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MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No. 3756	Press ~~Mis.~~
38-37	
Dated 2 12	1868.

Not to be folded or roughly handled

2/43

*Proceedings of the Madras Government, Public Works Department,
2nd December 1868.*

No. 38. Read the following Endorsement of the Government of India, Public Works Department, (Irrigation,) dated Simla, 17th October 1868, No. 315 I:—

Copy of the following Note forwarded to the Government of Madras, for information.

By Order,
(Signed) J. H. ALEXANDER, C. E., Offg. Asstt. Secy.,
for Secy. to the Govt. of India.

Note by COLONEL R. SPRACHEY, R. E., Inspector General of Irrigation Works, regarding the volume of water required in proportion to the total area of an irrigated District in Northern India, dated 8th October 1868.

The following are the proportions which the cultivated, culturable, and barren land in the North-Western Provinces bear to the whole area, according to the Tables given in the last Census Report:—

	Acres.
Total area	46,323,000
Barren	10,754,000
Culturable, not cultivated	7,401,000
Lakhiraj	4,421,000
Cultivated	23,747,000

2. These figures will assist us in coming to a conclusion as to the distribution of water from our canals. In the North-Western Provinces, the proportion of the cultivated and Lakhiraj lands to the total area is 61 per cent., the barren and uncultivated being 39 per cent. If, as is probable, the Lakhiraj area includes a proportion of barren and uncultivated land, similar to that which exists in the revenue-paying area, the cultivated area will be 56½ per cent. of the whole, the uncultivated culturable will be 17½ per cent., and the residue, 26 per cent., will be barren.

3. Hence we should find, on an average, 362 acres of cultivated land per square mile. If we consider that one cubic foot of water entering the head of a main canal will, at an absolute maximum rate, irrigate 100 acres of khureef, and 200 acres of rubbee, or together 300 acres, we should require 1·2 cubic feet for the *complete* irrigation of the whole cultivated area; to water one-half we should want 0·60 cubic feet; and for one third, 0·40 cubic feet per square mile.

4. At the above rates, the area which is dependent on the Ganges Canal being about 16,000 square miles, would require for the annual irrigation of one-third of the cultivated area 6,400 cubic feet per second, which is about the actual maximum supply likely to be obtained. The average volume may be taken at about 5,000 cubic feet per second, so that the water will, in fact, only suffice for about *one-fourth* of the cultivated area.

5. Considering the relative great extension of cultivation in the Districts of the North-Western Provinces generally, as compared to the Districts between the Jumna and Sutlej, it is not unreasonable to expect that one-third cubic foot per second in the latter tract would give irrigation for more than the third part of the existing cultivation. I have before estimated the area to be supplied from the Western Jumna Canal at 8,000 square miles, so that about 2,700 cubic

feet per second would seem likely to be able to give a fair allowance for the whole of this tract. The actual permanent supply is about 2,000 cubic feet, and an additional monsoon supply of 2,000 cubic feet is hoped for, which may be reckoned as equivalent to one-third the quantity of water permanently, or 700 cubic feet. Therefore, in this tract, there will most likely be the full supply needed to water one-third of the cultivated area.

See Public Works Department No. 50 I, dated 24th March 1868.
Proceedings, (Irrigation) March 1868, No. 30.

*Proceedings of the Madras Government, Public Works Department,
2nd December 1868.*

6. For the Sutlej Canal, an area of about 10,000 square miles has been adopted, after deducting 1,000 square miles which may be watered from the Hureek-e Head. This, at one-third cubic foot per mile, would require a permanent supply of 3,300 cubic feet. The actual supply will be 3,000 cubic feet of permanent supply, and an additional 3,000 cubic feet for the monsoon, which will be equivalent to, say, 1,000 cubic feet of permanent supply, giving a total of 4,000 cubic feet, so that more than one-third of cultivation will be provided with water.

7. It should be said that in all these cases the area said to be irrigable is an absolute maximum, and that no allowance has been made for the loss by evaporation, &c., which is likely to be greater in the earlier years of the canal's operations than subsequently, and so to reduce the actual useful effect at first.

8. Also, it must be remembered that the average proportion of cultivated land to total area which has been made the basis of these calculations, will not be high enough for the better cultivated districts of the North-Western Provinces. In these not so much as one-fourth of the whole area will be barren, and probably fully two-thirds will be cultivated. It seems likely that, under all circumstances, a certain portion of the culturable lands will continue to be uncultivated, to serve as pasture ground for cattle.

9. As to the power of one cubic foot of water to irrigate a specified area, the data are still very incomplete. For reasons which will be obvious, for such calculations as those referred to, it is proper to take a high rather than a low rate, where the quantity of water is absolutely limited, and it is necessary to make it go as far as possible. At present, the highest rate that has been actually obtained in Northern India is something over 260 acres during the year, of which 100 acres is the area irrigable in the khureef by a constant flow of one cubic foot, and 160 acres in the rubbee. These figures will vary according to the crop and the rain-fall, as well as the soil.

No. 39.

IRRIGATION, No. 1.

ORDER THEREON, 2nd December 1868, No. 3,756.

Ordered to be recorded.

(True Extract.)

Colonel, R. E.,

Secretary to Government.

To the Chief Engineer for Irrigation.

Exd. S. T. Augustin.

No. 315 I.

GOVERNMENT OF INDIA.
PUBLIC WORKS DEPARTMENT.
IRRIGATION.

SIMLA, OCTOBER 17, 1868.

Copy of the following Note forwarded to the Government of Madras, for information.

(By order)

*W. H. C. E., Offg. Asstt. Secy.,
for Secy. to the Govt. of India.*

Dated 8th October, 1868.

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1868 Dept.
No. 4379 (4)

GOVERNMENT OF INDIA.
PUBLIC WORKS DEPARTMENT.
IRRIGATION.

To

No. 315 I.

Dated SIMLA, October 17, 1868.

Received — Nov 10/68.

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Wm. / because the record —

No 3756-2^d Dec 1868

Forwards, for information, copy of a Note by the
Inspector General of Irrigation Works, regarding
the volume of water required in proportion to the
total area of an irrigated District in Northern
India.

With an order

11th Nov 1868 23rd Nov 1868

Rec 4379

Govt. of 1868 Madras.

PUBLIC WORKS.

To The Chief Engineer for
Irrigation

Dated

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Recd.

Encl.

G. O., 2^d Dec 1868, No. 3756

Nos. 38-39

Water required in proportion to the
total area of an irrigated Lt. En
-dorsement of the Govt of India for-
-warding copy of a note by the
Super Genl of Irrigation Works
regarding the value of water
required in proportion to the
total area of an irrigated Lt
in Northern India - recorded.

11th Dec 1868 Cd. 23d Nov 18