

FINAL REPORT
OF THE
SECOND REVISED SETTLEMENT,
1915—20,
OF THE
AMBALA DISTRICT

BY
R. B. WHITEHEAD,
Settlement Officer.



Lahore :

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1921.

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Settlement, Ambala District,
1915–20.**

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TABLE OF CONTENTS.

Para.	Contents.	Page.
CHAPTER I.—GENERAL DESCRIPTION.		
1	Preliminary	1
2	Boundaries and dimensions	<i>ib.</i>
3	Physical features, trees and climate	2
4	Assessment circles and soils	3
5	Rainfall	5
6	<i>Chos</i>	6
7	The people	7
8	Cultivation	8
9	Irrigation	9
10	Communications	<i>ib.</i>
11	Towns	10
12	Miscellaneous income	<i>ib.</i>
CHAPTER II.—POLITICAL AND FISCAL HISTORY.		
13	Political history	10
14	Fiscal history	12
15	Summary Settlements... ..	<i>ib.</i>
16	The Regular Settlement of 1847 to 1852	<i>ib.</i>
17	The first Revised Settlement of 1882—1887	13
CHAPTER III.—REVISION OF THE RECORD OF RIGHTS.		
18	Introductory	14
19	Maps	<i>ib.</i>
20	Boundaries	15
21	Record work	<i>ib.</i>
22	Special features	16
23	The standing records	<i>ib.</i>
24	<i>Wajib-ul-ars</i>	17
25	Note-books	<i>ib.</i>
26	Mutations	<i>ib.</i>
27	<i>Mujmalis</i> and handkerchief maps	18
28	Village inspections and preparation of Tahsil Assessment Reports	<i>ib.</i>
CHAPTER IV.—THE REVISION OF THE ASSESSMENT.		
29	The expiring assessment	18
30	The forecast	19
31	Development of agriculture	20
32	Valuable crops	<i>ib.</i>
33	Population	22
34	Alienation	23
35	Value of land	<i>ib.</i>
36	General prosperity	24
37	Cash rents	<i>ib.</i>
38	Cultivating occupancy	25
39	Kind rents	<i>ib.</i>
40	Holdings	<i>ib.</i>
41	Indebtedness	<i>ib.</i>
42	<i>Zabli</i> rents	26
43	Prices	<i>ib.</i>
44	Yields	27
45	Cycle of selected years	<i>ib.</i>
46	Deductions	<i>ib.</i>
47	Straw	<i>ib.</i>

Para.	Contents.	Page.
CHAPTER IV.—THE REVISION OF THE ASSESSMENT—concl'd.		
48	Mangoes	28
49	Grounds for enhancement	ib.
50	True half net assets	ib.
51	Morni	ib.
52	Assessment of the Sub-division	ib.
53	Assessment of Ambala Tahsil	29
54	Assessment of Naraingarh Tahsil	ib.
55	Assessment of the Morni Hill Tract	ib.
56	Assessment of the Jagadhri Tahsil	ib.
57	Progressive assessments and protective leases	ib.
58	Results of re-assessment	30
CHAPTER V.—DISTRIBUTION OF THE DEMAND.		
59	Mode of distributing revenue over estates	30
60	Mode of distributing revenue over holdings	31
61	Objections and appeals	ib.
62	Case work	32
CHAPTER VI.—MISCELLANEOUS.		
63	Revenue assignments	32
64	New demand, <i>khalsa</i> and assigned... ..	33
65	<i>Pattidari jagirs</i>	ib.
66	Extinction of petty shares	34
67	<i>Sarbaraks</i> and <i>sarkardas</i>	ib.
68	<i>Muafis</i>	36
69	Zaildars and <i>sufedposhes</i>	ib.
70	<i>Pachotra</i> and <i>sir jagir</i> revenue	37
71	Lambardars	38
72	Occupancy tenants	ib.
73	Cantonment records of rights	39
74	Di-alluvion rules	40
75	Suspensions and remissions : future revenue management	ib.
76	Revenue instalments	41
77	Revision of district kanungo and patwari establishment	ib.
78	Patwari candidates and schools	42
79	Boundary stones	ib.
80	Water-mills	ib.
81	<i>Harrar trees</i>	43
82	Training	44
83	Gazetteer and <i>Riwaj-i-'Am</i>	ib.
84	Cesses	ib.
85	Term of Settlement	ib.
86	Cost of Settlement	ib.
87	Notice of Officers	ib.
88	Orders required	45

No. 29834 (Rev. & Agri.—Rev):

FROM

D. J. BOYD, Esq., I.C.S.,

Revenue Secretary to Government, Punjab,

TO

THE SENIOR SECRETARY TO THE FINANCIAL

COMMISSIONERS, PUNJAB.

Dated Lahore, the 30th November 1921.

Revenue & Agriculture.

Revenue.

SIR,

I AM directed to refer to your letter No. 91—816-1, dated the 4th October 1921, forwarding a copy of the Final Settlement Report of the Ambala District by Mr. R. B. Whitehead, together with the Financial Commissioner's Review.

2. Lying right astride the great north Indian watershed between the Sutlej and the Jumna, and almost cut in half at the same point by a wedge of the eastern Punjab States, the district falls into two divisions, distinct both geographically and in the character and composition of the population. The eastern half faces towards and is really part of Hindustan; its predominant tribe is the Rajput and the standard of agriculture is low, the Rajput and Baniya landowners being inclined to leave cultivation to hired *chamars*. The western half, consisting of the Rupar and Kharar Tahsils, has all its affinities with the Punjab; the predominant tribe is the Jat, and the standard of agriculture is high, the land being cultivated by a vigorous and efficient race of peasant proprietors. Dry cultivation is the type of the district's agriculture. Only 4 per cent. of the cultivated area is irrigated, 1 per cent. by streams and 3 per cent. by wells. The subsoil water level is too low to be reached in sufficient quantity by wells or ordinary borings, and Mr. Whitehead strongly recommends artesian borings. Irrigation from the existing canals at each end of the district is also practically impossible owing to hill torrents and the configuration of the countryside. But the district is saved by an abundant and secure rainfall, varying from 43 inches in Naraingarh to 30 inches in Kharar. The great drawback is the existence of *choa* which extend along the whole length of the district and spread sand and desolation far and wide. The preventive measures hitherto adopted have attained only a moderate degree of success owing to their great cost but there is ground for anticipating better results from the introduction of the method of reclamation which has been so successful in the Etawah District of the United Provinces.

3. Owing probably, in the main, to the regular and propitious rainfall, both the previous settlements of the district were on the whole successful. The first regular settlement of 1852, though it had to be modified at the start, worked satisfactorily after the high rise in the prices of raw produce which set in about 1860. This and a moderate growth in resources, justified an increase of the demand at the 1887 revision by 14½ per cent. to Rs. 11,44,000. The proportion taken of the half-net assets was somewhat high, but this was compensated for by the extremely low pitch of the net assets estimate.

Consequently, though the period that followed the first revision was for the most part one of decline in population and cultivation, the demand was paid without difficulty, and only half a lakh of rupees had to be remitted throughout the currency of the settlement. When, however, the first forecast report for the present settlement was prepared in 1904, further revision was postponed. A similar fate overtook the forecast of 1909-10. At this stage, however, a great change took place in the economic situation. Prices advanced abnormally during the years before the war and at the 1915 forecast, a revision of the settlement was decided on, with a confident estimate of a 25 per cent. increase.

4. The actual demand now imposed is Rs. 14,63,560 ; representing an increase of 28 per cent. on that of the expiring settlement. There has been, no doubt, a very slight decline in cultivation and a much larger one in population and indebtedness is heavy ; but it must be remembered that a large proportion of the creditors are, as pointed out by the Financial Commissioners, themselves agriculturists, and the general prosperity of the district is indicated by the very large increase in land values which have more than trebled, and in cash rents which have risen by as much as from 54 per cent. in Jagadhri to 115 per cent. in Ambala. It is, in fact, the enormous rise in these values and in the prices of raw produce, which is the main ground for the present enhancement of the revenue. The undoubted increase in the cost of production is greatly outweighed by a rise in prices of at the very least 80 per cent. when the settlement started, and considerably more now ; and on this score alone an enhancement of 30 to 40 per cent. would be amply justified. Government has, however, been satisfied with an increase of 28 per cent. ; the demand imposed is only half of the amount to which it is theoretically entitled, and the peasant is now only paying a revenue of Rs. 2 on every acre of cultivated land. As the Financial Commissioner has pointed out, a maund of grain will pay the revenue of an acre for six harvests. In view of this fact, the extreme lenience of the land revenue must be patent to all.

5. The new assessments were well received, only 38 appeals being made to the Commissioner (of which one succeeded), and none to the Financial Commissioner. The Governor-in-Council agrees with Mr. Fagan that the distribution of the revenue over estates and holdings was done with care, judgment and success. He accepts the recommendation of the Financial Commissioner and the Settlement Officer that the term of settlement should be fixed at 30 years.

6. A special feature of the district is the large proportion (43 per cent.) of the revenue, which is assigned. The Punjab Government are interested to see that the present settlement operations provided a further proof (if such were needed) of the excellence of Mr. Kensington's work in the registration of the Ambala jagirs. The settlement of the Zaildari-Inamkhori question is a satisfactory achievement.

7. Despite very heavy work in the initial stages, the settlement was carried through with remarkable punctuality and despatch and at considerably less than the estimated cost. The least possible inconvenience was caused to the cultivators and the Governor in Council agrees with the encomiums passed by the Financial Commissioner on the high standard of Mr. Whitehead's work, his fairness and his sympathy with the people and the excellence of his report. He notes with pleasure the commendation which the Settlement Officer has bestowed on the work of his Assistant and Extra Assistant Settlement Officers and on the staff generally.

I have, etc.,

D. J. BOYD,

Revenue Secretary to Government, Punjab.

No. 91—816—1.

FINANCIAL COMMISSIONERS' OFFICE:

Dated Simla, the 4th October 1921.

FROM

M. S. LEIGH, Esq., O.B.E., I.C.S.,
Senior Secretary to the Financial Commissioners, Punjab,

TO

THE REVENUE SECRETARY TO GOVERNMENT,
PUNJAB.

F. J. Fagan, Esq., C.S.I., I.C.S.

SIR,

I AM directed to forward a copy of the Final Settlement Report of the Ambala district by Mr. B. B. Whitehead, Settlement Officer, and to submit the following remarks of the Financial Commissioner.

2. The Ambala District is one of the smallest in the Province, but it straggles in an unwieldy manner along 78 miles of the Siwalik Range, and 40 miles out into the plains: it lies astride of the great Indian watershed, with the Sutlej on its western flank, and the Jumna on its eastern, while the Ghaggar divides it into two very different portions, one of them, comprising the Rupar and Kharar tahsils, and generally alluded to in the report as "the sub-division," being Punjabi in type, while the other, comprising the three eastern tahsils, Naraingarh, Jagadhri, and Ambala, is rather an outlying portion of Hindustan. The last-named tahsil lies out in the plain, but the others are typically submontane: the density of population is however only about 550 per square mile of cultivation. Physically the district is distinguishable, from north-east to south-west into hill, foot-hill, and plain: and cross-wise into river-valleys and upland. The Assessment Circles follow generally these distinctions, further refinement where necessary being introduced, either by circles or by fields, by dividing the plain area into loam (*Seoti*) and clay (*dakar*) and in the case of the Kharar tahsil by further sub-dividing the loam tract into a superior (*Seoti I*) and inferior (*Seoti II*) circle. There are also the usual classes of irrigated land, but the distinction of loam, clay and sand is all important, and as regards the last of these, the *chos* are the dominant factor. The magnitude and seriousness of the *cho* problem is fully realised by the Settlement Officer, as indeed by all concerned, except unfortunately those most vitally interested: the Financial Commissioner however hopes that even these last may learn to appreciate the benefits of a method of reclamation, which has given brilliant results in the Etawah district of the United Provinces, and is now as a result of the efforts of Mr. Casson being introduced in this district. The plan was not in contemplation when appendix IV of the report was written. The average rainfall ranges from 43" in Naraingarh to 30" in Kharar, decreasing from east to west, and also from hill to plain: it is generally ample in all parts, except in the clay tracts of the Ambala tahsil.

Of the total area, 63 per cent. is cultivated, and 11 per cent. more is recorded as culturable, though the report indicates that pasture land has already been reduced to the limit of safety. No more than 4 per cent. is irrigated, 3 by wells (two-thirds of this being in the Rupar Dhala), and 1 by streams (a like proportion being in the Kharar Neli); a small area in Jagadhri is irrigated, somewhat unnecessarily, from the Western Jumna Canal, river-floods help 2 per cent., groves cover 1 per cent., and the remaining 56 per cent., or eight-ninths of the total cultivated area is under

ordinary dry cultivation—the true type of the district's agriculture. Manure must be used sparingly, and fallows of one harvest in two are indicated (though not in fact adhered to in the three eastern tahsils). Sowings indeed amount to 117 per cent. of the cultivated area, but slightly less than 100 per cent. is matured, the percentage of failure ranging from 12 in the Sub-Division (where cropping is methodical) to 21 in Ambala, in many parts of which the absence of irrigation, combined with a clay soil, necessitates a yearly gamble in unirrigated rice.

The high class staples amount to 68 per cent. of matured crops (wheat 28, gram 14, maize 11, cotton 7, rice 6, cane 2). Much of the *kharif* has to be devoted to fodder crops. The agricultural population of the Sub-Division consists largely of efficient Jats and Sainis. Elsewhere, unbusiness-like Rajputs and vendee Baniyas predominate, and are largely dependent on Chamar cultivators. Communications are fair, though susceptible of great improvement, and produce can be marketed without difficulty. Proprietary holdings average 4 acres in the Sub-Division, and from 5 to 8 elsewhere. Little land is held in the colonies, and there is little income from military service: the district made but a poor response to the call for recruits, though in this respect, as in so many others, the Sub-Division out-distanced the eastern tahsils. Generally speaking, the district is dependent upon its own agricultural resources, which are in turn dependent upon the rainfall which is luckily almost secure.

3. The second chapter of the Report succinctly describes the peculiar manner in which the district gradually came under British rule, and the reason why, out of 1,801 estates now existing, the revenue is assigned to *jagirdars* , wholly or in part, in no less than 936. From summary settlement till 1860 the fiscal history is one of steady reduction. From that date on to the Revised Settlement (1882—1887), the revenue was paid without difficulty, having been reduced during the currency of the regular settlement from Rs. 10,40,000 to Rs. 9,98,000 (Morni included). From this figure it was raised by Messrs. Kensington and Douie to Rs. 11,44,000, i.e., by 14½ per cent., with an incidence varying from Re. 1-5-5 in Ambala to Re. 1-14-11 in Rupar. (In the time of Akbar the incidence had averaged Re. 1-8-0 for the tract.) The new demand was estimated to absorb 68 per cent. of the half net assets, which were calculated with extreme caution. It was most carefully distributed (though the pitch of assessments was distinctly higher in Jagir than in Khalsa estates), and has been paid without difficulty, timely suspensions being freely granted: it has been necessary to remit only Rs. 51,725 during the whole period since 1887, and of this total, the Ambala tahsil accounts for Rs. 30,884. In spite of this fact, Government hesitated in 1904, and again in 1909, to revise the assessment and Mr. Whitehead did not begin operations till October 1915, when an enhancement of 25 per cent. had been forecasted.

4. Since last settlement, population has, owing to plague and influenza, decreased by 22 per cent. (the recent census indicates a loss of 8,000 since 1911), and the best cultivators have lost most heavily. It is only in a few estates, however, that there is any shortage of man-power, as the holding averages indicate. Ploughs show a decrease of 11 per cent. only, and cattle and carts have actually increased (though this statement does not take into account the effects of the recent drought): the cultivated and sown areas have fallen off very slightly, partly, no doubt, on account of the *chos* . It is impossible to compare the matured areas exactly, owing to changes in the standard of failure: they are probably almost unchanged. The quality of the cropping has improved somewhat in Ambala and Jagadhri, and fallen off slightly elsewhere. Thanks to the Alienation of Land Act, transfers no longer give cause for alarm: of the cultivated area only 4 per cent. has passed into the hands of non-agriculturists by sale since settlement, and only 6 per cent. is held by them under mortgage. The estimated debt of the district is, however, large and amounts to Rs. 193 lakhs, of which Rs. 125½ lakhs is secured on mortgages of land and the balance unsecured. It has to be remembered, however, that in respect of these large sums many, if not most, of the creditors are now themselves agriculturists. Land values have more than trebled, and range from 66 times the land revenue in Naraingarh to 162 times in Rupar. The rise in cash rents ranges from 54 per cent. in Jagadhri to 115 per cent. in Ambala:

these are now paid on nearly 10 per cent. of the cultivated area, and average Rs. 9-3-1 per acre : in the Sub-Division, the average is about Rs. 11. *Zabti* rents are said to have increased greatly, but no particulars are given. Kind rents do not seem to have altered materially in pitch. In all tahsils the proportion of land cultivated by owners and occupancy tenants has decreased, but in the Sub-Division the tenants-at-will are mostly the sturdier owners of other land. Communications have improved considerably since settlement, a railway, a monorail, a practicable canal and two important metalled roads having been made. But the chief ground for enhancement consists in the great rise in the value of produce, which was shown in the assessment reports to have been not less than 80 per cent. In paragraph 43 of the Report, Mr. Whitehead shows that the prices assumed in the produce estimate were less than half those prevailing when he wrote the report, and there has been a further rise since then.

5. The cycle of years selected as the basis of the produce estimate approximates closely to the apparent normal in each tahsil. The yields assumed represent some advance upon the caution of Mr. Kensington, but are certainly in all cases well within the truth, especially for *kharij* crops. The moderation of the assumed prices has already been noticed. The inclusion of the straw-value, previously ignored, requires no justification. Suitable, though probably not excessive, allowances have been made for payments to menials, etc., and in the case of Jagadhri for "casual" losses (meaning the losses of extremely casual landlords). The landlord's share varies from about 26 per cent. in Ambala and Naraingarh to about 45 per cent. in Rupar, and there does not seem to have been much change in practice since settlement. The half net assets estimate based on kind rents amounts to Rs. 26,50,000 (excluding Morni). Cash rents suggest a figure 4 lakhs higher, but these are often paid on selected lands. A calculation based on land values gives even higher results, but the Settlement Officer rightly does not lay much stress on so theoretical a guide. The estimate of "true half net assets" which was reached in the assessment reports after considering all these data, and adding a moderate valuation of the mango crop, amounted to Rs. 28,89,000 or, including Morni, Rs. 29,06,000. This gives an average incidence of practically Rs. 4 per acre cultivated or matured,

6. The following table shows the new assessments actually imposed, and compares them with the estimated true half net assets and the computed value of the gross produce :—

Tahsil.	Expiring demand.	True half net assets.	Assessment imposed.	Per cent. column 4 on column 3.	Per cent. column 4 on value of total produce.	Increase per cent. column 4 on column 2.	INCIDENCE PER ACRE OF NEW ASSESSMENT ON	
							Cultivated area.	Matured area.
							Rs. A. P.	Rs. A. P.
Rupar	2,31,796	5,77,000	2,94,732	51	12.5	27	2 7 5	2 5 6
Kharar	2,55,836	7,27,000	3,39,544	43	12.25	32	2 3 9	2 2 9
Ambala	2,34,149	5,68,600	2,91,336	51	10.5	24	1 11 10	1 12 3
Naraingarh	1,80,955	4,37,800	2,24,335	52	10.75	24	1 11 7	1 12 1
Jagadhri	2,36,641	5,69,400	3,04,750	52	11	28	1 14 1	1 15 3
Total	11,89,577	28,89,300	14,54,757	50.3	11.25	28	1 15 10	2 0 1
Morni	7,970	...	8,508	...	...	10	1 12 6	1 9 6
Total District	11,47,547	...	14,63,265	...	...	28	1 15 10	2 0 0

These totals include a small sum for fixed canal advantage revenue in Jagadhri, remissible if the supply is permanently out off (the payments mentioned at the end of paragraph 56 of the report have been abolished), also Rs. 26,885 deferred for 5 or 10 years, and Rs 2,359 deferred on well certificates. The increase of 29 per cent., though slightly in excess of the forecast (25 per cent.), was not such as to require the orders of the Government of India : in no tahsil was the 33 per cent. limit exceeded. It will be seen that Government is only taking a quarter of the net assets, or half of its maximum legal share : at the prices now current, a maund of wheat, gram, or bajra would pay the revenue of an acre of land for six harvests : it is hardly to be expected that a maund of wheat will ever again be insufficient to pay the revenue of an acre for a year. The best proof that the new assessment is regarded as lenient is to be found in the fact that there were only 38 appeals to the Commissioner (of which only one succeeded), and none at all to the Financial Commissioner. These results are of interest with reference to current criticisms of the so-called harsh assessment policy of the Punjab Government.

7. In paragraph 59 of the report Mr. Whitehead has included, as required by paragraph 550 of the Settlement Manual, an abstract of the note submitted with the Detailed Village Assessment statements showing the principles on which the demand was distributed over estates. It is clear from paragraph 59 that the work was done with care and judgment and the statements indicate that the need for an adequate degree of discrimination as between estates has been kept in view. It will be noted that he accepted 76 out of 553 objections. His opinion (paragraph 58) that there are now no appreciable inequalities between tahsils or estates may be accepted. The distribution over holdings was unusually straightforward and indicates the comparatively small importance which is in practice attached by land revenue payers to distinctions of soil.

8. A full account of the revision of the record-of-rights, a most important aspect of settlement work, is given in chapter III of the report. It was carried out with care and thoroughness. The enormous number of mutations decided, namely, 112,000, is remarkable, while the revenue case work was very heavy as is shown in paragraph 61. Mr. Whitehead was fortunate in finding maps accurate enough for correction in all estates except 104 in the river beds, and few disputed boundaries. Commendable punctuality was achieved in the completion of the new records, the village inspections, the submission of the Assessment Reports and the introduction of the new demands. Only in Ambala and Naraingarh tahsils, drought intervened to necessitate one year's delay as regards the last.

9. In a district which has 43 per cent. of its revenue assigned, *jagir* questions are bound to loom large : it says much for the excellence of Mr. Kensington's work that his successor had to make no reference to Government on the subject. The report brings out the interesting fact that a *pattidari jagirdar* will cling to the prestige conferred by that status though it brings him but two annas a year and may diminish his chances of marriage. The Financial Commissioner does not propose to take any action on the somewhat indefinite suggestions made in paragraph 87 of the report. It will be for the local officers to submit specific proposals if they find it necessary to do so. In the case of the smaller *Muafis* Mr. Whitehead appears to have made judicious use of the discretion given him by paragraph 196 (3) of the Land Administration Manual. The *Zaildari-Inam-khori* question has at last, after protracted discussion, well summarised in the report, been settled in favour of a satisfactorily graded system on normal lines, assigned revenue bearing its fair share of the cost.

As to *lambardars*, it is clear from paragraph 71 of the report that they still cling tenaciously to their position, regardless of the exiguity of the emoluments. The average of these can be raised only by the reduction of redundant or unnecessary posts of which as in other districts there are doubtless many. The matter is one which needs continuous attention in accordance with the instructions issued in 1919 and embodied in paragraphs 329—332 of the Land Administration Manual. It is to be regretted that Mr. Whitehead

was not able to find time at the end of the settlement to deal with the subject in the prescribed manner.

The scale of enhancement for occupancy rents, suggested in paragraph 72, is reasonable, and may be commended to the notice of revenue courts for guidance.

The question of a record-of-rights for Kasauli Cantonment is still being considered by Government.

It is for the consideration of the local officers whether any attempt should be made to buy out the perpetual pensioners in the Ambala Cantonment mentioned in paragraph 73 of the report: their attention will be drawn to the matter.

Mr. Whitehead has not submitted a formal scheme for working suspensions and remissions, but the Financial Commissioner has had one compiled for the Ambala tahsil on the lines of paragraph 75 of the report.

The dates for payment of land revenue have been fixed by the Financial Commissioner as follows :—

Kharif from 15th January to 10th February.

Rabi from 15th June to 15th July.

The Deputy Commissioner has been authorised to frame a roster of villages, including Morni, ranging between these dates.

10. The cost of re-settlement to Government was less than 83 per cent. of the estimate, and will be almost wholly recovered from the enhanced *Khalsa* demand (practically rupees two lakhs) in two years. The *Jagirdars*, who gain more than a lakh of rupees a year from the operations, have only had to pay Rs. 40,000 towards their cost. The settlement took 4½ years to complete according to plan. Considering that the district comprises five tahsils in addition to the Morni tract the result is a creditable example of the celerity with which modern settlement work is carried out.

Cost of settlement operations.

11. Cesses should continue to be levied at the present rates until varied by competent authority.

Cesses.

12. The orders of Government are required as to the term of settlement. The Financial Commissioner agrees with the Settlement Officer that a 30-year term is clearly indicated as appropriate.

Term of settlement.

13. The commendation bestowed by Mr. Whitehead on the work done by Messrs. Cowan and Beazley and by Malik Muhammad Hayat Khan is thoroughly well deserved, and he is to be congratulated on having been so well served by the rest of the settlement staff: the Financial Commissioner is pleased to note that their exemplary behaviour has not passed unrecognised. Mr. Whitehead's own work has always reached a high standard of excellence and he deserves the greatest credit for the punctuality, accuracy, fairness and sympathy with the people displayed in all his operations at every stage and for his skill in presenting his data and conclusions. The report under review is a very good sample of his work.

Notice of officers.

14. The present Commissioner has intimated that he has no remarks to make on the report.

I have, &c.,

M. S. LEIGH,

Senior Secy. to the Finl. Comrs., Punjab.

APPENDICES AND GLOSSARY.

APPENDIX I—concl'd.

General Statement of Resources and Revenue Demand—concluded.

1	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Taluk.	ACREAGE OF CROPS (AVERAGE OF SELECTED YEARS).									Estimated value of grain and straw.	Estimated half net acreage.	PERCENTAGE OF CULTIVATED AREA MORTGAGED.			REVENUE.		Percentage of half net a acre; column 37 on column 32.	Percentage of increase; column 37 on column 30.	INCIDENCE.		
	Kharif.			Rabi.			Annual.					To agriculturists.	To others.	Total.	Old demand.	Final new demand.			Per acre cultivated.	Per acre matured.	Per head of population.
	Matured.	Failed with percentage on sown.	Sown.	Matured.	Failed with percentage on sown.	Sown.	Matured.	Failed with percentage on sown.	Sown.												
	Rs.	Rs.													Rs.	Rs.			Rs. A. P.	Rs. A. P.	Rs. A. P.
Kapur ...	64,980	7,770 11	72,700	60,721	8,764 13	69,485	125,651	16,584 13	142,185	23,22,652	5,77,000	9	3	12	2,31,796	2,94,732	51	27	2 7 5	2 5 6	2 11 5
Kharar ...	80,683	9,501 10	90,334	75,480	12,791 15	88,271	156,313	22,292 13	178,605	27,78,064	7,27,950	8	4	12	2,55,836	3,39,544	47	33	2 3 10	2 2 3	2 8 9
Ambala ...	77,171	20,565 21	97,736	82,799	21,319 20	104,118	159,970	41,884 21	201,854	27,93,780	5,68,600	10	6	16	2,34,149	2,91,396	51	24	1 11 10	1 13 2	2 1 0
Narangarh ...	67,228	11,627 15	79,295	60,110	12,286 17	72,346	127,738	23,903 16	151,641	20,29,435	4,27,300	7	10	17	1,80,955	2,24,335	53	24	1 11 7	1 12 1	2 1 11
Morni ...	3,374	... 14	3,940	2,155	1,010 32	3,165	5,529	1,576 23	7,105	73,995	15,580	4	4	8	7,970	8,808	57	10	1 12 6	1 9 6	1 5 4
Jagadhari ...	77,877	19,053 20	96,930	78,081	14,425 18	92,456	1,55,908	38,478 16	1,59,386	29,30,706	5,89,400	7	7	14	2,36,841	3,04,750	52	29	1 14 1	1 15 3	2 2 9
Total	371,518	69,122 16	440,935	359,296	70,545 16	429,841	7,81,109	139,667 16	870,776	1,29,28,582	29,05,830	8	6	14	11,47,547	14,63,500	50	28	1 15 10	2 0 0	2 4 10
Add Ambala Cantonment (not assessed.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kalsar Forest (not assessed.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

APPENDIX II.

TOTAL COST OF RE-ASSESSMENT UNDER ALL HEADS.

Serial No.	Budget Head.	Total expenditure.
		Rs.
	Salary and Settlement allowance of gazetted officers ...	1,58,058
	<i>A.—Office Establishment.</i>	
1	Office Kanungos	14,709
2	Mapper	1,543
3	Menial establishment	22,823
	Total Office establishment ...	38,575
	<i>B.—Field Establishment.</i>	
4	Settlement Tahsildars	25,990
5	Settlement Naib-Tahsildars	46,205
6	Field Kanungos, including field allowance ...	65,540
	Total field establishment ...	1,37,744
7	Temporary establishment	22,481
8	Settlement allowance to District Patwaris ...	12,885
	Total	35,366
9	Travelling allowance of officers	5,288
10	Travelling allowance of establishment	21,538
	Total	26,826
	Total pay and allowances of establishment ..	2,32,511
11	Contingent expenditure, except stationery and lithography	44,088
12	Stationery	20,749
13	Lithography	758
	Total contingent expenditure ...	65,595
	GRAND TOTAL	4,62,164

APPENDIX III.

Di-alluvion Rules.

PART A.

The following rules apply to the villages specified in the register which has been prepared whose lands are at present exposed to the action of the Sutlej River and Sarsa Nadi in Rupar Tahsil and the Jamna River in Jagadhri Tahsil, such action including sand drift due to the said rivers and nadi. They may be extended by the Collector's orders to any village not specified which may subsequently become exposed to river action. In these Rules the words river action include 'nadi action.'

2. (a) When cultivated land assessed as such at Settlement, or subsequently under these rules, is carried away or rendered unfit for cultivation or grazing by river action or land similarly assessed as pasture is carried away or rendered unfit for grazing, the assessment thereon shall be remitted.

Remission of assessment.

(b) When the quality of land which has been assessed at Settlement or subsequently to Settlement at the higher rate prescribed in rule 8 is found to have deteriorated owing to the action of the river, the assessment thereon may be reduced to the lower rate prescribed in rule 8.

Reduction of assessment.

3. If any land which may be assessed under these rules remain uncultivated for two successive years, and a Revenue Officer not below the rank of Naib-Tahsildar has satisfied himself after inspection that it has remained uncultivated owing to deterioration, it may be presumed that it has been rendered unfit for cultivation by river action, and the revenue on it may be totally remitted. But if it still remain culturable waste fit for grazing, it should be assessed as such under rule 10.

4. (a) Uncultivated land improved by river action since Settlement, which subsequently becomes cultivated,

New or increased assessment.

(b) land of which the assessment has been remitted under rules 2 and 3, and which is subsequently recultivated, shall on first cultivation be classified as superior or inferior, and assessed as such at the rates specified in rule 8, according as superior or inferior crops as specified in rule 7 are grown on it, provided that land which on first cultivation—

(i) produces less than a four-anna yield of superior or inferior crops shall not be assessed at all ;

(ii) produces a superior crop and gives more than four annas but less than an eight-anna yield, shall be classed as inferior ;

(iii) produces an inferior crop and gives more than four annas but less than an eight-anna yield shall be assessed at half inferior crop rates ;

(iv) produces crops with yields of eight annas and over, shall be assessed at the full rates, superior or inferior, as the case may be.

5. Land classified and assessed at the inferior rate, or on which the assessment has been reduced under rule 2 (b), shall be classified as superior and assessed accordingly as soon as it bears a superior crop the produce of which is not less than eight annas.

6. The classification of land for assessment purposes under these rules should not be too minute. If a survey number is not very large (not more than 2 bighas) it will usually be best to include the whole in one class, even though the same class of crop may not be grown in the whole of it. The classification should be that for the land bearing the crop which covers the largest portion of the area. The same rule applies to mixed crops.

7. Land bearing cane, maize, tobacco, hemp, chillies, wheat and mixtures of wheat, cotton, or any two crops in a single year, shall be classed as superior, and assessed at the superior rate. Land bearing all other crops shall be classed as inferior and assessed at the inferior rate.

Class of crops.

8. The superior class rate is as follows :—

Rates of assessment

Circle.	<i>Per acre.</i>			<i>Per bigha.</i>		
	Rs.	A.	P.	Rs.	A.	P.
Rupat Bet	2	2	0	0	7	1
Rupar Ghar Bet	1	12	0	0	5	10
Southern Jumna Khadar	1	10	0	0	5	5
Northern Jumna Khadar	1	4	0	0	4	2

The inferior class rate is Re. 1 per acre throughout, or Re. 0-3-4 per bigha.

(9) In calculating the revenue areas less than six biswas should be neglected. From six biswas to fourteen biswas shall be reckoned half a bigha and fifteen biswas and over the equivalent of one bigha.

(10) When by river action new culturable waste is formed, or land previously assessed as cultivated, becomes waste fit for grazing, see rule 3, one anna per acre should be imposed, omitting small isolated plots of banjar of less than 40 bighas in extent.

Waste assessment.

PART B.

1. In villages throughout the District liable to be affected by the hill torrents known as nadis or chos, such action including sand drift due to the said nadis or chos, remissions of, or additions to, revenue on account of diluvion, and alluvion, respectively, will be made under the following rules.

2. Ordinarily the measurements in order to ascertain the affected areas will be made in the year of quadrennial attestation; but when in any estate changes of sufficient magnitude have occurred in the estate as a whole or in individual holdings, measurements may be ordered by the Collector in any other year. At the end of the Kharif Girdawari, the Tahsildar will submit to the Collector a list of the estates not coming under quadrennial attestation, in which such measurements appear to be necessary, together with a rough estimate of the amount of the cultivated area affected, and the Collector will return the list with his orders thereon.

3. (a) When by the action of torrents (nadis or chos) cultivated land assessed as such at Settlement or subsequently under these rules is carried away or rendered unfit for cultivation or grazing the assessment thereon shall be remitted.

(b) When by such torrent action the quality of land assessed as cultivated is found to have deteriorated, the assessment may be reduced to one half according to the amount of deterioration.

(c) (a) When land which was unculturable at Settlement, or on which the assessment has been subsequently remitted under rule 3 (a) becomes cultivated in consequence of torrent action, it will be assessed at the rates specified in rule 5, provided that in cases where the favourable action of a torrent is mainly due to the erection of *bunds* or the planting or preservation of grass, bushes or trees, such land shall, from the date at which it might otherwise first have been assessed under these rules, remain free from any assessment which might from time to time have been imposed, for a period of 4, 8 or 12 years, as may be determined by the Collector after due consideration of the extent of the work and the cost involved.

(b) Land of which the assessment has been reduced under rule 3 (b), or which has been assessed at reduced rates under rule 5, may subsequently be assessed at the full rates specified in the latter rule whenever the Revenue Officers concerned think this course proper in consequence of improvement due to torrent action.

5. In dealing with cases of enhancement or remission of revenue referred to in the above rules, the assessing officer shall adhere strictly to the village rates fixed at Settlement, that is to say:—

(a) If the revenue has been distributed by shares or by an all-round rate on cultivation, the all-round rate on cultivation shall be applied, except that bad land may be assessed at half rates;

(b) If the revenue has been distributed by soil rates such rates only shall be applied but as in the previous case, bad land may be assessed at half rates.

(c) Land assessed at half rates will be raised to full rates when the authorities think right.

6. In calculating the revenue areas less than six biswas should be neglected. From six biswas to fourteen biswas shall be reckoned half a bigha, and fifteen biswas and over the equivalent of one bigha.

Procedure.

(1) During the Kharif Girdawari, the patwari shall distinguish fields which have been newly cultivated (*usutor*), or which have been affected for the better and have to be assessed at a higher rate than before, by a red ink mark in the Khaura Girdawari, and shall carefully estimate and record the crops on such lands in the appropriate columns. The field kanungo shall visit all such fields and check the girdawari entries. No enquiry should be made under these rules, nor should the revenue of any estate be changed unless the revenue to be reduced on account of diluvion or added on account of alluvion is not less than eight annas on some one proprietary holding and for the whole estate not less than one per cent. of its existing assessment. Work should be started as soon as possible after the 15th November in each year, and completed by the end of January following.

(2) The changes caused by river or torrent action should be shown both in the patwari's own di-alluvion tracing, and in the tracing to be filed with the Government copy of the di-alluvion file. The former tracing should be prepared from the village map or unbacked mapping sheets, and cover the whole of the village or the part liable to be affected by di-alluvion changes, and should continue to be used till a fresh tracing is prepared under rule 4 (b). The tracing to be filed with the Government copy of the di-alluvion file will be on unbacked mapping sheets of suitable size, and will be prepared afresh on each occasion. It will re-produce only the changes of the particular year for which it has been prepared, but in order that there may remain no doubt as to the position of any new fields, the fields which touch them should be shown.

(3) The patwari's copy of the di-alluvion tracing shall show the edge of the river or torrent, as well as any new fields formed as the result of di-alluvion changes. The line representing the edge of the river or torrent should be blue, and at both ends of it the year in which the measurements were made should be noted. The position of the edge should be fixed by measuring the remaining sides of the fields which are partly under the river or torrent, and the position of the new fields with reference to the old fields out of which they have been formed, but if this method be not practicable, then the squares covering the affected part of the village must be relaid and linked up with the base lines on either side, and off-sets taken from them. When the assessment has been made, the fields assessed at the inferior rates will be marked off by lines of green dots. The dots will be run together into a continuous green line, when the superior rate has been imposed.

(4) The procedure for the correction of field maps will be applied without any modification to the portions of di-alluvion villages beyond the reach of the river or torrent action, but as regards areas subject to such action the procedure will be modified as follows:—

(a) *Tatimma shajras* will be prepared only for changes other than those due to di-alluvion. Changes due to di-alluvion will be shown from year to year in the di-alluvion tracings prescribed in rules 2 and 3.

(b) At the end of every fourth year when a special attestation is carried out, a fresh tracing of the portion of the village subject to river or torrent action will be prepared and all new fields whether formed in consequence of di-alluvion or other changes, and whether shown in the old di-alluvion tracing or separate *tatimma shajras*, will be incorporated therein. This tracing will be prepared in duplicate and one copy of it will be filed in the tahsil with the *jamabandi*, and the other retained by the patwari for use during the next four years. Both copies will be duly attested by the kanungo. The preparation of a fresh tracing may be ordered even before the quadrennial attestation if the old tracing cannot continue to be used without producing confusion.

(c) In the di-alluvion files new fields will be given temporary numbers, but all fields incorporated in the fresh tracing prepared under (b) will at the time of incorporation be numbered in accordance with the system laid down in paragraph 41, and duly entered in the field book prescribed in paragraph 42 of Standing Order No. 16. Fields shown in *tatimma shajras* will have been already numbered in accordance with the system.

(5) It is not necessary that every new field should be given a new number. If a portion of a field is submerged and the ownership of that portion remain unaltered, a new sub-number should not be given thereto as the soil entry will show all that is necessary. Again, if any portions of an uncultivated plot are brought under cultivation, the use of sub-numbers should be avoided unless it is absolutely necessary for the purposes of *girdawari*.

(6) As the measurements proceed, the patwari will prepare Form A, but the entries in columns 15 and 16 will remain in pencil till the Tahsildar has made his visit, and formed his opinion as to the assessment. He will also make in the register of fields previously assessed below full rates (Form C) the necessary entries relating to crops grown in the past year, or in the case of villages affected by torrents in all years since di-alluvion measurements were last made.

(7) The kanungo will satisfy himself that the patwari has included in his *roaps* and *khasra* all land which should be included, will test the measurements, and check the *khasra*.

(8) As soon as the *khasra* has been checked by the kanungo, the patwari will prepare in duplicate in Form E a village abstract of changes due to river or torrent action. He will make in ink all the entries in columns 1 to 8, and also those giving the details of area and revenue for the previous year. The entries showing deductions and additions, and the area and revenue for the current year, will be made in pencil.

(9) The Tahsildar and Naib-Tahsildar will test the map, etc., on the spot, and pass orders as to classes of land, rates and revenue, after inspecting the fields and examining the entries in the *khasra* and in Forms C and D. He will cause to be entered in ink in the *khasra* the class and rate for each field as determined by himself. He will at the same time make the patwari enter in Form C the rate against each field of which the class has been changed, and also all fields assessed for the first time below Settlement or full rates. He will also have an extract from Form C, showing those numbers only of which the assessment has been changed in the current year, put on the file. Form E will be completed by the patwari under the Tahsildar's directions. The Tahsildar will add a brief note to the file explaining the changes which have occurred and his assessment proposals. He will then sign the map, *khasra* extract from Form C, and abstract of area and revenue (Form E), taking over the extract and the Government copies of the other papers. He will also sign the register (Form C) which the patwari will retain in addition to his own copies of the other papers. Register D will contain all field numbers lying near the banks of a torrent or river or in them. Fields will be entered in the order of their *khasra* numbers leaving suitable spaces after each hundred for subsequent additions if necessary. As soon as the assessment has been made, this register will be completed by entering the changes against each field.

(10) When the Revenue Officer, who is empowered to pass final orders on the assessment, disposes of the case, any corrections required in the papers will be made in the Govern-

ment copies, and the patwari will be ordered to correct his own copies. He will also prepare in duplicate a *khawat* showing the result of the new assessment (Form B), and forward both copies to the Tahsildar through the kanungo. The Tahsildar will see that the *khawat* agrees with the orders, and signing both copies will file one with the record and return the other to the patwari. The latter will embody the new figures in future *bachhi* papers and will give free of charge a *farid* showing the result to each *khatedar* concerned.

—(11) The whole file regarding changes of assessment due to river or torrent action will be prepared on Lucknow paper stitched at the back in book form. The tracing of maps will be placed in an envelope of the full size of the file, and will not be folded more than twice.

(12) These special rules are subject to the general rules on the subject contained in Standing Order No. 26,

APPENDIX IV.

A—Hill Denudation and Re-forestation.

The progressively increasing destruction of fertile land by the hill torrents or chos is primarily due to the denudation of the catchment areas, and the circumstances under which that reckless removal of trees and undergrowth was allowed to take place are described in paragraphs 726 to 730 of the Land Administration Manual. To an observer at Kasauli the contrast presented by the utterly desolate British Siwaliks of the Rupar and Kharar Tahsils as compared with the green portions of the same range which are reserved by the Patiala State is a striking object lesson. At the 1887 Settlement Mr. (now Sir A.) Kensington took a very gloomy view of the rapidly augmenting damage done by the chos, and by the wind blown sand along their banks, but was unable to indicate any remedy. The matter was taken up with characteristic energy by Mr. C. E. Gladstone, Deputy Commissioner (1890—93), who taught the zamindars to combat the mischief by planting thatching grass (*kharkana, bind-pula*) along the sides of the torrents, and an astonishing degree of improvement was obtained in the Rupar Sub-division. The measures were not so successful in the three southern Tahsils where the people are singularly feeble and apathetic. Very little, if anything, has been done on these lines since Mr. Gladstone's time, and of course the *fons et origo* of the evil remained untouched. In the year 1911 Mr. L. B. Holland, Assistant Conservator of Forests, was deputed to conduct an enquiry into the condition of the Ambala Siwaliks between the Ghaggar and the Sutlej, and his printed report was submitted to Government under cover of Forest Conservator's endorsement No. 1458, dated 7th June 1912. The remedial measures suggested by Mr. Holland were much the same as those undertaken in the case of the Hoshiarpur chos, namely—(1) the prohibition of browsing; (2) the complete closure of a belt of 1½ to 2 miles wide along and on both sides of the crest of the Siwaliks; (3) the opening and closing to cattle grazing for two years at a time of alternate blocks below the said belt. The Conservator observed that deterioration had gone so far that he doubted of the possibility of any progress unless nature were assisted and he suggested for the closed belt the system of sowing in contour trenches which had proved successful in the Pabbi hills of the Gujrat District. Those familiar with the tract will thoroughly agree with this opinion. All vegetable mould has been washed away from the slopes of the hills and only survives in pockets and on the rarely occurring flat terraces; the slopes themselves are at present as barren as the mountains of the moon. The good soil which was washed down by the torrents used to benefit the plains to some extent, but the chos now carry nothing but vast quantities of sand and gravel and have become an unmitigated source of damage and destruction. The sudden and violent character of the floods is a sure indication of the complete denudation of the catchment areas, and the amount of damage done is obscured by the partial and inequitable use of the Di-alluvion Rules. It is plain that the most energetic measures are necessary to produce any real improvement within a reasonable period of time.

Mr. Holland was placed in charge of the operations throughout the length of the Siwalik range in Hoshiarpur and the Rupar Sub-division of the Ambala District, and was directed to assist the Deputy Commissioner of Ambala and the Sub-divisional Officer, Rupar, in demarcating areas and in framing the necessary notifications under the Chos Act. The restrictional measures advocated by him are described in a memorandum to the Deputy Commissioner, Ambala, dated 24th July 1914. Briefly he proposed to divide the hills into two tracts only, A and B say, A comprising the whole of the upper slopes, and B the lower slopes. Tract A was to be totally closed under section 5 of the Chos Act, and partial prohibition was to be applied to tract B under section 4 of the Act. Mr. Holland was opposed to rotational closure. Meanwhile on the 23rd May 1914, Government sanction had been accorded to the entertainment of one forester and six forest guards in the Ambala Siwaliks for a period of five years only. The entire areas A and B were closed under section 4 of the Chos Act by virtue of Punjab Government Notification No. 458, dated 25th September 1914, and Mr. Holland proceeded to demarcate the inner area A to which Section 5 of the Act was to be applied,—see Printed Proceedings, Forest Department, February 1915, Nos. 52, 55 and 56. Government refused to pass orders on the proposal under section 5 of the Chos Act until further information was given, and a rough compensation estimate made.

An estimate of the cost of the measures towards the reboisement of the Rupar Sub-division Siwaliks is contained in letter No. 330, dated the 4th August 1915, from the Sub-divisional Officer, Rupar, to the Deputy Commissioner, Ambala, and was framed on the lines already adopted some years previously by Mr. P. J. Fagan in the Hoshiarpur District. The sums as estimated were:—

	Rs.
Cost of the operations under section 4 of the Chos Act ...	80,372
Cost of the proposed measures under section 5 of the Chos Act	1,27,757

Measures under section 4 of the Act had already been undertaken, and some twenty thousand sheep and goats had been expelled, but action under section 5 was postponed indefinitely owing to the financial stringency—letter No. 11-Forests, dated the 7th January 1916, from the Revenue Secretary to Government to the Junior Secretary to the Financial Commissioners. The actual cost of the section 4 operations was Rs. 82,508. In April 1916 Mr. Holland was transferred. It was pointed out at the time that it would be necessary later on to replace Mr. Holland by another officer when financial conditions

made it possible to take further measures for the afforestation of the Siwaliks—letter No. 140-Forests, dated 5th April 1916, from the Revenue Secretary to Government, to the Conservator of Forests. The primary reason for the transfer of Mr. Holland was the closing down of any really effective operations owing to the lack of funds. Since that time the Ambala Siwaliks have been nominally under the superintendence of the Katardhar Tahsildar at Hoshiarpur, but it is quite impracticable for one man to supervise one hundred and ten miles of Siwaliks especially as Rupar and Kharar are so highly inaccessible from Hoshiarpur. In reality the restricted area in the Rupar and Kharar Siwaliks has been at the mercy for the last two years of the forester and his six forest guards.

The Hon'ble Mr. P. J. Fagan, Financial Commissioner, toured through the Rupar Sub-division in October 1916, and recorded a note on the Siwalik afforestation operations. Though a period of only two years had elapsed since restrictions under section 4 of the Chos Act had been enforced Mr. Fagan was confident that there had been much improvement, and that the results were decidedly encouraging. There was of course no soil improvement as yet in the direction of the formation of vegetable mould, but a beginning had been made, and the results clearly indicated that operations under the Chos Act should be prosecuted diligently and developed. In the plains nothing of any importance had been done to reclaim cho-beds, but there would be plenty of scope for action as the area in which reclamation can and should be undertaken is extensive.

As regards present proposals, it is essential that Mr. Holland's scheme for the Rupar Sub-division should be completed. This involves the issue of the Notification under section 5 of the Chos Act as originally contemplated, the payment of compensation, and the prohibition of camel grazing throughout the section 4 area as has already been done in Hoshiarpur. The section 5 area should be completely closed to all rights with the possible exception of the annual cutting of grass after the seeds have fallen, and the cultivated land in the cho-beds inside the section 5 area should be taken up. Half measures only give rise to trouble and friction later on. As a corollary to these measures, the co-operation of the Patiala and Nalagarh States will be necessary along the Siwalik ridge. Then also operations should be commenced in and along the cho-beds in the plains. It is advisable to begin with something quite definite and the Settlement Officer informs me that there are bare sand dunes within the village boundaries of Sahaoran and Chaparcheri, while the area to the south of Kharar town contains bad patches of sand and alkali. I propose to have these planted in the rains of 1919.

Reclamation and conservation measures are just as urgently required in the plains and lower hills of the Naraingarh and Jagadhri Tahsils, and in the plains of the Ambala Tahsil, perhaps the need is even greater because of the feckless character of the people. The state of things is about as bad as it can be, and is briefly described in the new Assessment Reports. The Tangi Nadi is about the most unstable and destructive cho in the district, and has its catchment area in the Morni Hills which are in the jagir of the Mir of Kotaha, Naraingarh Tahsil. The Mir's estate is now under the administration of the Court of Wards. The lower slopes of the Morni hills are in the last stages of denudation, and the eradication of plant growth has been followed in places by extensive land slips which have laid bare the solid rock underneath. There was a proposal at last Settlement to make the Morni tract a reserved jungle, but it unfortunately fell through. Most of the lower hills in British territory between the Ghaggar and the Jumna are in much the same condition, and provide a sorry contrast with the reserved forests of the Kalsia and Nahan States. I may take the specific case of the Nagli Khol in the Jagadhri Tahsil; the torrent emerging from it is the Boli Nadi which is trained across the Western Jumna Canal at Dadupur. A quarter of a century ago Mr. R. J. Pinder, Deputy Conservator of Forests, described the very bad state of the Nagli Khol, and vigorously advocated the adoption of protective measures, but nothing has been done.

A special feature of an extensive tract in the Naraingarh Tahsil is the prevalence of ravine-cutting, locally known as darrar. Heavy rain falling on slopes washes away the surface soil and leaves an absolutely barren expanse of gravel and clay. The numerous tiny streams unite to form large ones which eat their way into the surface and produce a wilderness of steep dikes and ravines. An effective remedy would be the construction of small stone walls across the shallow water-courses which would hold up the silt while allowing the water to percolate through. In this way the ravines would gradually fill themselves up, and the loss of fertile silt would be prevented. This plan would not be successful unless carried out systematically on a large scale, and the people are too feeble to start it themselves. The usual grass planting is of course indicated along the torrent beds and on the sand hills throughout the three southern tahsils.

I have already touched on the inadequacy of the supervision in the Rupar and Kharar Siwaliks. Adequate supervision is a fundamental condition of success, and I earnestly advocate that proper arrangements be made from this point of view. Probably one forester and six forest guards are a sufficient subordinate staff for the Rupar Sub-division Siwaliks, but it is essential that they should be properly supervised, and there is ample work for a whole time official of the standing of a Naib-Tahsildar. Kharar town is in a central position and is a suitable headquarters. The Naib-Tahsildar's first duty would be the preparation of the compensation statement under section 5 of the Chos Act. He would be placed in charge of the conservation and reclamation operations in both hills and plains, including sowing and planting, and his efforts would be controlled and directed by occasional inspections on the part of an expert from the Forest Department. He would be required to tour twenty-five days in

the month, and would submit a monthly diary to the Deputy Commissioner through the Sub-Divisional Officer, Rupar. Similarly operations in the three southern tahsils would be placed under a Naib-Tahsildar with headquarters at Naraingarh say.

Orders are solicited on the following matters:—

(1) The completion of the original project for the conservation and reboisement of the Rupar and Kharar Siwaliks, and as a corollary the appointment of a suitable whole-time official to be in charge of the operations both in the hills and in the plains of the Rupar Sub-Division.

(2) The securing from the Patiala and Nalagarh States of suitable co-operation in those parts of the Siwaliks belonging to them.

(3) The commencement of similar operations in the hills and plains of the Naraingarh, Jagadhri and Ambala Tahsils. The deputation of an officer from the Forest Department would be necessary for one cold weather in order to prepare the preliminary report. Useful documents would be the joint report, dated October, 1888, of Messrs. Down and Kensington on the proposals for forest reservation in the Morni Hill Tract and Mr. Pinder's report on the Nagli Khol. It would be as well for him to make a careful examination of the conditions prevailing in the large darrar areas in the plains portion of the Naraingarh Tahsil.

B—Note on a scheme for bringing irrigation water from the river Ghaggar to Ambala.

A CONVERSATION took place between Mr. E. R. Foy, Superintending Engineer, and myself on this subject in November 1919. According to an agreement between the British Government and the Phulkian States, dated 18th February 1873,—see Sirhind Canal completion report—the Patiala State will “allow the British Government, if it desires to do so, to take a small water-course from the Ghaggar to supply the cantonment and town of Ambala, the water-course to carry about 20 cubic feet per second.”

A suitable take-off for such a water-course would be in the neighbourhood of Ghaggar Station, East Indian Railway. The water-course would presumably be lined. The expenditure on this account would be considerable and it is doubtful whether it would be worth while for this small quantity of water especially as probably even this amount of water would not be available all the year round. The only suggestion that I could make for augmenting this supply was to buy out the vested interests of the land-owners in the Neli Circle, Kharar Tahsil, to the water which they now use. I invite a reference to paragraph 56 of my Kharar Tahsil Assessment Report, 1917. The 7,407 acres of recorded abi land would become barani, and this barani being inferior clay soil could probably not be assessed at a higher rate than the barani soil in the neighbouring Dakar circle,—see paragraph 53 *ibid*—so in addition to the cost of vested interests Government would lose 7,407 multiplied by Re. :-2-0 or Rs. 8,333 per annum on account of reduction of land revenue. Mr. Foy estimates that in this way we might get another 20 or 30 cusecs, and that the total amount of water would be 40 or 50 cusecs. The following preliminary work seems to be indicated:—

(1) The views of the Patiala State are required.

(2) A thorough preliminary enquiry is advisable into the actual needs of the cantonment and city for irrigation, watering the roads and domestic purposes apart from drinking. I am assuming that the Ghaggar water would be suitable and would be used for every purpose but drinking.

APPENDIX V.

Rules for the remission or imposition of nahri-patta on land from which canal irrigation has been withdrawn or to which it has been extended.

ASSESSMENT RULES.

I.—Alterations in the land revenue demand assessed on lands irrigated from the Western Jamna Canal will be made in accordance with changes in soil classification made in the year in which the quadrennial attestation of the *jamabandi* takes place.

II.—Changes in soil classification will be made in accordance with the rule described in paragraph 5 of Appendix XX of the Settlement Manual.

Provided that if any part of a field has been converted from *barani* to *nahri* or *vice versa* no change of classification shall take place if the area affected is less than one acre.

III.—Alterations in the assessment will take effect from the Kharif harvest following the attestation of the *jamabandi*.

IV.—When an outlet is closed the *nahri-patta* on all land of which the classification has in consequence been altered from *nahri* to *barani* shall be remitted.
Closure of outlet.

V.—When a new outlet is opened, the *nahri-patta* shall be imposed on all *barani* land re-classified as *nahri*.
Opening of a new outlet.

VI.—When the position of an existing outlet is so altered as to cause, in the opinion of the Collector, an appreciable alteration of the area benefited by canal irrigation the alteration shall be treated as the closing of an old and the opening of a new outlet.
Altered position of an outlet.

VII.—When the size of an existing outlet is altered the *nahri-patta* shall be imposed on all increases and remitted on all decreases of *nahri* land.
Altered size of an outlet.

NOTE.—This rule applies also to change in the shares on which two or more villages enjoy irrigation from a joint outlet.

VIII.—The *nahri-patta* to be applied to increases or decreases of recorded *nahri* area shall be the rate prescribed for the assessment circle in which the village is situated.
Rates of *nahri-patta*.

PROCEDURE RULES.

I.—As soon as the Rabi *girdawari* preceding the attestation of the *jamabandi* is complete the patwari will proceed to prepare from his *khassa girdawari* a list showing fields converted from *nahri* to *barani* and *vice versa* in consequence of the closure of old, opening of new or alteration of existing outlets. The field kanungo shall see that the list of fields is in accordance with these rules and shall sign it. The changes noted in the lists shall be incorporated in the *jamabandi* and the field kanungo shall carefully check the entries and the totals of *nahri* and *barani* entered at the end of the *jamabandi* and shall attest them with his signature.

II.—On completion of the soil classification the patwari will forward the list to the field kanungo. After it has been checked and signed by the latter it will be forwarded to the Tahsildar under whose signature a copy of the abstract with detailed statements will be forwarded by the Tahsildar to the Collector so as to reach his office not later than July 31st.

III.—After the statements have been checked in his office the Collector shall report the amount of the assessment to be imposed and to be reduced through the Commissioner for the sanction of the Financial Commissioner and shall inform the Executive Engineer of the proposal, sending him at the same time the abstracts for information and return. On receipt of sanction he will return the detailed statements to the Tahsildar, ordering him to have the addition to or the reduction from the assessment incorporated in the Kharif *bashh*.

IV.—In incorporating the changes due to addition or reduction of assessment in the *bashh* the patwari shall, whether the assessment on *nahri* and *barani* is distributed at an all-round rate or by differential soil rates, impose or reduce the *nahri* rate on or from the holdings affected.

List of Fields converted from barani to nahri and vice versa with additional nahri assessment.

Patwari Circle _____

Tahsil _____

For the year 192 .

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Serial No.	Topographical No.	Name of village.	Name or No. of outlet.	Number of jamabandi holdings.	Name of owner, with description (briefly.)	Name of cultivator with description (briefly.)	FIELD NO. AND AREA CONVERTED.				NAHRI ASSESSMENT.			NET INCREASE OR DECREASE OF NAHRI ASSESSMENT.				REMARKS.	
							From barani to nahri.		From nahri to barani.		Rate.	To be imposed.	To be reduced.	Plus or minus.	Land revenue.	Musaf.	Total.		
							Field No.	Area.	Field No.	Area.									

NOTES.—*Column 8 and 10—If part of a field is affected the word "min" should be added.
 Column 9 or 11—In total of the village acres should also be noted in red ink.
 Column 12—For rates see Jagadhari Tahsil Assessment Report.
 Column 13, 14, 16 and 18—Detail of musaf, if any, should be noted in red ink.*

*Abstract showing nahri assessment payable on account of extensions of Canal Irrigation or remissible on account of reduction of the same in _____
Tahsil _____ District _____ for the year 192 .*

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Serial No.	Topographical No.	Name of village.	Name or No. of outlet.	ADDITIONAL NAHRI ASSESSMENT TO BE IMPOSED.			NAHRI ASSESSMENT TO BE REDUCED.		AMOUNT ON LAND REVENUE PAYABLE BY THE VILLAGE FROM KHARIF 192 .				REMARKS.
				Area in acres converted from barani to nahri.	Rate.	Land revenue.	Area in acres converted from nahri to barani.	Land revenue at rates given in columns 10-12.	Land Revenue.		Cesses.	Total.	
									Khalsa.	Musf.			

APPENDIX VI.

Principal Gazette Notifications.

No.	Date.	Subject.
78	18th June 1915	Under section 49 (1) of the Punjab Land Revenue Act of 1887 notifies that, with the sanction of the Governor-General in Council, a general re-assessment of the Land Revenue of the Ambala District is about to be undertaken.
79	Ditto	Under section 32 of the Punjab Land Revenue Act of 1887 notifies that the record-of-rights of the estates in the Ambala District shall be specially revised.
8658-S.-Gaz.	24th September 1915	Appoints Malik Muhammad Hayat Khan as Officiating Settlement Officer, Ambala.
428	23rd June 1916	Confers all the powers of an Assistant Collector, 2nd grade, upon Diwan Feroz Chaud of the Kashmir State under settlement training in the Ambala District.
726	28th November 1916	Confers all the powers of an Assistant Collector, 2nd grade, upon M. Shiv Dyal, Murari Lal of the Alwar State, and M. Sunder Singh of North-West Frontier Province under settlement training in the Ambala District.
813	27th December 1916	Confers all the powers of an Assistant Collector, 2nd grade, upon M. Wazir Ali Khan of the Bahawalpur State and M. Imdad Ali Khan of the Maler Kotla State and M. Muhammad Hanif and M. Bahadur Ali Khan of North-West Frontier Province under settlement training in the Ambala District.
8612-R.	21st February 1917	Confers all the powers of an Assistant Collector, 2nd grade, upon Lala Kisban Lal of the Jind State under settlement training in the Ambala District.
12487-G.	26th May 1917	Appoints M. Sher Ali Khan, Extra Assistant Settlement Officer, Magistrate, 1st class.
12488-G.	Ditto	Appoints M. Sher Ali Khan, Extra Assistant Settlement Officer, Munsiff, 1st class.
12489-G.	Ditto	M. Sher Ali Khan is empowered to perform the duties of a Collector under sections 25, 26, 28 and 32 of Act II of 1886.
12490-G.	Ditto	M. Sher Ali Khan is empowered to perform the duties of a Collector under the Land Acquisition Act, I of 1894.
12491-G.	Ditto	M. Sher Ali Khan is empowered to determine the suits mentioned in first group in sub-section (3) of section 77 of Act XVI of 1887.

No.	Date.	Subject.
15765-B. ...	7th August 1917	Confers all the powers of an Assistant Collector, 2nd grade, upon B. Beant Singh, Tahsildar candidate, under settlement training in the Ambala District.
20440-A. ...	6th November 1917	Confers powers of a Magistrate, 1st class, upon Mr. J. G. Beazley, Assistant Settlement Officer.
20440-B. ...	Ditto	Confers powers of a Collector upon Mr. J. G. Beazley, Assistant Settlement Officer, under Land Revenue Act and Tenancy Act.
8700-G. ...	16th April 1918 ...	Confers all the powers of an Assistant Collector, 2nd grade, upon M. Mahanbir Chand, Tahsildar candidate, under settlement training in the Ambala District.
15178-C.G. ...	10th August 1918 ...	Empowers Malik Muhammad Hayat Khan, Officiating Settlement Officer, with all the powers of a Collector under the Land Revenue and Punjab Tenancy Act of 1887.
15882 (Rev. A.—R.)	14th August 1918 ...	Ambala City is consolidated as a separate estate.
17061-A-Gaz. ...	23rd September 1918	Appoints Malik Muhammad Hayat Khan, Extra Assistant Settlement Officer, Magistrate, 1st class.
17061-B-Gaz. ...	23rd September 1918	Appoints Malik Muhammad Hayat Khan, Extra Assistant Settlement Officer, Munsif, 1st class.
17061-C-Gaz. ...	Ditto	Appoints Malik Muhammad Hayat Khan, Extra Assistant Settlement Officer, Collector under Land Acquisition Act, I of 1894.
17061-D-Gaz. ...	Ditto	Empowers Malik Muhammad Hayat Khan, Extra Assistant Settlement Officer, to hear and determine the suits mentioned in the first group in sub-section (3) of section 77 of the Punjab Tenancy and Land Revenue Act of 1887.

**GLOSSARY OF VERNACULAR WORDS NOT EXPLAINED
IN THE TEXT.**

Vernacular term.	Meaning.
Abádi	... Village site.
Báçhh	... Distribution of village revenue over holdings.
Báçra	... Bulrush millet.
Baniya	... Shop-keeper and money-lender.
Banjar	... Waste but culturable land.
Batái	... Rent taken in kind by division of produce.
Bhoj	... A group of hill hamlets.
Bigha	... A measure of land, here $\frac{1}{4}$ ths acre.
Dhán	... Rice.
Fard	... A list.
Ghí	... Clarified butter.
Girdawari	... Crop inspection.
Ghair mumkin darya	... Land unculturable on account of river action.
Hadd barári	... Boundary cases.
Inám	... A grant of land revenue to a rural notable.
Inámdár	... } One who receives an <i>inám</i> .
Inámkhwár	... }
Jágír	... An assignment of land revenue.
Jágirdár	... One who holds a <i>jágír</i> .
Jamabandi	... Quadrennial records-of-rights.
Káçkun	... Here-Headman of a <i>bhoj</i> .
Khálsá	... Revenue demand not assigned to grantees but paid to Government.
Kharába	... A crop which has failed partly or totally.
Khañf	... Autumn harvest.
Khárij-báçhh	... Any land not assessed in distributing revenue over holdings, etc.
Kháta	... A sub-division of <i>khwat</i> .
Khatauni	... A slip showing holdings.
Khwat	... The record in the <i>jamabandi</i> showing the ownership rights of each owner or group of owners separately along with details of each parcel of land cultivated by himself, his tenants, mortgagees, etc., each such detail or holding constituting a <i>kháta</i> .
Khud-kásh	... Land cultivated directly by the owner or his servants is said to be <i>khud kásh</i> (lit self-cultivated).
Lambardár	... A village headman.
Mahál	... An estate or village separately assessed to land revenue.
Maiba	... A village tax for local purposes.
Málikána	... Proprietary dues.
Másh	... A pulse.
Massar	... A lentil.
Móth	... A pulse.
Muáñf	... A revenue-free grant of land (given or held on account of some service or for religious purposes).
Muáñdár	... One who holds a <i>muáñf</i> .
Mujmallí	... Combined, composite.
Munj	... A pulse.
Musavi	... A mapping sheet.
Mutafarraç-málikán	... Miscellaneous owners.
Nabri-parta	... Canal rate.
Naçha çhásh	... Record of wells and rights thereto.
Pachotra	... Percentage of land revenue given to the village headmen in return for duties performed by them.
Parganah	... A part of a district.
Patwári	... Village accountant.
Part Sarkár	... That copy of the village map which is kept at head-quarters.
Qánúngo	... A revenue official who supervises the <i>patwáris</i> .
Qismwár parta	... Land revenue rate determined according to quality of land.
Rabi	... Spring harvest.
Riwáj-i-'Am	... Statement of social customs of the district and its main divisions.
Sáçr	... Head-quarters.
Sufdpoah	... A local notable.
Sarkár	... Government
Sarsari parta	... Summary rate (not distinguishing between various classes of land).
Ser	... A measure of weight = 2 lbs.
Shajra Naab	... Genealogical tree.

**GLOSSARY OF VERNACULAR WORDS NOT EXPLAINED
IN THE TEXT—CONCLUDED.**

Vernacular term.	Meaning.
Sihhat indarāj	Correction of entries
Tahsil	Revenue sub-division of a district.
Tahsildār	Officer in charge of a <i>tahsil</i> .
Tak mīl	Process of completing and checking the record-of-rights.
Tāramīra	An oilseed.
Tattima Shajra	Supplementary map.
Til	An oilseed.
Toria	An oilseed.
Wājib ul-'ara	Village administration paper in which are recorded local customs menials' dues, etc., etc.
Zaldār	A circle headman superior to the village headman in his circle.
Zamīndār	A landowner. Here generally equivalent to peasant proprietor.
Ziri	A superior quality of rice.