rs. 15,943 against

[^7] Rs. 13,740 of the last year. The principal crops grown were rice, juari, wheat and oil-seeds. The estimated value of the outturn was Rs. $92,62,698$ or Rs. 24 per aore.
3.-Sattah.

Capital.
29. No expenditure was incurred under this head during the year under report.
Rs. 152 were spent under this head on constructing a sluice over Natho Extensions and Improvements. Dars Karia at Taki 141 of Sattah, left bank.

A sum of Rs. 10,783 was spent daring the year, including Work establish. Maintenance and Repairs. ment, against Rs. 8,589 of the last year.

The total area irrigated was 14,661 acres, of which 14,027 were under Irrigation. Kharif and 634 under Rabi. The increase in the total cultivation as compared with the average of the previous triennium of 14,387 is 27 t acres, partly due to the more equal distribution of water along the whole canal by reducing, during the year under report, the openings of karia sluices in the head portion which were hitherto drawing supply in excess of requirements.

The gross revenue amounted to Rs. 27,878 compared with Rs. 25,210 the Financial resulte. average of the previous triennium. Deducting working expenses Rs. 14,412 and share due to old irrigation Rs. 6,927, the net revenue during the year due to improvements was Rs. 6,539 , which represents 3.63 per cent. on the Capital outlay as compared with -0.33 per cent: the average of the previous triennium. The increase in the net revenue due to improvements is due to the reduction in the amount of working expenses, as compared with the average of the last 3 years' expenditure, Rs. 25,798.

The remissions during the year amounted to Rs. 47 against Rs. 8,580 in General remarks.. the previous year and Rs. 6,057 the average of the previous triennium.

## B.-Works for which only Reventr Accounts are fept.

## (1) Canals ina the Shikarpur Canals District.

30. The principal canals are the Sind, Rajib, Chitti and Garang on the right bank of the river gnd the canals in the Rohri Division on the left bank.

The sum of Rs. 62,127 was spent during the year on (1) constructing a regulator over the Garang Canal in the proposed Garang Loop to Sukkur Begari Bund, (2) constructing a regulator over Colonel Fife's Channel in the Adurtakio Loop of 1912, (3) constructing a baulkshed at the head regulator over the Chitti Canal in the Sarfu Lbop of 1912, (4) additions and alterations to head regulator over Colonel Fife's Channel, (5) raising and strengthening the left retired bank of Colonel Fife's Channel and on other small works.

The expenditure incurred under this head was Rs. 1,11,151 against Maintonance and Repairs. Rs. 1,19,848 in the previous year.
The total area irrigated under this head was 202,147 acres, of which 115,184 Irigation. acres were under Kharif and 86,963 acres under Rabi. When compared with the average of the previous triennium of 139,313 acres, it shows an increase of 62,834 acres, which is due to the excellent inundation.

The total canal revenue realized was Rs. $5,70,254$, and the maintenance
Financial resalts. and revenue collection charges Rs. $1,56,403$, which per acre of the area irrigated excluding Dubari. The corresponding figures for the previous triennium were $38 \cdot 9$ per cent. and Rs. $1 \cdot 1$, respectivels. $\Lambda s$ compared with the last year and the average of the previous triennium, the canal revenue was more by Rs. $1,06,902$ and Rs. $1,84,825$, respectively, and the maintenance and revenue collection charges were less than the last year and
more than the arerage of the previous triennium. The increase in canal revenue is due to the same cause as given above under paragraph on cultiration.

General remarks.
The remissions granted amounted to Rs. 2,579 against Rs. 5,419 for the previous year.
(2) Canals in the Western Nara District.
31. The district comprises the following main canals, which take off direct from the river :-

The Western Nara with its two feeders (the new feeder and the Pritchard Canal), the Marvi, the Phitta, the Chario Wahur with the Aral and the Dunstar, the Dadu Canals and the canals north of Kotri.

The Munchar Lake is fed by the Aral, Dunstar, Western Nara and rain water from the hills and again drained off for cultivation through the Aral and the Dunstar when the river falls.

A sum of Rs. 32,149 was spent under this head on (1) improvements to
Extensions and Improvements. the Kudanwah ex Western Nara, (2) improvements to Dhamrao Canal ex Western Nara, (3) converting the road bridge across Bagdadwah into a head regulator, (4) constructing a head regulator and an escape slaice over the Sadabahar Canal, and the rest on minor works consisting of contructing new banks of canals, additions and alterations to inspection bungalows, and constructing sluices over zamindari karias.

The total expenditure under this head, including Special Repairs, amounted
Maintenance and Repairs. to Rs. $2,38,326$ and was incurred on ordinary clearance of canals and special clearance of (1) Western Nara, Aral, New Akil Mouth and Akil Dhand, also in excarating new heads to Butho Canal, Chario Wahur, Pritchard Canal and a new cut to the Pritchard Canal, and ordinary and special repairs to buildings.

The total area irrigated was 512,469 acres, of which 243,484 acres were Irrigation. under Kharif and 268,985 acres under Rabi. There was a decrease of 4,484 acres under Kharif and an increase of 100,760 acres in Rabi or an increase of 96,276 acres in total cultivation as compared with 416,193 acres of the average of the total cultivation of the previous trienninm. The increase is due to the excellent inundation of 1914 and to extensive Rabi cultivaton on lands soaked by river and hill floods.

The total canal revenue was Rs. 11, 27,475 as compared with Rs. $10,40,049$
Financial results. the average of the past 3 years. The revenue and collection charges during the year were Rs. 3,43,697 being 30.5 per cent. of the revenue and Rs. 8 per acre of the area irrigated excluding Dubari, the average corresponding figures of the previous triennium being Rs. 27.9 and Rs. 9 , respectively. The increase in the revenue of Rs. 87,426 as compared with the average is due to the same causes as given above for cultivation.

The remission granted during the year amounted to Rs. 2,45,197 against
Genoral remarks. Rs. $1,24,778$ of last year, the average of the previous triennium being Rs. 79,774. The principal crops grown were rice, juari, bajri, wheat and oil-seeds.

## (3) Canals in the Karachi Canals District.

32. The principal canals are the Kalri, Baghar, Pinyari and Kokawari.

The expenditure under this head was Rs. $\mathbf{3 7 , 9 7 5}$ and was spent on
Ertensions and Improvements. (2) constructing a head regulator over Gungri,
(2) constructing a new head regulator over Chahatho
Ertensions and Improvements. (2) constructing a head regulator over Gungri,
(2) constructing a new head regulator over Chahatho Nando, (3) constructing embankment along the left bank of Baghar, and on some other small works.

The expenditure incurred under this head was Rs. 1,82,390, including Work Maintenance and Repairs. establishment, against Rs. 1,78,518.

The total area irrigated was 234,153 aores, of which 195,829 were under Irrigation. Kharif and 38,324 under Rabi. As compared with the average of previous triennium there was decrease of 18,951 under Kharif and an increase of 2,682 under Rabi and a decrease of 16,269 acres under both heads. The decrease under Kharif is due to some of the lands being submerged by floods and increase in Rabi due to the flooded lands being cultivated.

The total canal revenue amounted to $\mathrm{R}_{\mathrm{s}}$, 3,66,292 and the maintenance
Financial results. and revenue charges amounted to Rs. 2,27,680 which amounts to $62 \cdot 2$ per cent. of the revenue and $1 \cdot 1$ per acre on the area irrigated excluding Dubari, the corresponding figures for the average of the previous triennium being Rs. $55 \cdot 3$ and Rs. $0 \%$. The comparison of the revenue for the year under report with that of the previous triennium shows a decrease of Rs. 9,313 , which is due to remission of Rs. 51,630 due to floods.

The remissions amounted to Rs. 54,630 against Rs. 1,66,403 of the last General remarks. year.

## C.-Works for which neither Capital nor Revente ACCOUNTS ARE KEPT.

33. The principal bunds in this Division on the right bank of the river are the Kashmor, Sukkur Begari, Ghar, Nara, bunds north of Kotri, and Right Bank Bunds in the Karachi Oanals District; and on the left bank, the Kasimpur and the Karachi District Bunds.

The sum of Rs. 2,11,491 was spent during the year under this head. The principal works carried out were (1) works in connection with Garkinowah; (2) constructing the
Extensions and Improvements. bund along the boundary of Wasir Forest; (3) raising and strengthening right
bank of Colonel Fife's Channel in the Shikarpur Canals District; (4) raising and strengthening Baghar-Uchito Bund from mile 0 to 3, Sonda Hilaya Bund, Mulchand-Shahbandar Bund-Mulchand to Rajwab, Mulchand-Shabbandar Bund-Rajwah to Gungri ; raising Baghar-Uchito Bund to 4 feet above H.F. L. of 1912; (5) constructing P. W. Inspection bungalow at Gungri on the Mul-chand-Shahbandar Bund in Karachi Canals District; (6) extension of Western Nara Bunds mile 69/1 to $80 / 6$; (7) constructing 2 sluices at mile $5 / 7$ and $9 / 3$ of Abad Bund with two syphons across Gillespiewah to irrigate Amrote Forest, and constructing 7 sluices ex Western Nara Bunds in Pritchard Canal; and (8) constructing a P.W. Inspection bungalow, class II. at Gajidero mile 40-4 of the Western Nara Bunds in the Western Nara District.

The expenditure of maintenance and repairs and special repairs to river
Maintenance and Repairs. embankments, including Establishment and Tools and Plant charges, was Rs. 5,22,385 against Rs. $5,49,830$ of last year.

The cultivation in 1914-15 on the canals ex Kashmor bund, on bunds Irrigation and Financial resalts. in the Shikarpur Canals, Karachi Canals, Western 3,183, 5,781 and 1,449 acres, respectively, and the revenue Rs. $16,013,36,491$, $16,545,15,766$ and 5,053 , respectively. The average cultivation and revenue of the previous triennium on the bunds in the above districts were 3,085 acres, Rs. 7,712; 9,371 acres, Rs. 25,431 ; 10,099 acres, Rs. 15,702; 3,211 acres, Rs. 10,608 ; 1,131 acres, Rs. 2,193.

The most important works classed under special repairs were the completion
General remarks.
of unfinished 1912 Unharwah Loop Kashmor Bund; constructing pumping station at Gauspur-Kashmor Bund; and Bund A along the toe of Gauspur Loop in the Begari Canals District; constructing a loop to Sukkur Begari Bund mile 4/6 to 7/4 (Garang Loop);
and 1st class Inspection bungalow at Chack near Rajib Canal in the Shikarpur Canals District; constructing Thahimani Loop from mile 33 to 79, closing the breach in the Thahimani Loop of 1914 and constructing a loop for closing breach in mile $0 / 2$ of Panah-Baghar Bund in the Karachi Oanals District. A sum of Res. 11,063 was spent on the Mathematical Instrument Depot on Establishment and Tools and Plant. A total sum of Rs. 1,50,813 was spent by the Chief Enginer, Indus River Commission, of which Rs. 30,201 were spent on making surveys on the Indus, Rs. 587 on constructing a detached storeroom at Kotri and on some other small works of Extensions and Improvements; Rs. 21,164 on Maintenance and Repairs of which Rs. 20,267 were spent on maintenance of steamers, gauges and snagging the River Indus, and small amount Rs. 897 on maintenance of other works; Rs. 96,125 under Regular Establishment and Rs. 2,384 under Tools and Plant.
34. The expenditure on, and receipts, from gardens maintained in this Division, as compared with those of the previous three years, are as follows:-

| Years. | Expenditure <br> on maintenance <br> of gardens <br> during the year. | Recoipts during <br> the year. |  |
| :--- | ---: | ---: | ---: |
| $1911-12$ | $\cdots$ | Rus. 3,729 | Rs. 2,245 |
| $1912-13$ | $\cdots$ | "3,816 | $, 2,043$ |
| $1913-14$ | $\cdots$ | "3,712 | " 2,437 |
| $1914-15$ | $\cdots$ | " 3,843 | " 1,608 |

35. The total number of trees planted during the year in this Division was 82,010 , of which $\overline{5} 2,590$ were babul and the rest principally talli and nim. The number of trees alive at the end of the year was 515,538 including 328,901 babul. The number of young trees transferred from nurseries for plantation on canal banks was 215,591 including 86,432 babul.
36. The Division was in charge of the following officers in the year under report:-

| Division. | Name of Officer. | M. D. |
| :---: | :---: | :---: |
| Indus Right Bank Division... | Mr. F. St. J. Gebbie | 6 |
|  | Mr. E. M. Proes | $4{ }^{49}$ |
|  | Mr. G. McC. Harrison -.. | 027 |

The following officers were in charge of the Executive districts :-

| District, | Name of Exeontive Engineer. | r. . ${ }^{\text {d. }}$ |  |
| :---: | :---: | :---: | :---: |
| Karachi Canals District Ghar Canals District. Western Nara District | $\begin{aligned} & \text { Mr. C. M. Lane ... } \\ & \text { Mr. M. A. Mirza ... } \\ & \text { Mr. B. E. Vachha... } \\ & \text { Mr. A. Gordon ... } \\ & \text { Mr. B. E. Vaccha... } \end{aligned}$ | $\begin{array}{rr} 12 & 0 \\ 12 & 0 \\ 7 & 11 \\ 2 & 0 \\ 2 & 20 \end{array}$ |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Shikarpur Canals District | Mr. E. M. Proes ... Mr. J. M. Mackay Mr. N. B. Baxter ... | $\begin{array}{cc} 0 & 17 \\ 8 & 17 \\ 2 & 28 \end{array}$ |  |
|  |  |  |  |
|  |  |  |  |
| Begari Canals District | Mr. R. B. MacLachlan | $\begin{array}{rr}0 & 22 \\ 1 & 2 \\ 8 & 8 \\ 1 & 80\end{array}$ |  |
|  | Mr. W. Kirkpatrick |  |  |
|  | Mr. A. F. Thorpe ... |  |  |
|  | Mr. A Gordon ... |  |  |

B. KRISHNARAO,

## No. 239 of 1916.

Scperintending Engineer’s Office, Inded Left Bank Division.<br>Camp Bakhora, 20th January 1916.

From

R. T. HARRISON, Esqutre, Superintending Engineer, Indus Left Bank Division.

To
THE CHIEF ENGINEER IN SIND.

Subject.-Annual Irrigation Revenue Report for 1914-15.
Sir,
With reference to Government Resolution No. W. I.-5362 of 7th May 1915, I have the honour to submit, for favour of disposal, the Irrigation Revenue Report for Sind for the year 1914-15.
2. The diagram showing the hydrograph of the River Indus, mentioned in the report, may please be attached in your office.

> I have the honour to be,
> Sir,
> . Your most obedient servant,
> R. T. HARRISON,
> Superintending Engineer,Indus Left Bank Division.

Accompaniments:-
As per index attached.

## ANNUAL IRRIGATION REVENUE REPORT, INDUS LEFT BANK DIVISION, SIND, 1914-1915.

The inundation of 1914 was an exceptionally good one. It may be rezarded as a record year, as regards height and duration of supply, though the highest gauge at Bukkur recorded during the year has twice been exceeded (in 1882 and 1597) sinoe 1818.

The diagram accompanying this report compares the inundation of 1914 with the two previous years and with the 10 years' average.

The following table shows the principal features of the year compared with those of previous years:-


Area of cultivation-Government and Jaghir.
2. The gross assessed areas for the year are given in the subjoined statement $\mathrm{A}:-$

Statement A.

| Year and olass of cropa. | Major Woris. | Minor Woris and Navigation. |  |  |  | Grand total. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Prodnctive Works. - | Works for which <br> Capital and Revenue accounts are kept. | Works of which only Revenne acconnts are kept. | $\underset{\text { Agricnltaral }}{\text { Works. }}$ | Total. |  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Avernge of 3 years including $1913-1+i$ | Acres. <br> 5 26,349 <br> 1129,730 | Acres. <br> 463,869 <br> 51,678 | Acres. $250,983$ $24,171$ | Acres, $\ldots$ $\ldots$ | Acres. $\begin{array}{r} 714,852 \\ 75,949 \end{array}$ | Acres. $\begin{array}{r} 1,261,201 \\ \mathbf{2 0 5}, 579 \end{array}$ |
| Total ... | 676,079 | 515,-17 | 275,154 ${ }^{\circ}$ | ... | 790,701 | 1,466,780 |
| $\text { 1913-1 ... ... } \quad\left\{\begin{array}{lll} \text { Kharif } & \ldots \\ \text { Rabi } & \ldots \end{array}\right\}$ | $\begin{aligned} & 568.204 \\ & 1 \geq 3,2 \geq 8 \end{aligned}$ | $\begin{array}{r} 470,640 \\ 45,857 \end{array}$ | $\begin{array}{r}255,709 \\ 25,268 \\ \hline\end{array}$ | $\cdots$ | $\begin{gathered} 726,349 \\ 71,125 \end{gathered}$ | $\begin{array}{r}1,294,553 \\ 194,353 \\ \hline\end{array}$ |
| Total .. | 691,433 | 516497 | 280,977 | ... | 799,4i4 | 1,488.903 |
| 191+15 ... ... $\quad \begin{array}{lll}\text { Kharif } \\ \text { Rabi } & \ldots \\ \text {... }\end{array}$ | $\begin{array}{r} 530,491 \\ 172,367 \end{array}$ | $\begin{array}{r} 446,207 \\ 88,498 \end{array}$ | $\begin{array}{r} 216.550 \\ \mathbf{3 7 , 0 0 1} \end{array}$ | $\cdots$ | $\begin{aligned} & 692,787 \\ & 125,409 \end{aligned}$ | $1,223,278$ 207,866 |
| Total | 702,858 | 534,705 | 283,581 | ... | 818,256 | 1,521,144 |
| $\begin{gathered} \text { Incroage of decrease } \\ \text { compared with average. } \end{gathered} \text { as }\left\{\begin{array}{ll} \text { Kharif } & . .\} \\ \text { Rabi } \end{array}, \ldots\right\}$ | $\begin{array}{r} -15858 \\ 42,637 \end{array}$ | $-17,662$ 36,820 | $-4,403$ 12,830 | $\cdots$ | $-22,065$ 49,650 | -37.923 92,287 |
| Total | 26,779 | 19,158 | 8,427 | ... | 27,585 | 54,361 |
| Increase or decraase compared with 1013-14. an $\left\{\begin{array}{l}\text { Kharif } \ldots \\ \text { Rabi }\end{array}\right.$ | $\begin{array}{r} -37,713 \\ 40,139 \end{array}$ | $\begin{array}{r} -24.433 \\ 42,641 \end{array}$ | $\begin{array}{r} -9,129 \\ 11,733 \end{array}$ | $\ldots$ | $\begin{array}{r} -33,562 \\ 54,374 \\ \hline \end{array}$ | $\begin{array}{r} -71,275 \\ 113,513 \end{array}$ |
| Total ... | 11,426 | 18,203 | 2,604 | .* | 20,812 | 32.238 |

The total cultiration shors an increase of 32,239 and 51,364 acres, respectively, as compared with that of the previous year and of the arerage of the previous triennium, the decreass in Kharif being counterbalanced to this eitent by the marked increase in Rabi for the two periods under comparison. The decresse in Kharif was partly due to a large area of Kharif lands being under water at the commencemeat of the seavon owing to the record rains of the previous year; and partly to circumstances arising out of the war, in that a loss area was planted in ootton because of its low market price which, however, conversely resulted in a greater area being planted in wheat (Rabi) because of its high market price.

- 3. The area of 'Dubari' or twice-oropped land, which is not included in Area of Dabari oultiration. statement A, was 4,5,351 aores, of which 10,020 aores were 'watered Dubari,' 8,211 acres being in the Thar and Parkar Distriot and 1,809 acres in the Nawabshah District. The 'Dubari' figures for the previous year and the average of the previous triennium were ' 28,809 and 27,978 acres, while those of 'watered Dubari' were 7,272 and 7,224 acres, respectively.

Irrigation assessment--Government and Jaghir.
4. The net irrigation assessment for the year, including 'Hakabo' for Jaghir lands, is given in statement B:-

Statement B.


The net assessed rerenue shows an increase of Rs. 3,32,070 and Rs. 2,50,310 when compared with that of the previous year and of the average of the previous triennium, re pectivels.

4-A. The area cultivated on 'spill' water was 10,178 acres as compared Cultivation from spill. with the previous year's aren of 3,374 acres and 2,251 acres the average of the previous three years.
5. The average net consolidated assessment per acre on Government land

Asse-sment rito per acre on Guvernment land.
as compared with the previous year and the average of the previous three years is shown below :-

|  | Average of previous three yeara. three years. | 1914.15. | 1913-14. |
| :---: | :---: | :---: | :---: |
|  | Rs. | Rs. | Rs. |
| Major Works-Productive | 3.05 | $3 \cdot 04$ | $2 \cdot 97$ |
| Minor Works for which Capital and Revenue accounts are kept. | $2 \cdot 64$ | $2 \cdot 98$ | $2 \cdot 51$ |
| Minor Works for which only Revenue accounts are kept. | 2.74 | 2.73 | 2.74 |
| Average.for all works ... | $2 \cdot 86$ | $2 \cdot 97$ | 2.78 |

6. The following statement shows the realizations under all heads Actual realizations under all heads and the balances outstanding at the end of the and the balances outstanding. year:一

Sratement $C$.

| Years. | Collections. |  |  |  | Balances outstanding. |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Government Isnd and Hakabo. | Miscellaneous. | Four per cent. irrigation share of proceeds from sale of oecupancy rights. | Total. receipts. |  |
| 1 | 2 | 3 | 4 | 5 | 6 |
| Average of past three years ... ... | Rs. $85,27,638$ | Rs. 82,360 | $\begin{aligned} & \text { Rs. } \\ & 1,07,381 \end{aligned}$ | $\begin{gathered} \text { Rs. } \\ 37,17,379 \end{gathered}$ | Rs. <br> 1,57,581 |
| 1913-14 ... | 34,87,417 | 98,445 | 1,15,045 | 37,00,907 | 1,15,500 |
| 1914-15 ... | 35,55,974 | 61,230 | 1,18,732 | 37,35,936 | 3,30,678 |
| Increase or decrease as compared with 1913-14. | 68,557 | -37,215 | 3,687 | 35,029 | 2,15,178 |
| Iucrease or docrease as compared with average. | 28,336 | -21,130 | 11,351 | 18,557 | 1,73,097 |

The vear under report shows an increase in the outstanding balance of Rs. 2,15,178 and Rs. 1,73,097, respectively, as compared with the last year and the average of the previous three jears. This large increase of outstanding balance was mainly in the Jamrao Canal District as the payment of the first instalment of the Kharif crop was suspended till the year 1915-16. The total outstanding balance at the end of the year on the Jamrao Canal under both Government and Jaghir lands was Rs. 2,12,890 against Rs. 27,654 of the last year and Rs. 68,137 the average outstanding balance of the three previous years.
7. The remissions granted during the year amounted to Rs. $1,11,628$ Reaissious on Gorernment land. against Rs. $3,22,522$ remitted last year and Rs. $1,50,963$ the average remissions of the previous three rears. The remissions on the Kharif crop amounted to Rs. 90,576 , while on Rabi the amount remitted was Rs. 21,052 .

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The following statement gives details of the causes of remissions and compares the result of the year under report with that of the previous year :-

Remissions.

| Cuuses of remissions. | 1914-15. | 1913-14. | Difference. |
| :---: | :---: | :---: | :---: |
| 1 | 2 | 3 | 4 |
|  | Rs. | Rs. | Rs. |
| Deficiency of water and drought ... <br> Difterence between the rates of old and new settlements. | 43,190 | 14,544. | $2 \mathrm{~S}, 640$ |
|  | 34,528 | ...... | 34,52S |
| Floods and erosion | 13,136 | 1,50,416 | -1,27,280 |
| Locusts | 5,699 | 11,942 | - 6, 2.43 |
| Breaches of canals ... | 4,391 | $\ldots$ | 4,391 |
| Blight or mahlo | 4,106 | ...... | 4,106 |
| Iusects or wireworms | 1,998 | 17 | 1,981 |
| Kalar soil | 1,788 | 698 | 1,090 |
| Written off | 1,381 | $\ldots$ | 1,3¢1 |
| Grants cancelled and arrears remitted | 417 | ... | . 417 |
| Frost | 196 | 158 | 35 |
| Other causes $\quad . . . \quad$..... | 798 | 836 | - 3 S |
| Postponement of levy of the revised assessment rates. | ..... | 1,42,090 | -1,42,090 |
| Reduction in rate of assessment for lift rice ' ... | ...... | 1,313 | - 1,313 |
| Hails | ...... | 282 | - 282 |
| Poverty of peasants ... | ...... | $5 \because 6$ | 526 |
| Total | 1,11,628 | 3,22,822 | -2,11,194 |

## Remissions on Jaghir lands.

-7-A. No remissions on Jaghir lands were granted this jear.
8. The difference between the 'Hakabo' or water rate assessed on Loss to canals by Jagir lands. Jagir cultivation and the assesment at full rates on these areas amounted to Rs. $2,88,936$, which represents the loss of canal revenue during the year owing to the low rates charged to Jaghirdars.

Expenditure on maintenance and repairs and establishment charged to works.
9. The total charges during the year on account of maintenance and repairs amounted to Rs. 13,61,999 as shown below :-

Rs.

| Works | - | . | 8,03,94: |
| :---: | :---: | :---: | :---: |
| Establishment and Tools and Plant |  | ... | 2,86,195 |
| Percentage charges for revenue collection |  | ... | 2,14,862 |
|  | Total | $\ldots$ | 13,64,909 |

The establishment charged to 'Works' amounted to Rs. $1,85,585$ and is included in the expenditure on 'Works,' while the net expenditure on 'Works' (clearance and repairs) was Rs. 6,78,357. Compared with the previous year and with the average of the previous three years, the net expenditure on clearance and repairs shows a decrease of Rs. 73,083 and Rs. 36,54.4, respectively; the charges on account of establishment and tools and plant also show a decrease of Ris. 64,067 and Rs. 55,550 .

Expenditure on maintenance and repairs separately for canals and river embankments.
10. Of the total charges shown in the preceding paragraph, Rs. $13,76,0.3$ were spent on canals and Re. 48,916 on rifer embankments.
11. The outlay of the year on newi works was Gitlay on new worls. Rs. $3,40,239$ as shown below :-

> Rs.

Major Works ... ... ... | Capital | $\ldots$ | $1,93,551$ |
| :--- | :--- | ---: |
| Revenue | $\ldots$ | 95,774 |

| Minor Works and Navigation- |  |  |  |
| :---: | :---: | :---: | :---: |
| Works for which Capital and Revenue accounts are kept. | $\left\{\begin{array}{l} \text { Capital } \\ \text { Revenue } \end{array}\right.$ | . | $19,82 z$ |
| Works for which only Revenue account | are kept | ... | 7,134 |
| Agricultural works ... | ... | ... | 23,958 |
|  | Total Rs. | ... | 3,40,239 |

Under Major head-Capital-Rs. 1,67,856 represэnt the "Works" expenditure, of which Rs. $74,8 \pm 0$ were spent on the Dad Canal and the Ren Distributary ex Dad, Rs. 64,693 on works in the Eastern Nara District and Pis. 29,834 on the Jamrao Canal. The exponditure on the Nasrat Canal is the negative one of Rs. $-1,511$.
12. The regular establishment charges as showi below amounted to Regular establishment charges. Rs. $3,52,854$, which is Rs. 44,560 and Rs. 61,323 less than the previous year and the average of the previous three years:-

Percentage on outlay.
Executive ... ... ... Rs. 3,05,996, 26.6

Dizection-
Superintending Engineer ...Rs. 25,641
Secretariat ... ... , 21,217


| Class of works. | Gruss revenue. | Working expenses. | Net revedue. | Simple interest. | Net profit 1914 lj. | Net profit 1913-14. | Increase. | Decrease. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|  |  | Re. | Rs. | Re. |  |  |  |  |
| Major Works-Prodactive | 18,17,503 | 8,19,724 | 9,97,779 | 6,70.052 | 3,27,727 | 4,07,863 |  | 80,135 |
| Minor Works for which Capital | 12,65:122 | 4,05,651 | 8,59,771 | $\cdots$ | 8,59,771 | 6,58,655 | 2,01,116 |  |
| Tutal | 30,82,905 | 12,25,375 | 18,57,550 | 6,70,052 | 11,87,498 | 10,66,517 | 2,01,116 | $-80,135$ |
| Works for which only Revenue scoonits ara sept. | 6,52,503 | 2,51,291 | 4,01,512 | ... | 4,01,512 | 3,80,257 | 21,355 | $\ldots$ |
| Ajricultaral Woris ... | 208 | 72,904 | -72696 | ... | -72,606 | -1,14,506 | 41,910 | ... |
| 191915 ... | 37,35,936 | 15,40,570 | 21,56,366 | 6,70,052 | 15,16,31 | 13,32,168 | +1,84,146 |  |
| 141\%14 | 37,06,907 | 17,94,381 | 10,56,526 | 6,4,353 | 13,32,169 | ... | $\cdots$ |  |
| I ucrease or ducrase ... | 35:0.9 | $-174.811$ | 2,09,840 | 25,694 | 1,81,140 | $\cdots$ | +1,S4,146 |  |

13-A. The following statement shors the rate of expenditure on agricultural works per aore of area irrigated after excluding the cost of the survers for definite project :-

Statement E.

| $\begin{gathered} \text { Total area } \\ \text { irrigitaded bill } \\ \substack{\text { chabeb of } \\ \text { works. }} \end{gathered}$ | Total working expenses and maintensance for canale. |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 3 | 4 | 5 | 6 |
| Acres. | Rs. | Rs. | Rs. | Rs. | Rs. |
| 1,521,144 | 14,76,666 | 0.97 | 72,904 | 005 | 102 |

The total working expenses inoluding expenditure on agricultural works comes to Rs. 1.02 per acre of total area irrigated, compared with Rs. $1 \cdot 16$ per acre of area irrigated in the previous year and Rs. $1 \cdot 17$ per acre of the average area irrigated during the past three years.
14. There were 1,019 miles of main canals and 2,999 of branch canalstotal 4,018 miles-in operation during the rear against the previous year's total mileage of 4,014 (main canals 1,021 miles and branch canals 2,993 miles). The total length of river embankments remains the same as last year, viz., 369 miles. The decrease and increase in the mileage of canals is explained at the bottom of Table VI accompanying this report.

Area of principal crops.-Govern-
ment aud Jagir. ment and Jagir.
15. The areas of the principal crops grown during the year were-

Statement F.

| Crops. |  | 1914-15. |  |  | Average of previons 3 years. | 1913-14 | $\left\{\begin{array}{c} \text { Increase or or } \\ \text { decrease as } \\ \text { compared } \\ \text { with } \\ \text { overage. } \end{array}\right.$ | Increase or decrease af compared with 1918-14. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Lift. | Flow. | Total. |  |  |  |  |
| Kbarif | ... $\left\{\begin{array}{l}\text { Rice } \\ \text { Juari } \\ \text { Bajri } \\ \text { Cotton } \\ \text { Other crops }\end{array}\right.$ | $\begin{array}{r} \text { Acren. } \\ 905 \\ 77,518 \\ 272,478 \\ 162,884 \\ 25,689 \end{array}$ | $\begin{aligned} & \text { Acres, } \\ & 378,489 \\ & 58,198 \\ & 67,271 \\ & 160,865 \\ & 18,666 \end{aligned}$ | Acres. <br> 879,394 <br> 135,716 <br> 339,7.19 <br> 3:3,749 <br> 44.355 | Acres. <br> 410,947 <br> 118,117 <br> 383,004 <br> 310,321 <br> 38,433 | Acres. <br> 405,1\% <br> 132,266 <br> 392,718 <br> 322,840 <br> 41,314 | $\begin{array}{r\|} \text { Aores. } \\ -31,553 \\ 27,599 \\ -43,253 \\ 13,428 \\ 3,922 \end{array}$ | Acres.$\begin{array}{r} -25,966 \\ 3,450 \\ -59,969 \\ 949 \\ 3.041 \end{array}$ |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Rabi | . Total $\quad \cdots$ | 539,474 | 683,489 | 1,222,963 | 1,260,822 | 1,294,258 | $-37,859$ | -71,295 |
|  | $\ldots\left\{\begin{array}{l}\text { Wheat } \\ \text { Barley } \\ \text { Oil-seeds }\end{array}\right.$ | $\begin{array}{r} 18,378 \\ 498 \\ 2,679 \\ 6,657 \end{array}$ | $\begin{array}{r} 144,814 \\ 5,274 \\ 102,056 \\ 62,681 \end{array}$ | $\begin{array}{r} 163,192 \\ 5,772 \\ 104,735 \\ 69,338 \end{array}$ | $\begin{array}{r} 115,495 \\ 4,941 \\ 61,614 \\ 51,955 \end{array}$ | $\begin{array}{r} 106,543 \\ 2,795 \\ 65,773 \\ 47,916 \end{array}$ | $\begin{array}{r} 47,647 \\ 1,431 \\ 43,121 \\ 17,353 \end{array}$ | $\begin{array}{r} 56,649 \\ 2,977 \\ 38,962 \\ 21,422 \end{array}$ |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | Total ... <br> Grand total | 28,212 | 314,825 | 343,037 | . 233,405 | 2:3,027 | 100, E 32 | 120,010 |
|  |  | 567,686 | 998,31\% | 1,566,000 | 1,494,227 | 1,517,285 | 71,773 | 48,713 |

As compared with the last year and the average of the previous three years, there was a decrease of 71,295 acres and 37,859 acres under Kharif and an increase of 120,010 acres and 109,632 acres under Rabi, resulting in a net increaso of 48,715 acres and 71,773 acres, respectivelr. With the exception of rice and bajri, there was an increase under all the crops when compared with the previous year and the average.
16. The proportions of Kharif and Rabi out of the total area irrigated

Percentage of Kharif and Rabi. in the Division were 78 and 22 against 85 and 15 of the last year. The highest Kharif percentage of 83 was in the Hyderabad Canals District and the lowest 65 was in the Jamrao Canal District, while the Fuleli Canals, Nasrat Canals and Eastern Nara Districts had, respectively, 82, 50 and 76 per cent. The Fuleli Canals and the Eastern Nara Districts had as usual the largest rice areas with 246,993 acres and 113,076 acres, respectively, out of the total rice cultivation of the Division of 379,394 acres. The largest areas under bajri were in the Hyderabad and Fuleli Canals Districts, viz., 143,019 and 81,348 acres. The largest area under juari was, as usual, in the Nasrat Canals District with 113,878 acres. Of the total area of 323,749 acres under cotton in the Division, the area under this crop on the Jamrao was 125,22l acres and in the Hyderabad Canals District 83,48S acres.

Of the Rabi crops, wheat was most largely grown, as last year, on the Jamrao and the Eastern Nara systems, the Jamrao accounting for 68,566 acres and the Eastern Nara for 42,394 acres out of a total for the whole Division of 163,192 acres. The smallest area cultivated in wheat was in the Hyderabad Canals District, viz., 5,027 acres. The areas under oil-seeds were 43,139 acres in the Fuleli Canals District and 24,247 acres in the Nasrat Canals District and 22,569 acres in the Hyderabad Canals Distrist out of the total for the Division of 104,735 acres.

Out of the total area caltivated during the year, 36 per cent. Was watered by lift and 64 per cent. by flow against 40 and 60 per cent., respectively, during the previous year.

Duties and deltas of canals.
17. The duties and deltas of canals in this Division show the usual fluctuations of values.

The Kharif duty and delta on the Jamrao were 67 and $5 \cdot 2$ as compared with 82 and $4: 2$ in the previous year. The decrease in duty and increase in delta may be attribated to the increase in the average discharge of the canal at its head. The Rabi duty has risen from 36 to 50 and the delta has fallen from $9 \% 3$ to 7.3 , a better result than that of the last year. The high Rabi delta is as usual due to the fact that Kharif cotton is watered for a few months in the Rabi season. The average discharge measured for 358 days on which the canal was flowing was 2,119 cusecs, and as the total area brought to maturity was 253,770 acres, each cusec irrigated 120 acres against 124 acres in the previous year.

On the Dad, the duty and delta were 39 and 5.2 against 43 and 5.0 in the provious year. The decrease in duty and a slight increase in delta are due to the increase in the average discharge.

On the Nasrat, the duty and delta were 52 and 4.7 against 65 and 3.4 in the previous year. The deorease in duty and increase in delta are due to the decrease in the area cultivated and an increase in the average discharge.

On the Mithrao, the Kharif duty and delta were 49 and 7.5 against last year's figures of 56 and 60 , the fall in duty and increase in delta being similarly due partly to decrease in Kharif cultivation and partly to an increase in the average discharge. The Rabiduty and delta on this canal were 26 and $12 \cdot 8$ against 22 and 13.1 of the last year. The increase in daty is due to the Rabi cultivation being greater than that of the previous year.

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On the Hiral Canal, the Kharif duty and delta rere 63 and 5.8 against 95 and 3.5 in the previous year. The fall in duty and increase in delta are due partly to Kharif cultivation heing less and partly to the quantity of water being more than in the previous year. The Rabi duty and delta was 42 and 8.0 against last jear's figures of 19 and $13 \cdot 6$.

On the Thar Canal, the duty and delta were 45 and 8.6 against $C 1$ and 6.3 of the previous year. The decrease in duty is due to the supply in the canal being much better than in the previous year while the cultivation remained nearly the same.

On the Khipro Canal, the duty and delta were 43 and 86 against 34 and $7 \cdot 2$ in the prerious year. This satisfactory result is due to the farourable inundation and increased cultivation.

On the Fuleli, the Kharif duty and delta were 44 and 8.3 against the previous year's figures of 51 and $7 \cdot 2$, while the Rabi duty and delta were 52 and 7.0 against the last year's figures of 63 and 5.7. The low duty and high delta are due to the abnormal supply of water far in excess of requirements.

On the Hasanali, there is practically no change, the duty and delta being 30 and $10 \cdot 1$ against 30 and 9.5 in the previous year.
18. On "Major Works" the incidence of working expenses on assessed Incidence of working expenses on revenue and per acre irrigated were 40.79 per cent. the assessed revenue. and Rs. $1 \cdot 17$ per acre as compared with 47.34 per cent. and Rs. $1 \cdot 35$ per acre in the previous year.

Under "Minor Works" the figures were $\mathbf{3 1} \cdot 72$ par cent. and Re. 0.76 per acre as compared with 38.49 per cent. and Re. 0.79 per acre last year.
19. The total value of crops grown on the irrigated area of $1,566,000$

Falue of each hind of crop irrigated.
acres was estimated by the Revenue authorities at Rs. $3,73,20,245$, which gives an average of Rs. $2 \pm$ per acre.
20. The agricultural and other conditions of the year as affecting the areas irrigated by the principal works, the nature of seasons, the state of demand and supply are given in the following paragraph.
21. The principal irrigation works in the Division are the Eastern Nara System, the Jamrao, the Dad, the Nasrat, the Fuleli, the Hasanali, the Alibhar Kacheri, the Great Marak and the Sarfraz.

The Eastern Nara System comparises the Nara, Mithrao, Hiral, Thar and Khipro Canals; the first four are perennial, while the last flows only during the inundation. The Jamrao has also a perennial supply. The Eastern Nara System and the Jamrao are both fed by the Nara Supply Channel. All the other canals are inundation canals getting their supply direct from the river; the Fuleli, though not perennial, flows nearly throughout the sear and gets a Rabi supply.

The inundation of 1914, as already mentioned, was an exceptionally good one. In Sind the river is considered not to have reached a fair irrigating level until the reading on the gauge at Bukkur is 13 feet and that on the gauge at Kotri is 17 feet. During the year under review these levels were reached for 45 days and 100 days, respectively, as compared with the arerage of 39 days and 68 days for the previous 10 years. The highest readings for the year were $17 \cdot 4$ feet on the Bukkur gauge and 23.8 feet on the Kotri gauge against the recorded maximum of 17.9 feet and 22.9 feet, respectively. The rainfall of the year mas'below the average, though the few showers in June, July and September materially helped the Kbarif cultiration in certain areas. Tbe supply in the Jamrao during the Kharif season was insufficient, due to some
silting in the upper reaches, but this was scoured down during the Rabi season. The Rabi supply was adequate.

The areas irrigated in the whole Division under different crops are given in statement $F$, paragraph 15, above. There was an increase of 48,715 acres as compared with $1913-14$ and of 71,773 acres when compared with the average of the previous 3 years.
22. The following paragraphs give details of different works or groups of works and a comparison of the agricultural and financial results of the year 1914.15 with the previous year and the average of the previous triennium, and the main causes of any important differenoes in results.

## I.-MAJOR WORKS.

## Productive Public Works.

23. A.-Eastern Nara System.

An expenditure of Rs. 64,693 was incurred under this head during the year under report, on the construction of four parallel distributaries ex Mithrao Canal, two in the 30th mile (left and right) and two in the 45th mile (left and right). These distributaries will all be in operation in 1916-17.

A sum of Rs. 44,312 was spent during the year mainly on extending
Extensions and Improvements. the inner right and left bank inspection paths along the Nara below Makhi Regulator, on constructing karia head regulators on Mithrao Canal and on completing the Public Works Inspection bungalow at 79th mile Mithrao.

All the canals in the district were maintained
Maintenance and Repairs. in good order at a cost of Rs. 1,10,738 including " Work Establishment."

The area irrigated during the year was 261,040 acres, of which 197,166 Irrigation. acres were under Kharif and 63,874 acres under Rabi as compared with 260,094 acres (Kharif $216,94 \check{5}$ and Rabi 43,149 acres) in the last year and with 254,348 acres (Kharif 206,697 and Rabi 47,651 acres) the average of the previous three years.

The gross revenue for the year amounted to Rs. $6,75,520$ as compared
Financial resalts. with last year's revenue of Rs. 6,41,514 and Rs. $6,69,626$ the average revenue of the previous triennium. , Deducting working expenses Rs. $2,02,139$ and share due to old irrigation Rs. 3,100 , the net revenue during the year due to improvements was Rs. $4,70,281$ or 6.82 per cent. on the Capital outlay to end of year as compared with 6.05 per; cent. in the last year and 6.11 per cent. the average of the previous three years.

The remissions granted during the year amounted to Rs. 11,257 against
General remarks. Rs. 56,642 remitted last. year and Rs. 24,992 the average remissions of the previous three years. The year's remissions were due mostly to drought and damage by locusts.

The principal crops grown were-

|  |  |  |  |  | Acres. |
| :--- | :---: | :---: | :---: | :---: | ---: |
| Rice | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 1113,076 |
| Cotton | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 47,821 |
| Wheat | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 42,394 |
| Bajri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 32,771 |
| Oil-seeds | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 11,825 |

and the value of the whole outturn is estimated at Rs. 61,77,403 or Rs. 25 per acre.
24.

## B.-Jamrao Canal.

The expenditure during the year was Rs. 29,834, which was mainly spent on works in connection with the 17 th mile project.

A sum of Rs. 18,242 was spent during the year on 'Works' only. mainly on constructing a bungalow at 23rd mile Puran Minor.

The canal and its branches were maintained in good order at a cost of Rs. 1,52,543 including 'Works Establishment.' Regrading and clearance of minors was done where necessary. The conditions at the head works in the Nara continued to be satisfactory and the groynes in the first seven miles of the canal were maintained in good order as usual.

The total area irrigated during the year was 259,558 acres (Kharif 169,080 Irrigation. acres and Rabi 90,478 acres) compared with $\mathbf{2 3 9 , 6 1 7}$ acres (Kharif 177,927 acres and Rabi 61,690 acres) in the last year and with 239,929 acres (Kharif 168,778 acres and Rabi 71,151 acres) the average cultivation of the previous three years.

The gross revenue of the year amounted to Rs. $6,54,343$ oompared with
Financial results. Rs. $8,20,056$ in the last year and Rs. 7,88,671 the average revenue of the previous three years. Deducting working expenses Rs. 3,43,469, the net revenue during the year was Rs. $3,10,87 \pm$ or $3 \cdot 68$ per cent. on the Capital outlay to end of year as compared with 5.55 per cent. of the last year and 5.28 per cent. the average of the previous three years.

The amount remitted during the jear was Rs. 19,448 against Rs. 10,819 General remarks. remitted last year and R. 9,115 the average remissions of the previous three years. The year's remissions were mainly due to drought and kalar soil.

The prinoipal crops grown were-

|  |  |  |  | Acres. |  |
| :--- | :---: | :--- | :--- | :--- | ---: |
| Cotton | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 125,221 |
| Wheat | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 68,866 |
| Bajri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 32,389 |

and the estimated value of the whole outturn was Rs. 79,94,834 or Rs. 31 per acre.
25.
C.-Dad Canal.

The expenditure during. the year was Rs, 74,840 and was spent on
Capital. the Ren Distributary works and excavating a new mouth to Guri Dad.

A sum of Rs. 7,381 was spent on 'Works' only mainly on completion of the Executive Engineer's bungalow and office at Nawabshah and construction of Public Works Inspection bungalow at Gupchani.

The canal and its branches were maintained in good order at a cost of Maintenance and Repairs. Rs. 1,19,558 including 'Work Establishment.'

The total area irrigated during the year was 113,999 acres)(Kharif 83,479 acres and Rabi 30,520 acres) as compared with 109,179 acres (Kharif 88,670 acres and Rabi 20,509 acres) in the previous year and with 105,477 acres (Kharif 89,085 acres. and Rabi 16,392 acres) the average of the previous three years.

The gross revenue for the year amounted to Rs. 2,51,850 as compared
Financial results. with Rs. $2,60,901$ in the last year and Rs. 2,49,392 the average of the previous three years. Deducting working expenses Rs. 1,80,024 and share due to old irrigation Rs. 38,699, the net revenue due to improvements was Rs. 33,127 or Rs. $1 \cdot 25$ per cent. on the Capital outlay to end of the year as compared with 1.96 per cent. in the last sear and 2.03 per cent. the average of the previous triennium.

The remissions granted during the year amounted to Rs. 15,718 against
General remarks. Rs. 3,490 remitted last year and Rs. 5,841 the average remissions of the previous three years. The increase in remissions is mainly due to difference in rates of old and new settlements, deficiency of water in places and blight.

The principal crops grown were-

|  |  |  |  |  | Acres. |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Bajri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 26,808 |
| Juari | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 25,348 |
| Oil-seeds | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 16,988 |
| Cotton | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 12,667 |

and the estimated value of the outturn was Rs. $28,58,735$ or Rs, 25 per acre.
26.

## D. - Nasrat Canal.

> Capital.

No expenditure was incurred on this canal under this head.

The expenditure under this head during the year was Rs. 6,133 on "Works" oźly and was cheifly spent on completion of the Executive Engineer's bungalow and office at
Extensions and Improvements. Nawabshah (the cost of which is divided between Dad and Nasrat) and construction of Public Works Inspection bungalow at Gupchani.

The canal and its branches were maintained at a cost of Rs. 56,056, Maintenance and Repairs. including "Work Establishment."
The area irrigated during the year was 88,936 acres (Kharif 80,602 acres Irrigation. and Rabi 8,334 acres) as. compared with 99,176 acres (Kharif 84,580 and Rabi 14,596 acres) in the previous year, and with 92,872 acres. (Kharif 81,624 acres and Rabi 11,248 acres), the average of the previous three years.

The gross revenue amounted to Rs. 2,35,790 as compared with Rs. 2,62,138 of the previouis year and Rs. 2,55, 027 the average of the previous three years. Deducting working expenses Rs. 94,092 and share due to old irrigation Rs. 53,046, the net revenue due to improvements was Rs. 88,652 or 4.71 per cent. on the Capital oatlay to end of the year as compared with $1 \cdot \bar{b} 3$ per cent. in the last jear and $1 \cdot 27$ per cent. the average of the previous three, years.

The remissions granted during the year amounted to Rs. 18,691 against
General remarks. Rs. 17,891 remitted last year and Rs. 19,382 the average remissions of the previous three years. The remissions of the year were mainly due to difference in rates of old and new settlements and to deficiency of water in places.

The principal crops grown were-

|  |  |  |  |  | scres. |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Juari | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 34,929 |
| Cotton | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 28,649 |
| Bajri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 11,604 |

and the estimated ralue of the outturn was Rs. $22,15,762$ or Rs. 25 per acre.
L (Iv) 530-9

## II.-MINOR WORKS AND NAYIGATION.

A. - Works for which Capital and Revende accounts are kept. 27.

## 1.-Fuleli Canal.

A sum of Rs. 12,129 was spent on "Works" only, mainly on additions and alterations to the 2nd class Inspection bungalows at Khairpur, Kadhan and Khadahro and on
Inspection bungalow with outhouses at Rajo
Extensions and Improvements. construction of a 2nd class Inspection bungalow with outhouses at Rajo Khanani.

The canal and its branches were maintained
Maintenance and Repairs. in good order at a cost of Rs. 1,59,942 inclusive of "Work Establishment."

The area irrigated during the year was 398,375 acres (Kiharif 324,716 acres Irrigation. - and Rabi 73,659 acres) compared with 385,943 acres (Kharif 345,251 acres and Rabi 40,692 acres) irrigated in the previous year and with 389,075 acres (Kharif 338,965 acres and Rabi 50,110 acres) the average of the previous three years.

The gross revenue amounted to Rs. 9,26,309 against Rs. 7,59,131 realized Financial results. last year and Rs. $8,10,318$ the average of the previous three years. Dëducting working expenses Rs. 2,93,494 and share due to old irrigation Rs. $1,28,188$, the net revenue due to improvements was Rs. $5,04,627$ or $25 \cdot 43$ per cent. on the Capital outlay to end of the year compared with 15.99 per cent. in the last year and with 17.37 per cent. the average of the previous three years.

The amount remitted during the year was Rs. 6,371 against Rs. 2,21,040
General romarks. remitted last year and Rs. 80,232 the average remissions of the previous three years. The year's remissions were due to floods and damage by locusts.

The principal crops grown were -

| Rice | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 2 Aress |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Bajiri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 71,245 |
| Oilseeds | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 40,633 |
| Cotton | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 21,657 |

and the estimated value of the outturn was Rs. $88,11,740$ or Rs. 22 per acre.
28.
2.-Hasanali Canal.

A sum of Rs. 2,568 was spent during the year on "Works" only.

The canal and its branches were maintained
Maintenance and Repairs. in good order at a cost of Rs. 18,019 inclusive of " Work Fstablishment."
The area irrigated during the year was 18,230 acres (Kharif 17,746 aores Irigation. and Rabi 484 acres) compared with 17,881 aores (Kharif 17,608 acres and Rabi 273 acres) in the previous year and with 17,450 acres (Kharif 17,134 acres and Rabi 316 acres) the average of the previous three years.

The gross revenue amounted to Rs. 48,423 compared with Rs. 42,338
Financial resalts. realized last year and Rs. 44,610 the average realizations of the previous three years. Deducting working expenses Rs. 30,395 and share due to old irrigation Rs. 2,458, the net revenue due to improvements was Rs. 15,570 or 511 per cent. on the Capital outlay to end of the year against 5.35 per cent. in the last year and 4:75 per cent. the average of the previous three years.

The remissions of the year amounted to Rs. 65 only against Rs. 7,364 remitted last year and Rs, 2,577 the average remissions of the three previous years.
The principal crop grown was rice 14,069 acres, and the estimated value of the outturn was Rs. $5,58,675$ or Rs. 31 per acre.
29.

## 3.-Alibhar Kacheri.

The canal and its branches were maintained
Maintemance and Repaiss. in good order at a cost of Rs. 2,212, inoluding " Work Establishment."

The area irrigated was 19,275 acres (Kharif 12,773 acres and Rabi 6,502 acres) against last year's area of 14,998 acres (Kharif 13,739 and Rabi 1,259 acres) and 13,625 acres (Kharif 12,894 acres and Rabi 741 aores) the average area irrigated in the previous three years.

The gross revenue amounted to Rs. 42,099 against Rs. 30,847 in the last
year and Rs. 29,078 the average revenue of the
previous three years. Deducting working expenses Rs. 6,424 and sbare due to old irrigation Rs. 8,239, the net revenue due to improvements was Rs. 27,436 or 114.71 per cent. on the capital outlay to end of year against last year's percentage of 67.91 and 56.0 the average percentage of the previous three years.

The sum remitted during the year was Rs. 856 against Rs. 300 remitted Genoral remarks. in the last year and Rs. 167 the average remissions of the previous three years. The year's remissions were due to floods and breaches.

The principal crops grown were bajri 7,561 acres and cotton 3,732 acres, and the value of the whole outturn was estimated at Rs, 5,17,432 or Rs. 27 per acre.
30.

Extensions and Improvements.

Maintenance and Repairs.
4.-Great Mrarak.

A sum of Rs. 563 was spent on "Works" only.

The canal and its branohes were maintained in good order at a cost of Rs. 26,189, including " Work Establishment."

The area irrigated was 82,165 acres (Kharif 63,555 acres and Rabi 18,610 Irrigation. acres) against 72,263 acres (Kharif 64,514 acres and Rabi 7,749 acres) in the last year and 70,251 acres (Kharif 65,094 acres and Rabi 6,157 acres), the average of the previous three jears.

The gross revenue amounted to Rs. $1,88,429$ against Rs. $1,72,883$ in the last year and Rs. $1,69,6 \pm 9$ the average revenue of the previous three years. Deducting working expenses Rs. $53,18 t$ and share due to old irrigation Rs. 36,032 , the net revenue due to improvements was Rs. 99,213 or 45.98 'per cent. on the Capital outlay to end of the jear compared with $42 \cdot 14$ per cent. in the previous year and 39.58 per cent. the average of the last three years.

The sum remitted during the year was Rs. 3,927 against Rs. 1,4 S0 remitted General remarks. last year and Rs 1,104 the average remissions of the last three jears.
The principal crops grown were bajri 33,785 acres, cotton 24,435 acres and oil-seeds 11,054 acres, and the value of the whole outturn mas estimated at Ms. 19, 4,271 or Ris. 24 per acre.
31.
5.-Sarfraz.

The canal and its branches were maintained
Maintenance and Repairs. in good order at a cost of Rs. 12,051 including " Work Establishment."
The area irrigated during the year was 29,363 aores (Kharif 27,417 acres Irrigation. and Rabi 1,946 acres) against 30,726 acres (Kharif 28,823 acres and Rabi 1,903 acres) in the last year and 30,972 acres (Kharif 29,557 acres and Rabi 1,415 acres) the average of the previous thres years.

The gross revenue was Rs. 60,162 against last year's figure of Rs. 62,852
Financial results. and Rs. 61,565 the average revenue of the previous three jears. Deducting working expenses Rs. 22,154 and share due to old irrigation Rs. 10,985, the net revenue due to improvements was Rs. 27,023 or $21 \cdot 67$ per oent. on the Capital outlay to the end of the year compared with 25.61 per cent. in the previous year and 25.44 per cent. the average of the previous three years.

The sum remitted during the year was nil against Rs. 2,895 remitted last
General remarks. year and Rs. 999 the average remissions of the previous three years.
The principal crops grown were bajri 16,858 acres and cotton 7,293 acres, and the value of the whole outturn was estimated at Rs. $4,19,352$ or Rs. It per acre.
B. -Wores for which only Revenue accounts are kept.
32.
1.-Nasrat Canals District.

The principal canals under this classification are the Mehrab, the Naulakhi and the Dambro.
Extensions and Impiorements. only. sum of Rs. 2,069 was spent on "Works"

All the canals under this head were maintained
Maintenance and Repairs. in good order at a cost of Rs. 65,618 including "Work Establishment."
The total area irrigated during the jear was 98,475 acres (Kharif 78,039 Irrigation. acres and Rabi 20,436 acres) against last rear's area of 93,553 acres (Kharif 80,675 acres and Rabi 12,878 acres) and the three years' average area of 91,552 aczes (Kharif 79,276 acres and Rabi 12,276 acres).

The total canal revenue amounted to Rs. 2,35,355 and the total revenue Financial resuits. charges were Rs. 96,779, which represents 40.6 per cent. on revenue and Re. $1^{-0}$ per acre irrigated, against last year's figures of 35.9 per cent. and Re. 0.9 per acre. The corresponding figures for the previous three years averaged $33 \cdot 1$ per cent.- and Rs. 0.8 per acre.

The remissions granted during the year amounted to Rs. 26,724 against General remarks. Rs. 907 remitted last year and Rs. 5,843 the arerage remissions of the previous three years. The increase in remissions is mainly due to difference in rates of old and new settlements and deficiency of water in places.

The principal crops grown were-

|  |  |  |  |  | Acrea |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Juari | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 53,601 |
| Wheat | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 13,214 |
| Bajri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 11,810 |

and the estimated value of the whole outturn was Rs. $12,52,061$ or Rs. 13 per acre.
23. 2.- Hyderabad Canals District.

The principal canals are the Ren, Gharo Mahmudo, Kari Shumali and Nasir.

A sum of Rs. 3,217 was spent during the year
Extensions and Improvements. on "Works" only.

All the canals were maintained in good order
Maintenance and Repairs. at a cost of Rs. 67,477 including " Work Establishment."

The total area irrigated was 106,417 acres (Kharif 144,140 acres and Rabi
Irrigation. 22,277 acres) against 166,998 acres (Kharif 151,732 acres and Rabi 15,266 acres) in the last year and 163,506 acres (Kharif 149,808 acres and Rabi 14,038 aores) the average of the previous three years.

The total canal revenue amounted to Rs. 3,31,933 and the revenue charges
Financial results. were Rs. $1,14,978$, being 346 per cent. on the revenue and Re. 0.7 per acre irrigated against last year's figures of $33 \cdot 1$ per cent. and Re. 0.7 per acre irrigated. The corresponding figures for the previous three years were. 29.7 per cent. and Re. 0.6 per acre irrigated.

The jear's remissions amounted to Rs. 4,769 against Rs. 1,188 remitted Geueral remarks. last year and Rs. 893 the average remission of the previous three years.
The principal crops grown were-

|  |  | . |  |  | Acres. |
| :--- | :--- | :--- | :--- | :--- | ---: |
| Bajri | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 84,815 |
| Cotton | $\ldots$ | $\ldots$ | $\ldots$ | $\ldots$ | 48,028 |

and the value of the outturn was estimated at Rs. $34,53,987$ or Rs. 21 per acre.
34.
3.-Fuleli Canals District.

There are only a few small canals under this head taking off direct from the Indus.

The canals were maintaind in good order at a
Maintenance and Repairs. cost of Rs. 21,884 inclusive of "Work Establishment."
The total area irrigated during the year was 30,167 acres (Kharif 24,250
Irrigation. acres and Rabi 5,917 acres) against 26,857 acres (Kharif 23,795 acres and Rabi 3,063 acres) in the last year and 24,779 acres (Kharif 21,920 acres and Rabi 2,859 acres) the average of the previous three years.

The total canal revenue amounted to 'Rs. 68,897 and the revenue charges
Financial results. were Rs. 32,400 representing 47.0 per cent. on the revenue and Rs, $1 \cdot 2$ per acre irrigated against last year's figures of 48.5 per cent. on the revenue and Rs. $1 \cdot 2$ per acre irrigated. The corresponding figures for the previous three years averaged 46.4 per cent. and Rs. 1.2 per acre.

A sum of Rs. 3,802 was remitted during the year against Rs. 5,152 General remarks. remitted last year and Rs. 2,166 the average remissions of the previous three years. The year's remissions were mainly due to floods.

The principal crop grown was rice 15,679 acres and the value of the outturn was estimated at Rs. $7,85,993$ or Rs. 26 per acre.

1 (ri) $539-10$

## C. Works for which neitier Capital yor Refence accounts

 are kept.35. 

Agricuitural Torks.
A. sum of Rs. 19,669 was spent on "Works" only, mainly on constructing

Extensions and Improvements. a Public Works Inspection bungalow, class I, at Katiar in the Fuleli Canals District and the Las Bund in the Nasrat Canals District.

All the bunds were maintained in good order at a cost of Rs. 51,655
Maintenance and Repairs. inclusive of "Work Establishment." Of this sum Rs. 39,973 were spent on bunds in the Fuleli Canals District, Rs, 9,500 on bunds in the Nasrat Canals District and Rs. 2,182 on the Ren Bund in the Hyderabad Canals District.

In the Nasrat Canals District the Naulakhi Bhorti Bund and the bund General remarks. between Nasrat and Naulakhi had a very small depth of water against them. The two short bunds, the Mikaro and Tirchi, had a very severe test during the abkalani and stood the strain well. No breaches occurred in either. The Mikaro Bund was raised slightly during the year to make up for settlement. The Ren Bund in the Hyderabad Canals District stood very well during the year under report and no leaks or breach occurred in it. Water stood against all the river bunds in the Fuleli Canals District. The Ghallian Bund was overtopped by the river. A few breaches occurred in this bund and attempts were made to close them, but no earth being available, nothing could be done and they were abandoned. There was severe wave-wash against the Jamshora and Gidu Bunder Bunds. At many places they were only a few inches above the water-level, but were nowhere overtopped. They gave a great deal of trouble, but were protected by spreading tuas and gunny bags on the front slope. They remained intact throughout the season. Along the Hajipar Bund, the higher level, which averaged a foot above that of 1908 , combined with strong winds blowing day and night, gave an immense amount of trouble and special precautions had to be taken to keep them secure.
36. The expenditure on and receipts from gardens during the year are

Expenditure and receipts on compared below with the three previous years' gardens.
expenditure and receipts :-

|  | Year. |  | Expenditure on maintenance. | Receipts. |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | As estimated | Actuals. |
|  |  |  | Rs. | Res. | Rs. |
| 1911-12 | ... | ... | 5,372 | 2,250 | 1,51.5 |
| 1912-18 | ... | - | 5,437 | 2,250 | 1,712 |
| 1913-14 |  | ... | 4,513 | 1,500 | 2,056 |
| 1914-15 | $\ldots$ | ... | 5,412 | 1,800 | 2,437 |

There is an increase in receipts from gardens in the Division of Rs. 351 and R. 639 compared with the last year's receipts and the average receipts of the previous three years.
37. During the year about 11,700 new young trecs of various kinds other Piantations. than babul were reared in canal gardens and nurseries. Of 8,400 trees of various linds planted along canals and bunds during the jear, about 7,740 trees were alive at the
end of the year. Besides these, about 1,350 babul trees were also planted along canal banks and river embankments.
38. The Division was in charge of Major F. M. Westropp, R.E., for of months and 22 days, of Mr. G. McC. Marrison for 12 days and of Mr. F. St. J. Gebbic for tro months and $2 \neq$ days, while Mr. R. T. Harrison was in charge for the remaining 2 months.

The following officers were in charge of Executive districts : -

| District. |  |  | Execativo Engineer. | Months in charge. |
| :---: | :---: | :---: | :---: | :---: |
| Nasrat Canals | ... | 1 | Mr. H. A. MacArthur .. | 1/5 |
|  |  | $\cdots\{$ | „ A. A. Musto | $11 \frac{4}{5}$ |
| Hyderabad Canals | $\cdots$ | $\ldots$ | , D. R. Sawhney ... | 9 |
|  |  | $\cdots$ | , A. B. Timms | 3 |
| Fuleli Canals | ... |  | , C.O. Lowsley | 12 |
| Eastern Nara | ... |  | Rao Bahadur V. N. Parulekar | 12 |
|  |  |  | Mr. C. W. E. Arbuthnot | $5 \frac{2}{3}$ |
| Jamrao Canal | ... |  | , E. P. Watson ... | 1 |
|  |  | 4 | , W. L. C. Trench ... | $5 \frac{1}{3}$ |

The work of all these officers was most satisfactory, particular credit being due to Messrs. Lowsley, Sawhney, Musto and Timms for the excellent work they and their subordinate staffs performed throughout the trying and anxious period of this year's exceptionally high inundation.

R. T. HARRISON, Superintending Engineer, Indus Left Bank Division.

## Below Irrigation Revenue Report for the year 1914-15.

Address Karachi.
No. C. E.-154 of 1916.

> Public Works Department.
> Ofice of the Chief Engineer in Sind, In Comp, dated the 27 th January 1916.

Forwarded, with compliments, to the Secretary to Government, Public Works Department, Bombay.

> F. St. J. GEBBIE, Cliief Engineer in Sind.

The Secretart to Government;

## APPENDIX I.

## L (iv) $539-11$

TABLE
Area of Cultivation and Consolidated Revenue for 1914-1915 and comparison with
Irrigation share of

I.
the average of the previous three years showing Inerease or Decrease under heads-Kharif, Ratiand Net Consolidabed Assessment.


TABLE


I-concluded.


L (iv) $359-12$

TABLE II.
Area of Cultivation and Canal Revenue for 1914-1315 and the previous five years.

| Teara. | Culyivatios. |  |  | Water-share of net congolidated Astedtimeut. | Hakabo. | Miscellaneolus. | Total, Cenal Herenue. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Government. | Jtyhir. | Total. |  |  |  |  |
| - 1 | 2 | 3 | 4 | 6 | 0 | 8 | 8 |
|  | Acres. | Acrea, | Acres, | Rs. | Rs. | Rs. | Rs. |
| [1909-1910 ... | 1,496,564 | 159,940 | 1,596,504 | 41,01,857 | 1,67,169 | 67,439 | 49,36,465 |
| 1910-1911 ... | 1,547,985 | 168,784 | 1,716,769 | 44,62,502 | 1,39,770 | 81,268 | 46,83,540 |
| 1911-1912 ... | 1,207,427 | 118,061 | 1,820,488 | 35,08,068 | 1,15,918 | 71,848 | 36,95,835 |
| 1912-1918 ... | 1,403,629 | 136,452 | 1,540,081 | 38,53,603 | 1,17,473 | 72,311 | 40,43,3¢7 |
| Indus Right Bank Division. 1913-1914 | 1,506,898 | , 151,472 | 1,658,368 | 41,21,897 | 1,8,647 | 72,942 | 43,29,486 |
| Average $\quad \cdots$ | 1,420,500 | 145,942 | 1,566,442 | 40,09,686 | 1,34,905 | 73,162 | 42,17,743 |
| 1914-1915 ... | 1,647,163 | 180,461 | 1,827,624 | 46,06,406 | 1,23,538 | 78,512 | 48,13,456 |
| Increse or decrease as compared <br> with 1913-1914 ... .. | 140,267 | 28,989 | 169,256 | 4,84,509 | -6,109 | 5,570 | 4,83,970 |
| Do. do. with average.. | 226,663 | 34,519 | 261,182 | 5,96,820 | $-6,457$ | 5,250 | 5,95,713 |
| (1909-1910 ... | 1,207,819 | 123,598 | 1,330,411 | 31,17,390 | 54,624 | 68,856 | 32,40,870 |
| 1910-1911 | 1,284,046 | 121,080 | 1,405,126 | 33,16,494 | 60,400 | 69,905 | 34,46,799 |
| 1911-1912 | 1,292,148 | 120,157 | 1,412,299 | 33,87,512 | 68,972 | 78,2:8 | 35,24,712 |
| 1912-1913 ... | 1,370,7]3 | 128,423 | 1,499,136 | 35,58,105 | 65,359 | 70,408 | 36,83,865 |
| Indus Left Bank Division. | 1,362,855 | - 126,051 | 1,488,906 | 94,32,105 | 54,471 | 98,445 | 35,65,021 |
| Average - ... | 1,303,515 | 123,663 | 1,427,175 | 33,58,321 | 56,764 | -7,168 |  |
| 1914-1915 | 1,387,201 | 133,943 | 1,521,144 | 87,02,314 | 51,823 | 61,230 | 38,15,367 |
| Increase of deorease as compared | 24,346 | 7,892 | 32,238 | 2.90,209 | -2,648 | $-37.215$ | 2,50,346 |
| Do. do. with average... | 83,686 | 10,283 | 93,969 | 3,43,093 | -4,941 | $-15,938$ | 3,23,114 |
| (1909-1910 ... | 2,644,383 | 282,532 | 2,926,915 | 72,19,247 | 2,21,793 | 1,36,295 | 75,77,335 |
| 1910-1911 ... | 2,832,031 | 289,864 | 3,121,895 | 77,78,996 | 2,00,170 | 1,51,173 | 81,30,339 |
| 1911-1912 ... | 2,490,569 | 283,218 | 2,732,787 | 68,95,581 | 1,74,890 | 1,50,076 | 72,20,647 |
| 1912-1913 ... | 2,774,342 | 264,875 | 3,039,217 | 74,11,708 | 1,72,825 | 1,42,719 | 77,27,252 |
| Total for Sind ... $\{1918-1914$... | 2,869,751 | 277,523 | 3,147,274 | 75,34,002 | 1,89,118 | 1,71,387 | 78,94,507 |
| Average | 2,724,015 | 269,602 | 2,993,617 | 73,67,907 | 1,81,759 | 1,50,380 | 77,09,996 |
| , 1914-1915 ... | 3,034,364 | 814,404 | 3,348,768 | 83,08,720 | 1,80,361 | 1,32,742 | 86,28,623 |
| Incrense or decrease as compared with 1913-1914 ... .. | 164,613 | 86,881 | 201,494 | 7,74,718 | $-8.757$ | $-31,645$ | $-7,34,316$ |
| Do. do. with average.. | 310,349 | 44,802 | 355,151 | 9,40,813 | $-11.398$ | $-10,588$ | -9,16,8:7 |

Epte.-The Dguren in this gtatement are anecesments, with the exception of Haksbo and siscellaneous which are actualh.

## TABLE III.

Area of Cultivation and Canal Revenue, Direct and Indirect, for the year 1914-1915.


TABLE III-coneluded.

table IV.
Area of Cultivation, Assessment, Realizations and Bulances outstanding in respect of Lands in Kheleit and Jaghir Lands in Siml for 1114-1.110.

| Camais and Exesutivo Diatrieton | Areacelitivited duaing tilk yeak. |  |  | I'n- <br> realized <br> batanco <br> at end of <br> Last ycut. | Ashbsimext optin yhar. |  |  | Remis- | $\begin{gathered} \text { Net } \\ \text { Tutat fir } \\ \text { Collection. } \end{gathered}$ | $\begin{aligned} & \text { Aetual } \\ & \text { liexilaz. } \\ & \text { tions. } \end{aligned}$ | $\begin{aligned} & \text { Batance } \\ & \text { out- } \\ & \text { otanding } \\ & \text { at evilit } \\ & \text { yeur. } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Kharif. | Ruhl. | Total. |  | Viarif. | Habi. | Tutal. |  |  |  |  |
| 1 | 2 | 3 | - | 6 | ${ }^{6}$ | 7 | 8 | 0 | 10 | 11 | 13 |
| MAJOR WORES. <br> rhonective works. <br> Trbhiatton Worfa not chabgho mganst Reyenobe Cathals in oproration. $\left\{\begin{array}{c} \text { Ocsert Canal ... } \\ \text { (Begirl Canal ... } \end{array}\right.$ | Aures. | Aeres. | dores. | Re. | Re. | Re. | Rb. | R.s. | R.s. | Re. | ${ }^{\mathbf{H}}$. |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | 23,277 | 1.804 | 25, $1 \cdot 41$ | *,021 | 27.466 | 2,273 | 29,758 | 3,343 | 30,437 | 27,619 | 2,818 |
|  | 54,024 | 27,100 | 81,104 | 20,551 | 82,013 | 49,0,62 | 1,31,055 | 8,363 | 1,52,243 | 39,759 | 52.465 |
|  | 2,898 15 | 1,514. | 4,110 6 | $\begin{array}{r}3 \\ \\ \\ \\ \hline 208 \\ \hline\end{array}$ | 331 112 12 | ${ }_{109}^{1(3)}$ | 496 <br> 251 <br> 207 | $\cdots$ | 854 <br> 455 <br> 85 | 676 887 | $1!8$ <br> 270 <br> 10 |
|  | 13,873 | 3,460 | 17.963 | *3,367 | 4,14.7 | 1,470 | 5,617 | ... | 8.964 | 0, 853 | 2.111 |
|  | 16,446 | 5,041 | 21,525 | 3,931 | 4,6:0 | 1,744 | 0,364 | ... | 10,295 | 7,718 | 2,579 |
| shlkirpur Canils Distrlet-Mahiwah. | 1,215 | 1,159 | 2,37* | 781 | 491 | 313 | 833 | $\cdots$ | 1,614 | 633 | 0 s 1 |
| Jámrio Camal Distriet-Jomriou Canal | 2,333 | 1,101 | 3,40] | 1,851 | 1,072 | 651 | 1,733 | ... | 3,605 | 1,067 | 2.517 |
|  | [ ${ }_{4,757}$ | 3,021324 | 8,678693 | -2,447 | 2,5:1 | ${ }_{5} \mathrm{E}_{5} 5$ | 3,070 | ... | 629 | 2,871 | -2,242 |
| District. Sawrat Canal ... ... |  |  |  | 72 | 191 | 39 | 230 |  | 3:2 | 324 | -22 |
|  | 5,115 | 4.145 | 9,260 | -2,375 | 2,712 | 594 | 9,306 | ... | 931 | 3,195 | -2.264 |
|  | $\begin{aligned} & \begin{array}{l} 995 \\ \cdots \\ 9,961 \\ \cdots, 362 \\ \cdots \\ \cdots \end{array}, \end{aligned}$ | $\begin{gathered} 3,166 \\ \cdots 10, \\ 10, \\ \cdots \\ \cdots \\ \cdots \end{gathered}$ | $\begin{aligned} & 3,400 \\ & \hdashline 1,093 \\ & 2,9000 \\ & \ldots \\ & \cdots \end{aligned}$ | $\begin{gathered} 3,768 \\ \cdots \\ \cdots \\ \cdots 8 \\ \cdots \\ \cdots \end{gathered}$ | $\begin{aligned} & 162 \\ & \cdots+4 \\ & 4.6 \\ & 1.303 \\ & \cdots \\ & \cdots \end{aligned}$ | $\begin{gathered} 330 \\ \cdots \\ \cdots 33 \\ 224 \\ \cdots \\ \cdots \end{gathered}$ | $\begin{aligned} & \quad 518 \\ & \cdots \\ & \ldots \\ & 1.529 \\ & \cdots \\ & \cdots \end{aligned}$ |  | $\begin{aligned} & 4,31 \downarrow \\ & \cdots 577 \\ & 1,6: 1 \\ & \cdots \\ & \cdots \end{aligned}$ | $\begin{aligned} & 1,425 \\ & \cdots \\ & 1,903 \\ & \cdots \\ & \cdots \end{aligned}$ |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Total, Major Works $\cdots$ | 3,558 | 3,976 | 7,514 | 3,009 | 1,941 | 883 | 2,604 | ... | 6,512 | 3,325 | 3,167 |
|  | 82,720 | 12,543 | 125,271 | 37,647 | 92,82, | 53,086 | 1,15,915 | 8,363 | 1,75,190. | 1,15,744 | 59,465 |
| irrigation and navigation. | $\begin{array}{r} \mathbf{2 , 2 1 9} \\ 10,1199 \end{array}$ | 50015,343 | $\begin{gathered} 8,719 \\ 20,532 \end{gathered}$ | $\begin{aligned} & * 1,291 \\ & \ldots \end{aligned}$ | $\begin{array}{r} 8 \div 8 \\ 2,361 \end{array}$ | $\begin{array}{r} 828 \\ 2,046 \end{array}$ |  |  |  |  |  |
| Works for which Capital and Revbnue accounts are erpt. Canals in Operation. |  |  |  |  |  |  |  |  |  |  |  |
| $\underset{\text { Ghis Canals }}{\text { Gist }}\left\{\begin{array}{lll} \text { Sukknr Canal } & \ldots & \ldots \\ \text { Ghar Canal } & \ldots . & \cdots \end{array}\right.$ |  |  |  |  |  |  | $\begin{aligned} & 1,516 \\ & 4,417 \end{aligned}$ | ... | $\begin{aligned} & 2,07 \\ & 4,407 \end{aligned}$ | $\begin{aligned} & 1,492 \\ & 4,802 \end{aligned}$ | 1,315 -395 |
| Total | 17.409 | 5,843 | 23,251 | 1,291 | 3,249 | 3,674 | 5,923 | ... | 7,214 | 6,204 | 820 |
| Earichi Canals District-Sattah Canal | 61 | 9 | 70 | -45 | 27 | 4 | 31 | ... | -14 | 24 | -38 |
|  | $\begin{aligned} & 1.310 \\ & 6.1107 \\ & 3.517 \end{aligned}$ | $\begin{gathered} 330 \\ 2,650 \\ 214 \end{gathered}$ | $\begin{aligned} & 1.630 \\ & 8.757 \\ & 3,721 \end{aligned}$ | $\begin{array}{r} 501 \\ 4, \\ 4,816 \end{array}$ | $\begin{array}{r} .424 \\ 2,410 \\ 1,461 \end{array}$ | $\begin{array}{r} 110 \\ 887 \\ 69 \end{array}$ | $\begin{array}{r} 534 \\ \mathbf{3 , 1 0 7 7} \\ 1,470 \end{array}$ | …$\cdots$... | $\begin{aligned} & 1,035 \\ & 8,118 \\ & 6,2 \pm 6 \end{aligned}$ | $\begin{aligned} & 610 \\ & 2,213 \\ & 1,657 \end{aligned}$ | 4250054,609 |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | 11,014 | 3,004 | 14,108 | 5,358 | 4,1335 | 1,046 | 6,081 | ... | 10,439 | 4,450 | 5,959 |
|  | 56,438083 | 12,38062 | 68,828 | $\begin{array}{r} 687 \\ -37 \end{array}$ | 27,932 | $\begin{array}{r} 4,442 \\ 22 \end{array}$ | $\begin{array}{r} 32,374 \\ \mathbf{4 2 5} \end{array}$ | ... | 33,041 | $\begin{array}{r} 20,5 \div 8 \\ 71 \end{array}$ | $\begin{array}{r} 3,513 \\ 317 \end{array}$ |
|  |  |  | 077 |  | 403 |  |  | $\cdots$ | 388 |  |  |
|  | 57,361 | 12,442 | 69,803 | 630 | 23,335 | 1.404 | 32,789 | $\cdots$ | 83,429 | 29, 09 | 3,831) |
|  | 85,844 | 21,338 | 107,232 | 7,234 | 35,646 | 8,183 | 43.834 | ... | 51,068 | 40, 407 | 10,661 |
| Works fer whiot only Reveney accounts alle Eept. Cansla in Operation. |  |  |  |  |  |  |  |  |  |  |  |
| Erimamats in Rohri ... ... | 8.701 | $\begin{array}{r} 3.09 \\ 1,90 \\ 149 \\ 145 \\ 335 \\ \hline \\ \hline \end{array}$ | $\begin{array}{r} 12,393 \\ 6.079 \\ 670 \\ 6104 \\ 1,100 \\ \hline \end{array}$ |  |  | $7{ }^{7}$ | - | $\ldots$ | ${ }_{6}^{6.509}$ | 1,344 | 2.017 |
|  | 4,771 |  |  |  |  | 772 |  |  |  | 2,07 307 |  |
| Canaly District. | 419 |  |  |  |  | 45 | ${ }^{97}$ | ... | 183 | 401 | 304: |
|  | 719 |  |  |  |  | $\underline{1968}$ | 336 517 | ... | 811 1 130 | 44 | ${ }^{497}$ |
| (6mor |  |  |  |  |  | 28 |  |  | 1,230 | 433 | 697 |
| Total | 14,25 | 0,171 | 20,316 | 4,748 | 4,418 | 1,042 | 6.358 | ... | 11,10,4 | 4,831 | 0.173 |
| Bhamalpur Lands Foreign-Canals in Rohri. | 92 | 7 |  | $\ldots$ | 34 | 3 | 57 | ... | 37 | ... | 37 |
|  | 5,8015 | 7,581 | 13,336 | 7,165 | 3,010 | 3,071 | 6,081 | ... | 13,243 | 5,681 | 7,565 |
|  |  | $\cdots$ |  | $\cdots$ | $\cdots$ |  | ... | $\cdots$ | ... |  | . |
|  | $\cdots$ | $\cdots$ | $\stackrel{.1}{\cdots} \times 1$ |  | $\ldots$ | $\cdots$ | ... | $\ldots$ | $\cdots$ | $\cdots$ | $\cdots$ |
|  |  |  |  | -23 | $\cdots$ |  |  | $\cdots$ | -23 | $\cdots$ | $\cdots 23$ |
|  | 178 | 127 1,380 |  | ${ }_{6}^{60}$ |  | ${ }^{61}$ | 1198 | ... | 179 |  | 173 |
| - $\mid$ Janchar | $1: 2$ | 1,2\%0 | 3:2 | $-11$ |  | 570 | 78 | $\ldots$ | 1,4r3 |  | -11 |
| $\left\lvert\, \begin{aligned} & \text { Aral } \\ & \text { Uhar Canais North } \\ & \text { a }\end{aligned}\right.$ | 141 | 1,335 | 1,476 | 244 | 62 | ${ }^{626}$ | ${ }^{678}$ | $\cdots$ | 972 | 162 | 810 |
|  |  | 1,:30 | $\stackrel{2034}{+\cdots}$ |  | 222 | 59 | 71 | $\ldots$ | 975 | 233 | 72 |
|  |  |  |  | ... | ... | $\cdots$ | ... | ... | ... | ... | ... |
| Total ... | 2,291 | 12, 123 | 19,444 | 8,344 | 3,570 | 1,887 | 8,457 | ..* | 10,801 | 6,733 | 10, 1 c9 |

[^8]L (5) $539-13$

TABLE IV-concluded.


- The difference ne compared with latt year in due to ouljurtmente made by the Civil Department.



TABLE V.
Revenue Espenditwre on New Works, Maintenance and Repairs, and Establiskment Charges in the Public Works and Revenue Departments on Irrigation Works in Sind, during the year 1914-1915.

(a) Suspense Acdount.

TABLE V-continued.


TABLE V-concludet.


TABLE VI.
Cultivation, Canal Revense and Expenditure for 1914-15, as compared with three previowe years.


TABLE VI-60ncluded.


[^9]
## TADLE VII.

Statement showing Receipts from Sale of Occupancy Rights in Waste or other Lands not belonging to Major and Minor Works, but directly benefited ly their construction for the year 191.1-15.


[^10] 13th October 1914.

TABLE VII－continued．

\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|}
\hline \multirow[b]{2}{*}{Canala and Executive Districto．} \& \multicolumn{4}{|l|}{Partienlary of the Lanis，the occoupancy} \& \multirow[t]{2}{*}{} \& \multirow[b]{2}{*}{\[
\left|\begin{array}{c}
\text { Land Share } \\
\frac{1}{10 .}
\end{array}\right|
\]} \& \multirow[t]{2}{*}{} \& \multirow[t]{2}{*}{} \& \multirow[b]{2}{*}{nemarks．} \\
\hline \& Talıka． \& village \& Area． \& Assessment． \& \& \& \& \& \\
\hline 1 \& 9 \& 3 \& 4 \& 5 \& 6 \& 7 \& \({ }^{\text {a }}\) \& 9 \& 10 \\
\hline \begin{tabular}{l}
MINOR WORES—conlinued． \\
IRRIGATION AND NAVIGA－ TION－concluded．
\end{tabular} \& \& \& Acres． \& Rs， \& Rs， \& Rs． \& Rs， \& Rs． \& \\
\hline \begin{tabular}{l}
Works bon whicif only Rgybide \\
ACCUUNTS ABE KERT． \\
Carals in Operation－concluded．
\end{tabular} \& \& \& \& \& \& \& \& \& \\
\hline  \& \& － \& \[
\begin{array}{r}
315 \\
42 \\
62 \\
68 \\
307
\end{array}
\] \& 727
98
121
200
892
89 \& 517
123
103
82
761 \& \[
\begin{aligned}
\& 52 \\
\& 12 \\
\& 10 \\
\& 8 \\
\& 86
\end{aligned}
\] \& \[
\begin{array}{r}
465 \\
11 \\
93 \\
74 \\
785 \\
685
\end{array}
\] \& 19
5
3
3
27 \& \\
\hline Total ．．． \& \& \& 797 \& 2，008 \& 1，586 \& 158 \& 1，428 \& 57 \& \\
\hline  \& \& \& \(\cdots{ }^{\text {．．．}} 8\) \& \(\cdots{ }^{. . .}{ }^{26}\) \& 323
\(\cdots \cdots\)
\(\cdots\) \& ．\(\ldots{ }^{82}\) \& ． 201
\(\cdots\) \& \({ }^{\ldots .}{ }^{12}\) \& \\
\hline  \& \& \& ．
\(\cdots\)
\(\cdots\)
\(\cdots\)
\(\cdots\)
\(\cdots\)

30 \& …
$\cdots \cdots$
$\cdots \cdots$
$\cdots \cdots$
$\cdots$
$\cdots$ \& che
$\cdots \cdots$
$\cdots \cdots$
$\cdots \cdots$
$\cdots \cdots$
122 \& ． 11
$\ldots$.
$\cdots \ldots$
$\cdots$
$\cdots$

12 \& ．． 12
$\cdots$
$\cdots$
$\cdots$
$\cdots$
a．
110 \& ．．．
$\cdots \cdots$
$\cdots \cdots$
$\cdots \cdots$
$\cdots \cdots$

4 \& <br>
\hline Total ．．． \& 䁆, \& 曹 \& 121 \& 45 \& 458 \& 45 \& 413 \& 16 \& <br>
\hline  \& 怱 \&  \& 1,242
1,812 \& 1，898 \& 815
2,819 \& 81
282 \& $73 \pm$
2,537 \& 29
101 \& <br>

\hline  \&  \& $$
\begin{aligned}
& \text { op } \\
& \text { g } \\
& \stackrel{1}{\circ}
\end{aligned}
$$ \& 1,854

1,295

467 \& $$
\begin{array}{r}
2,002 \\
2,463 \\
684
\end{array}
$$ \& \[

$$
\begin{array}{r}
1,555 \\
1,970 \\
876
\end{array}
$$

\] \& \[

$$
\begin{gathered}
155 \\
197 \\
\square \\
88
\end{gathered}
$$

\] \& \[

$$
\begin{array}{r}
1,400 \\
1,773 \\
788
\end{array}
$$
\] \& 56

.71
32 \& <br>
\hline Total ．．． \& \& \& 5，670 \& 10，193 \& 8，035 \& 803 \& 7，232 \& 289 \& <br>

\hline  \& \& \& | … |
| :--- |
| $\cdots \cdots$ |
| $\cdots \cdots$ |
| $\ldots$ | \& ．．．

$\cdots$
$\cdots$
… \& ．．．
$\cdots$
$\cdots$
$\cdots$
$\cdots$ \& ．．．
．．
$\cdots$
$\cdots$ \& $\ldots$
$\cdots$
$\cdots$
$\cdots$ \& …
$\cdots$
$\cdots$
… \& <br>
\hline Total ．．． \& \& \& ．．． \& ．．． \& $\ldots$ \& ．．． \& ．．． \& ．．． \& <br>
\hline  \& \& \& $1,5 n 5$
1,010
$\cdots \cdots$

$\cdots \cdots$ \& | 2,200 |
| :---: |
| 923 |
| $\cdots \cdots$ |
| $\cdots \cdots$ |
| $\cdots$ | \& \[

$$
\begin{gathered}
1,099 \\
549 \\
11 \\
\ldots \\
\ldots
\end{gathered}
$$

\] \& \[

$$
\begin{aligned}
& 110 \\
& 54 \\
& 1 \\
& \ldots . .
\end{aligned}
$$

\] \& \[

$$
\begin{array}{r}
989 \\
\quad \begin{array}{r}
995 \\
\hline \quad 10 \\
\ldots \\
\ldots
\end{array} .
\end{array}
$$

\] \& \[

$$
\begin{aligned}
& \quad \begin{array}{l}
40 \\
20 \\
\cdots \\
\cdots
\end{array} \\
& \hline . .
\end{aligned}
$$
\] \& <br>

\hline Total ．．． \& \& \& 2，545 \& 3，123 \& 1，659 \& 165 \& 1，494 \& 60 \& <br>

\hline | Fcleli Canals |
| :--- |
| Listrict． $\qquad$ | \& \& \& 128 \& 312 \& 1，353 \& 136 \& 1，217 \& 49 \& <br>

\hline Total，Mivor Works，Revenne Accounts only \& \& \& 9，261 \& 15，771 \& 13，091 \& 1，307 \& 11，784 \& 471 \& <br>
\hline
\end{tabular}

TABLE VII-concluded.

| Canals and Bxesutivo Districts, | - Particulars of the Lands, the Occapanoy Bighte of which were sold. |  |  |  | AmountsofReoeiptefransale ofOecupsncyBighta.. | Land Bhare$\frac{1}{10 .}$ | $\begin{gathered} \text { Irrigation } \\ \text { Share } \\ \frac{9}{10 .} \end{gathered}$ |  | Remarka, |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Tálncs. | Village. | Aros. | Assersment. |  |  |  |  |  |
| 1 | 2 | 8 | $\cdots$ | 6 | 0 | 7 | 8 | 9 | 10 |
| MINOR WORKS-concluded. |  |  | Acres. | Rs, | Rs, | R. ${ }_{\text {。 }}$ | Rs, | Rs. |  |
| AGRICULTURAL WORKS. |  |  |  |  |  |  |  |  |  |
| Wobks fob whioh neither Capital nor Rbvenus accounts ars krpt. |  |  |  |  |  |  |  |  |  |
| $\left.\begin{array}{c}\text { Begári Canals } \\ \text { District. }\end{array}\right\}$ Kashmor Bund $\quad$... |  |  | 103 | 118 | 212 | 21 | 191 | 8 |  |
| $\begin{gathered} \text { Shik \& ppur r } \\ \text { Csuals Dis• } \\ \text { trict } \end{gathered}\left\{\begin{array}{l} \text { Bunds in Rohri } \\ \text { Sukkur-Begari Bund.... } \\ \text { Kasimpur Bund } \end{array}\right.$ |  |  | $\cdots$ 3 <br> $\cdots$  | ${ }^{\cdots \times 1} 11$ | ".. ... | $\ldots$ | "..0. | ".. <br> $\cdots$ <br> .". |  |
| Total ... |  |  | 3 | 11 | ... | ... | .. | ... |  |
| $\underset{\text { Districto }}{\text { Ghar Canals }}\}$ Ghár Bunds $\quad$... |  |  | ..' | - | -* | ... | $\ldots$ | ** |  |
| Weatern Nara District. $\begin{aligned} & \text { Nara Bunds } \\ & \text { Bands, north of Kotri }\end{aligned}$ |  |  | .... | $\cdots$ | ..* | ... | ...' | $\ldots$ |  |
| Total ... |  |  | $\cdots$ | -•• | $\cdots$ | - | ... | ... |  |
| Karáchi (Bunds, Right Bank ... |  |  | 39 | 199 | 207 | 20 | 187 | 7 |  |
| trict. Bunds, Left Bank ... |  |  | 89 | 115 | 57 | 6 | 51 | 1 . 2 |  |
| Total ... |  |  | 78 | 314 | 264 | 26 | 238 | 9 |  |
| Total, Agricultural Works ... |  |  | 184 | 443 | 476 | 47 | 429 | +17 |  |
| Begári Canals District. |  |  | 2,080 | 2,135 | 5,054 | 505 | $\left\{\begin{array}{l}4.549 \\ \mathbf{4} 292\end{array}\right.$ | 194 |  |
| Indas Right $\left\{\begin{array}{l}\text { Shikarpur Cansls Dis- } \\ \text { trict }\end{array}\right.$ |  |  | 1,148 | 2,891 | 2,242 | 224 | 2,018 | 8 81 |  |
| $\underset{\text { Bank Divi- }}{\text { sion. }}$ Ghar Canals District. ${ }_{\text {a }}$ Western Nára District |  |  | 75 | 38 | 847 | 84 | 763 | 30 |  |
| sion. $\quad$ Western Nára District |  |  | 121 | 45 | 458 | 45 | 413 | -16 |  |
| (trict ... .. |  |  | 5,751 | 10,507 | 8,306 | 830 | 7,476 | 298 |  |
|  |  |  | 9,175 | 15,611 | 16,907 | 1,688 | $\left\{\begin{array}{r}15,219 \\ * \\ \hline 292\end{array}\right.$ | 619 |  |
|  |  |  | 14,003 806 | 18,317 825 | 83,119 1,072 | 8,312 107 | 74,807 $\mathbf{9 6 5}$ | 2,982 <br> 38 |  |
|  |  |  | 2,244 | 8,259 | 6,934 | 693 | 6,241 | 250 |  |
|  |  |  | 2,545 | 3,123 | 1,678 | 167 | 1,511 | 61 |  |
| Total ... |  |  | 19,726 | 24,836 | 1,02,381 | 10,237 | 92,144 | 3,686 |  |
| Grand Tctal, Sind ... |  |  | 28,901 | 40,447 | 1,19,288 | '11,925 | 1,07,655 | 4,305 |  |

TABLE VIII.
$\qquad$

TABLE
Abstract of Crop Return of Government,

VIII.

Foreign and Jighir Lands for five years.


TABLI


VliI-sonlinuet.


TABLE


VIII—continped.


[^11]

VIII-concluled.


TABLE IX.
Rainfall in the Province of Sind for the year 1914-1915.


Memoranhum showing the amounts of loss to Canals on account of difference between the assessments of water-rates on Júghir lands and assessment at the ordinaty rates in force. for Government lands.


## H. S. KATRAK,

Chief Superintendent.

Statement showing Actual Receints during 1914-15 on account of Irrigation Sharc of Land Revenue from Canals in Sind.


Statement of lighest Realings on Bukkur and Kotrigauges from 1580 to 1914.

R. T. IlARRISON,

Superintending Eugineer, Indus Left Bank Division.

## HYDROGRAPH OF THE RIVER INDUS AT BUKKUR AND KOTRI





[^0]:    Expenditure on mainterance and repairs and Establishment charged to Works.

[^1]:    Canals in Karáchi Canala District.

[^2]:    Maintensnca and Repairs.

[^3]:    * Revenue collection charges for Western Nara includes charges for now feeder, Manchar and Aral also.
    † Difference of Rs. 1,436 against Yndus Canals Left Bank bas been charged to Pingari as reported by Exeentive Engineer, Karachi Canals.
    

[^4]:    - Janirao Canal District.-Increase of 28 miles in Branches over the previous year is doe to the distribntarios in connection with the 17th mile Project Jamrao Canal eompleted during the year. + , Eastera Distriet.-Deorease of 1 mile in main Canals, one mile in Branches and one mile in length of Bunds as compared with the previons year is due to rechainage of the Milhrao Crual and its brancheg and of the protective buuds in connection with the Thar Canal.
    of 1 Nagrat Canals District-Increase of 2 milea in Branches over the previpas year is due to (1) increase in Dad Canal of 4 milies of Guri Dad cxoavated during the year, (2) deorease (3) Increase of 4 miles found in rechainage of Mehrab and Nandathi branches.

    Incrense of 1 mile in Bunis over the previous year is due to Construction of Tirchi Bund during the year,
    § Hyderabad Canals District. Decrease of 1 mile in Main Canals as compared with last year is due to 1 mile of Gharo Mahmudo eroded away by the river and the decrease of one mile in Branches is due to rechainage snd to certain branch Canals formerly shown under Kari spumali and Nagir being now included in Gbaro Mahmudo and Sarfraz.

[^5]:    The figures have been shown by Accountant General. The difference will be taken by him in the Next Year's statement

[^6]:    The Pinyari Canal in the Karachi Canals District has three regulators. The canal, including its branches, worked excellently throughout the season. The Baghar Canal syffered, as it invariably does in a year of high inundation, from numerous breaches, which points to the necessity of a regulator at its head. Many small breaches, mostly subsequently closed, occured in its embank-

[^7]:    General remarbs.

[^8]:    *The diffrenes in the figuras as compared with the lact gear is due to adjustments made bs the Civil Departmert

[^9]:    (a) No perceatage is cs:rnisten as the crpenditure ha a minus fignies.
     to Dim Minot ar Jamrao (alaw
    
    

[^10]:    * Difference for the year $1813-14$ abjusted in 1014.15, cide parograph 2 of Aoconatant-General's No. B. K. 22-2/2093, dat

[^11]:    L (IV) 539-17

