P. W. D.

Govt. of {1885} Madras.

REVENUE.

Issued

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G.O., 30th November 1885,
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NOVEMBER.

Information to be supplied in times of Scarcity.

Report on the economic condition of the Bellary district and lists of works for famine relief purposes forwarded to the Government of India for record.

Communicated to the Chief Engineer for Irrigation and the Suptg: Engineer III Circle, in continuation of G.O. No 2968 W dt/ 10th December 1885

2/ The attention of those officers is drawn to paras 17 & 18 of Mr Galton's letter & para 3 of the Revenue Board's Proc: with adverteuce to G.O. No 955 I dt/ 13th Novr: 1885.

/Sd/ D. Mn Ch.
DW

Chief Engineer for Irrn:
Suptg. Engineer III Circle
Revenue Department.

Madras Town
Police Court

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following Proceedings of the Board of Revenue, dated 12th October 1885, No. 2844 :—

Read—the following letter from C. A. GALTON, Esq., Acting Collector of Bellary, to the Secretary to the Board of Revenue, dated 26th September 1885, No. 3408 :—

I have the honor to submit the report called for in Board's Proceedings, dated 31st July, No. 2232, which reached me only on the 10th August. The delay in replying to the reference is due to the necessity for procuring certain information from the taluks and tabulating statistics.

2. It will be convenient to notice the several points enumerated in Rule IV (*b*) before supplying the information required by Rule IV (*a*).

3. *First, as to "the economic condition of the tract in ordinary times."*—The Bellary district, from its situation almost in the centre of the Peninsula, comes within the influence of both monsoons, but does not get the full force of either; hence constant failures of one or the other and sometimes of both. The bulk of the rainfall is registered during the six months, May to November, very little being received during the remainder of the year. The average fall for each taluk during a series of eighteen years, excluding bad seasons, is shown in the margin. Details are given in statement A.

Taluks.	Average Rainfall. INCHES
Bellary	18·08
Ráyadrug	20·22
Hospet	27·48
Kúdligi	26 02
Hadagali	21·51
Harpanahalli	23·15
Adóni	28·32
Alúr	24·16

As regards soil, the district is divided into two distinct tracts, the regadi or black cotton soil, and the red (lal) and mixed (masub) soils. The proportions in which these two main classes of soil are found in the several taluks are specified in the margin. The figures are merely approximate; the only statistics available are those given in the ditwar accounts prepared in fasli 1268. Details for dry lands are exhibited in statement B. It will be seen that the eastern half of the district is chiefly black cotton soil, whilst the area of this description of soil is trifling in the four western taluks, viz., Hospet, Hadagali, Harpanahalli and Kúdligi. The accompanying map on which the two tracts are shown in distinctive colors roughly shows their situation.

	Regadi (black). Percentage.	Masub and Lal (mixed and red). Percentage.
Bellary	65	35
Ráyadrug	29	71
Hospet	4	96
Kúdligi	4	96
Hadagali	17	83
Harpanahalli	10	90
Alúr	84	16
Adóni	51	49

4. As the soil differs, so does the agricultural practice. The red soils are principally sown at the very commencement of the south-west monsoon towards the end of May or beginning of June, and the crop is harvested in September and October. This is called the mungari or early crop. A comparatively small area of black cotton soil is brought under cultivation for an early crop, as a rule only manured lands near the village being so cultivated. The early crop generally consists of cereals, such as

yellow cholum, cumbu and korra, oil-seeds of various descriptions and pulses, or cereals mixed with oil-seeds and pulses. Very little red soil land is reserved for a later crop termed hingari, but if the first crop should fail, a later crop is raised in some parts of the district, though in others this is not the practice, the ryots depending entirely on the early crop. When a later crop is sown on the red and mixed soils, it is almost invariably horse-gram which requires very little rain in its later stages and is matured by the heavy dew.

5. The bulk of the black cotton soil is brought under cultivation in August, September and October. Very heavy falls of rain are required for the preparation of the ground, if moistened to the depth of nearly a foot before sowing, but little rain is required afterwards as the soil retains the moisture like a sponge, and the crop during its later stages can be matured by light showers, and the heavy dews which are usually experienced after the north-east monsoon. The principal crops grown on black soils are cotton, korra and white cholum; pulses and oil-seeds are raised only to a minor extent. Cotton and korra are usually sown during the latter half of August or first half of September, after which white cholum is the approved grain to put down. Cotton is by far the most remunerative crop of the three, and the welfare of the ryot in the eastern taluks depends in a great measure on the cotton crop. From this brief account of the agricultural practice of the country, from which no ryot in the Ceded districts ever dreams of departing, it will be seen that the distribution of the rainfall is a matter of more vital importance than the total quantity registered. For the dry crops frequent showers during June, July and August, heavy downpours between the middle of August and middle of September, and moderate rain in October and November are most favorable to growth.

6. The above remarks refer to unprotected lands, the irrigated area in this district being insignificant. The supply under the channels led from the Tungabhadra and Hagari rivers is, generally speaking, ample; the supply from the tanks, on the other hand, is precarious owing to the great variance in the rainfall and has to be supplemented to a great extent from wells. In a year like the present the tanks may receive only a few days' supply all the year round, the two largest reservoirs in the district, viz., Daroji in Hospet and Kanekal in Ráyadrug, were empty at the time of the heavy rain of last week. The tank-filling rain is, however, usually received in October under the north-east monsoon. The area under channels and tanks, respectively, is marginally noted.* Very fair crops of paddy and sugar-cane are raised under these sources, whilst dry cereals (cholum, ragi and korra) and garden produce, such as chillies, tobacco and vegetables are harvested without fail under wells. The protected area compared to the total is, however, unfortunately insignificant. There are no accurate statistics regarding the area under wells. A statement D showing the extent cultivated under "wet" and "dry" from fasli 1277 to fasli 1293, exclusive of inams, is appended. The average prior to the last famine is 39,068 acres under wet and 1,321,496 acres under dry, whereas the average subsequently is only 29,856 and 982,867, respectively. The acreage under the principal food-grains is marginally noted.†

	Acres.
* Holdings under tanks	17,850
Do. do. channels	19,501
Details given in Statement C.	

	Acres.
† Ryotwar and inam, fasli 1293—	
Rice	26,099
Cholum	660,652
Ragi	26,310
Cumbu	75,571
Korra and thenay	270,362
Total ...	1,058,994
Out of total area of cultivation ...	1,567,564

7. As to the quality of the soil, the black cotton tract is exceedingly fertile, and whenever the rainfall is sufficient, the finest crops are raised on it. The Alúr taluk, which has suffered most frequently from deficient rainfall, is the richest of all in its soil, and although it too often presents the appearance of a barren desert, it only requires sufficient moisture to produce the most luxuriant crops. It will naturally suggest itself that this defect might be remedied by well irrigation, but there are two causes which operate to prevent any great extension of well irrigation in black cotton soils.

First, the great cost of construction owing to the underlying stratum of limestone, and the necessity for revetting the sides of the wells with stone to prevent their becoming speedily choked by the crumbling soil. *Second*, the bad quality of the subterranean water-supply which is generally brackish and unsuited for irrigation purposes. The ryots are deterred by the expense, the cost of a well in black soil being often as high as Rs. 1,000, and the uncertainly of obtaining sweet water from sinking wells. The only hope of improvement lies in a well-considered scheme of river irrigation to which I shall presently advert.

8. The prevailing quality of the red soils is good, there being some very rich lands in Adóni and Hospet; in the south-western portion of the district, comprising the Harpanahalli and Kúdligi taluks, the soil is poor, and there are extensive tracts of uncultivable waste. A statement (E) showing the area under each rate of assessment is submitted. The preponderance of the lowly-rated soils in Kúdligi, Harpanahalli, Hadagali and Ráyadrug is very marked. With reference to these figures, however, it must be observed that much of the best land in the district is very lightly assessed; the charge on a great deal of the black cotton and best red soils will probably be enhanced three or fourfold at the revision of settlement. Most of the lowly-rated red soil is, however, of very poor quality. This, of course, has an important bearing on the circumstances of the agricultural classes; the ryots where the poor soils prevail are undoubtedly much worse off than those where the quality is superior, and a cultivator of Alúr or Adóni is in a much better position to withstand a bad year than his fellow countryman in Kúdligi or Harpanahalli. The rent-roll of the district also throws some light on this point, and I enclose a statement (F) showing the average holdings for each taluk. Three-fourths of the farmers in Kúdligi and Harpanahalli pay less than Rs. 10 per annum, and can, therefore, hardly subsist on the produce of their farms alone. The ryot of the Bellary district is, as a rule, indigent; he lives frugally on cholum or korra, spends little or nothing on dress or ornaments for his female relations, and is generally in debt to the village sowcar. Flocks and herds constitute a large portion of the possessions of the agricultural classes. In the western taluks there are extensive tracts of waste and considerable flocks of sheep and goats are pastured thereon. The cumbly-weaving industry in this part of the country employs a large number. In Adóni and other places cotton-weaving is the occupation of a considerable section of the population, but few do more than earn a livelihood by this trade, which has been gradually declining everywhere owing to the competition of cheap European fabrics. An extract from the census schedules (G) is appended to show the classification of the population with reference to their principal occupations.

9. Of the bulk of the population, it may be said that they live from hand to mouth, and that they are dependent on daily wages for their support. When agricultural labor fails owing to deficient rainfall and scanty harvests, a large number earn a precarious livelihood by cutting and selling grass and firewood or migrate to more favored parts of the district, to the Nizam's dominions and Mysore in search of work. There is a limit, however, to the demand for grass and firewood, and in the black soil tract both are so scarce that it is difficult to earn a livelihood by this means for any length of time; moreover, when this district is affected, the surrounding country is generally in similar condition, and not in a position to support outsiders. Hence the necessity for providing special work for day laborers, inasmuch as the ordinary public works do not afford sufficient employment for all who must live by daily wages; the irrigation works are few, public buildings are unsuited for large bodies of unskilled laborers, and the ordinary road repairs are hindered by the want of water for consolidation of material.

10. One more point remains to be noticed in connection with the first question, viz., the extent to which this district has suffered from recurring periods of drought and successive bad years. At pages 77 to 80 of Kelsall's Manual will be found a statement showing the character of each year from 1800 to 1869. In 1803 there was scarcity amounting to famine; in 1823 famine was anticipated and relief works started; in 1832 both monsoons failed and the year was the "worst on record" up to that time; 1838 was "almost a famine year"; 1853 and 1854 were famine

years; in 1865 there was anticipation of distress, which culminated in famine in the following year; besides these years of distress the season is described as unfavorable in no less than 24 years out of the series of 70. I continue below the record up to date :—

Fasli.	Rainfall.	Prevalence of disease.	Remarks.
1280	Good and seasonable	...	
1281	Early rains not seasonable ...	...	
1282	Season good	...	
1283	Failure of early rains	...	
1284	Abundant	...	
1285	Season unfavorable	Cholera ...	Dry remissions granted.
1286	Failure	Do. ...	Great famine; dry remissions granted; relief works opened.
1287	Unfavorable, being unseasonable	Do. ...	Dry remissions granted.
1288	Season favorable, but ryots were unable to take advantage of same	Do. ...	Early dry crops damaged by grasshoppers and later crops by rats.
1289	Fair	...	Effects of famine still felt.
1290	Favorable	...	
1291	Unfavorable both monsoons ...	...	Dry remissions granted.
1292	Favorable	...	
1293	Unfavorable both monsoons ...	...	
1294	Unfavorable	...	

Only eight years have elapsed since the last famine, and even during this short period there have been four bad seasons. Last year both monsoons failed, the early harvest being very scanty and the later crops a complete failure. This record is sufficient to show how seriously the resources of the ryots have been affected by a constant succession of adverse years. It is difficult to estimate the loss to Government and the ryots which has been sustained from this cause, but with my letter printed in Board's Proceedings, dated 11th March 1885, No. 810, I submitted a statement showing that there has been a loss of land revenue alone to the extent of three *lakhs of rupees annually* since the last famine, and whereas the receipts from this source exhibited a gradual improvement up to 1876; they have been absolutely stationary since. The figures given below, however, show that the loss is even greater, the average revenue for ten years prior to the famine being Rs. 14,42,420, and the average for the nine years since being Rs. 10,07,089, or a loss of Rs. 4,35,331 annually :—

Average from—	Rs.
Fasli 1274 to 1279	13,91,747
„ 1281 to 1286	14,54,992
„ 1289 to 1294	11,42,510

Fasli.	Collections. Rs.
1276	13,88,403
1277	13,93,219
1278	14,44,577
1279	14,50,945
1280	14,72,104
1281	14,06,570
1282	14,51,544
1283	14,57,060
1284	15,14,165
1285	14,45,620
Total ...	1,44,24,207
Or average ...	14,42,420

Fasli.	Collections. Rs.
1286	3,72,076
1287	12,39,601
1288	11,18,175
1289	11,19,657
1290	11,67,277
1291	10,52,985
1292	11,99,965
1293	11,72,667
1294	6,21,400
Total ...	90,63,803
Or average ...	10,07,089

The remissions on account of last fasli for each taluk are marginally noted, the demand as fixed at the jamabandi (annual settlement) was only Rs. 6,20,769, which has been taken as the revenue for the year, although the whole of it is not likely to be realized. Although this liberal treatment has enabled the land-owning classes to tide over the last year, stocks of grain are low, prices have been ruling very high for more than a year, and another failure of the harvest would necessarily be productive of great distress amongst the poorer classes, whose credit is exhausted.

	Rs.
Bellary	1,82,770
Ráyadrug	64,579
Hospet	22,292
Kúdligi	59,079
Hadagali	49,497
Harpanahalli	48,310
Alúr	1,60,987
Adóni	68,026
Total ...	6,55,550

11. *Secondly*, "*the crops affected and the extent to which they have suffered.*"—The description given above of the agricultural practice of the district indicates that the failure of the south-west monsoon has principally affected the mungari or early crop, the time for harvesting which is approaching. My monthly reports for July and August have given an account of the progress of the season, and it is unnecessary to go over the same ground. Since the middle of July the rainfall has been very scanty, and the early crops have been gradually withering until in many parts of the district they are past recovery. The recent heavy falls which commenced on the 14th September and have continued throughout the week will prove of inestimable benefit and there is room for hope that a considerable area will now yield some return. Had this rain fallen a fortnight ago the whole would probably have been saved and an average outturn have been secured. The harvest on the red soils will be even worse, I fear, than last year's, but the exact extent of the loss cannot be ascertained for a month or so. The taluks principally affected are those which chiefly consist of red soils, Hospet, Hadagali, Harpanahalli and Kúdligi; in Ráyadrug although red soil predominates, the season has been more propitious and the crops are not yet past hope in many parts of the taluk. In Bellary and Alúr the failure has been general, but these two taluks comprise a very large area of black cotton soil on which the hingari or later crop is grown, and the loss of the mungari consequently is not quite so serious. Adóni is the only taluk which has not suffered to any material extent, the rainfall up to date not having come very far short of the average. The recent falls have ensured a fair harvest.

12. As regards the black cotton soil, sowing has been retarded for want of sufficient moisture. A small area has been sown with korra and cotton, which is just springing up and looks well so far, but the bulk of the land has till now remained unsown. The recent rains are however just what is required for this description of cultivation. It is rather late for putting down cotton which is by far the most remunerative product, but as the last week has been so propitious cotton is likely to be largely planted and white cholum and Bengal gram can be sown even up to the latter part of November. If the north-east monsoon should prove but moderately propitious, there will be no cause for apprehension as regards this portion of the district.

13. *Thirdly*, "*the contingencies on which the probable duration of distress depends.*"—As I have already explained the tract which has so far suffered most is that depending mainly on the early crop. A second crop of gram may be put down here and there, but that will not compensate for the loss of the principal harvest, and in some parts the ryots will not make any attempt to cultivate again, their sole reason apparently being that it has not been the custom. In the southern parts of Anantapur which are similar in character, gram is widely grown when the first crop has proved a failure, but the ryots here will not try the experiment because their forefathers did not follow the practice. The harvest will be scanty, and there will be no agricultural operations till next May. Owing to the failure of last year's harvest stocks of grain are much reduced and the credit of the poorest classes is at a low ebb. It may therefore become necessary to find work for the people later in the year until agricultural operations are resumed. Some relief may be afforded by a temporary suspension of the collection of the revenue, a step which has already been sanctioned, and the opening of relief works should be deferred until it is seen whether the people can maintain themselves by work elsewhere or by obtaining supplies of grain on credit. A failure of the later crop which there is no reason to apprehend at present would be productive of similar results in the other taluks.

Hospet.	Harpanhalli.
Hadagali.	Kúdligi.

14. *Fourthly*, "*the position of the affected area as to local trade, food-supply and communications.*"—The district is well provided with means of communication, the main line of railway from Bombay to Madras traverses it from north to south, whilst the Southern Mahratta Railway connects it with Dharwar; food supplies can also be brought in by road from the Nizam's dominions on the other side of the Tungabhadra river and from Mysore. The principal towns and villages are connected by good metalled roads, of which 913 miles are kept in repairs. There are few districts which present greater facilities for distribution. Trade is active as is sufficiently evidenced by the imports of food-grains both by rail and road during the last twelve months since the district stocks fell low and high prices stimulated importation. Two statements (H) of imports of food-grains since September last by rail and road are appended. The totals are marginally noted.* As long as plentiful stocks are available elsewhere, there is no reason to apprehend any lack of food, nor do I anticipate any approach to scarcity rates unless at any time failure of harvests should be widespread, as competition will tend to keep down prices. The highest quotations at any period of the last twelve months are compared below with what are termed scarcity rates, showing that during the time of pressure there was always a considerable margin:—

—	Rice.	Cholum.	Ragi.	Cumbu.
	TONS.	TONS.	TONS.	TONS.
By rail ...	4,459	3,683	1,623	302
By road ...	472	3,780	830	1
Total ...	4,931	7,463	2,453	303

—	Rice.	Cholum.	Ragi.	Cumbu.
	SEERS.	SEERS.	SEERS.	SEERS.
Scarcity rates	9·5	13·5	14·5	13·
Highest quotation during last twelve months	12·18	17·82	22·65	17·59
Present prices	12·45	21·41	25·30	20·20

The effect of the recent change in the season was an immediate fall of about three seers in the staple food-grain, cholum; there had been a considerable advance in the previous week, and the sudden decline shows that the grain merchants consider that the prospects of the harvest have materially improved.

Prices at Head-quarters.

—	Rice.	White cholum.	Ragi.	Cumbu.
5th September...	12·96	21·63	24·57	21·93
10th do.	12·96	19·57	23·28	20·90
12th do.	12·60	18·88	22·63	20·68
17th do.	12·42	23·18	23·28	21·62
19th do.	12·78	23·52	23·93	22·25

15. I now turn to the consideration of IV (*a*). Information is required as to "the relief works which may in case of need be made available." Although I am only required to submit a list of *civil agency works* as defined in section 21 of the Famine Code, I venture to draw attention to the following remarks made in my letter of the 29th December last, No. 3560, printed in G.O., dated 10th January 1885, No. 29, as to the kind of work which is best suited to the requirements of this district—

"What is wanted is the scheme of some magnitude which will afford employment to a large number of unskilled laborers for a considerable time; it should be accessible to the population of the affected area, but if possible at a sufficient distance from the homes of the majority to make resort to the work a test of the necessity for providing labor, and last, but not least, it should be a work which will render some return hereafter, or at any rate prove a lasting benefit to the people of the neighbourhood instead of being merely a source of expense without any corresponding advantage. These conditions are satisfied by hardly any of the works proposed; those entered in the local fund lists fall under the three heads of (*a*) construction and repair of roads, (*b*) improvement of village-sites, and (*c*) improvement of water-supply. As to the first class although mere metalled roads would no doubt be useful in the black cotton soil tract, and, if absolutely necessary, a large number can be employed in this manner in the Alúr and Bellary taluks where employment is chiefly required at present, I am doubtful whether it is a good policy to spend any more money in this way. The Board can with difficulty maintain the roads already opened, and the proportion of the funds available for repair of roads is likely to be curtailed when the new Act is introduced, as the heads of service dependent on the general fund have hitherto received an insufficient share of the assets. Another forcible objection to this description of work is that in a season of drought like the present when water is not available within a reasonable distance for the consolidation of the material, the cost must necessarily be much greater than it ordinarily would be.

As regards second and third classes they are mostly petty works which would not afford employment for more than a few days, and in the case of improvements to wells and tanks, especially on black cotton soil, it will generally be found that the work is too hard for unskilled labor, and that wudders must be employed. Even when the nature of the work is suitable, I do not consider it at all advisable to start works in the immediate vicinity of each village at the present juncture. Such employment should be reserved for a later stage when the cultivation season is approaching, and it is desirable to provide labor for the ryots in the vicinity of their homes. At present there is no necessity for keeping them near the villages as there would be no cultivation operations for the next five months and the distance to which they will go for employment will be a test of their necessity. If works are started too near their homes numbers will flock to them who are not in such need as to induce them to go to any distance. Moreover, a large number of petty scattered works cannot be properly supervised, and much of the money will be wasted. For proper supervision there must be concentration of labor and a large scheme is required."

16. The list of professional agency works contains only three schemes, two of which apparently, the Hagari-Ráyadrug project and the formation of a tank in the Sondur valley, are not likely to be seriously considered. The Tungabhadra project has however been frequently advocated, and as it has recently been re-investigated and might, I understand, be put in hand in case of need without any great delay I venture to bring it forward again and respectfully to urge a reconsideration of the decision arrived at in G.O., dated 26th January 1885, No. 108, Revenue Department. The value of some large scheme of irrigation to this district would be inestimable, and the superiority of the Tungabhadra scheme as compared with other projects was admitted in G.O., dated 20th August 1866, No. 2606, Department of Public Works. The advantages likely to be derived from this scheme are very fully set forth in Mr. Wedderburn's letter, printed in Board's Proceedings, dated 31st July 1866, No. 5243, and 6th January

1877, No. 60, and as they have been admitted by both the Board and Government, I need not recapitulate them.

17. The objections which have been raised are, I believe, the following:—
(*a*) That the project will not be remunerative.
(*b*) That the water is not likely to be utilized for the black cotton soils.
(*c*) That it is doubtful whether the water-supply will suffice without prejudice to the Kurnool canal and Kistna works.

The scheme as originally designed was estimated to cost 100 lakhs of rupees which would require a return of four lakhs per annum according to the standard for productive works. Viewed from this stand point it may readily be conceded that the work is not likely to pay *directly* for a long time to come, but the indirect advantages have also to be taken into consideration. The cost of the famine of 1854 was estimated by Mr. Wedderburn (*vide* his letter, dated 25th July 1866, in Board's Proceedings, dated 31st July 1866) at nearly 200,000 pounds sterling, besides the loss to the people of their cattle and crops which was set down as "probably not under half a million sterling." There have been two famines since, in 1866 and 1876-77. The cost of the former I have not been able to ascertain. As regards the latter I submit a statement (J) exhibiting the *total cost to Government* under relief works, gratuitous relief, establishment, and advances of different kinds, much of which is irrecoverable. The totals are marginally noted * as well as the highest numbers on relief at any time. Nearly the whole population came on relief and the total outlay was at least 95 lakhs † —very little short of the cost of a project which would have contributed in no small measure to avert famine from a portion of the district at least. I have shown moreover that apart from the expenditure *directly* incurred during the last famine on relief, there has been a decrease of land revenue to the amount of $4\frac{1}{3}$ lakhs per annum during the last nine years; similarly under abkári there was a loss of $4\frac{1}{2}$ lakhs by resale of farms and remissions; other branches of revenue must also have suffered in the same way, owing to the loss of population and diminution in the material wealth of the people, so that if all the loss resulting to the State from the ever-recurring bad seasons in the shape of State relief, remissions, loss of revenue under different heads, &c., could be ascertained, they would amount to an enormous total, apart from the loss to the ryots, which is incalculable.

	Rs.
* Relief works	66,83,783
Gratuitous relief	18,54,231
Establishment	5,70,828
Tuccavy advances	2,53,714
Advances to weavers	1,98,914
Do. for seed-grain	94,620
Total ...	96,56,090
Number on relief	6,59,187

† The item establishment relates to the Bellary district as then constituted, that is, inclusive of the present district of Anantapur, taluk-war details under this head not being available.

18. There are other incidental advantages which have also to be taken into consideration. The extension of irrigation by creating a more humid atmosphere would tend to increase the rainfall; prices of grain and fodder would fall and the cost to Government in connection with the maintenance of the large force at Bellary would be reduced (*vide* statistics furnished in Board's Proceedings, dated 30th August 1866, No. 6190), whilst the water-supply of the cantonment and town, which is now so precarious, would be assured.

I think it is reasonable that all these indirect benefits should be weighed, and that the scheme should not be judged solely with reference to its value as a productive work of irrigation. If a less ambitious design which will secure to a great extent the advantages of the larger project can be carried out at a cost of only 50 lakhs as recent investigation has, I understand, shown to be likely, the interest on the outlay will only be two lakhs of rupees, and a considerable portion of this, if not eventually the whole, will be recovered by extension of irrigation.

19. It is admitted that the selection of suitable works within the Bellary district for the employment of relief labor is matter of no ordinary difficulty. The Chief Engineer in his note embodied in G.O., dated 20th January 1885, No. 108, Revenue Department, states that after a careful consideration he can only suggest the following, and that none of them is calculated to give long employment to a large body of laborers.

(1) *The earthwork on the Guntakul-Hindupur line.*—The earthwork has, I believe, been nearly completed as far as Penukonda; this work, if re-opened, will no longer serve the Bellary district, as it is too distant.

(2) *The proposed railway feeder roads, ten in number.*—These vary from $1\frac{1}{2}$ miles to 8 miles in length, and would be finished in a few days. As to roads elsewhere the district has already more metalled roads than the district board can afford to maintain, and several of the roads constructed during the last famine at vast expense have never been completed and are not kept up. All that there is to show for 19 lakhs of expenditure in the Adóni taluk is some 19 miles of road with a gap of 3 or 4 miles in the centre which renders the whole road useless, the soil being black cotton and impassable in wet weather, when alone a metalled road is required. The cost was therefore about a lakh a mile. I respectfully submit that, if a vast expenditure is to be incurred in providing work for the people, it may just as well be laid out in excavating a channel even though it may "mean digging a hole to be gradually filled up by weather" in the words of the Chief Engineer for Irrigation. The channel cannot be more useless than the roads, and it is certainly better suited for a relief work as it is easier to supervise the coolies, and water, which is non-existent for miles here, is needed for making roads properly.

(3) *The deepening of the Bellary, Adóni and other tanks.*—As the tanks in this district seldom or ever receive a full supply, increasing their capacity would not be a work of utility, and would, in fact, amount to "digging holes" for the sake of employing labor. I have already in my letter, dated 2nd February 1885, No. 27, reported that it would be useless to deepen the Bellary tank unless the supply to it can be supplemented, as it has not been known to discharge over the calingula oftener than once or twice in a long series of years, and the Superintending Engineer has stated that no increase of supply can be secured from existing sources. The same objection applies to the deepening of other reservoirs in the district. I submit, therefore, that, looking to the extreme difficulty of finding any useful work for relief purposes, the question of undertaking a project like the Tungabhadra canal must not be judged solely with reference to its proving a directly remunerative investment.

20. The second argument against the construction of the canal is that the water is not likely to be utilized for the irrigation of the black cotton soils, except occasionally in years of deficient rainfall. The experience of the Kurnool canal has been adduced in support of this position, but the circumstances are not analogous, for it has been shown that the ill-success of the Irrigation Company's canal was due principally to the causes enumerated in the margin rather than to the unsuitability of the soil for irrigation. The reluctance of the ryots to take the water in Kurnool was owing in a great measure to the fact that the rainfall of the country through which the canal passes is generally ample to ensure abundant harvests without irrigation. The question of irrigating black cotton soils was thoroughly discussed in connection with the Kistna works some years ago, and it was shown that the ryots will irrigate black cotton soil if it is to their interest to do so.

1. Excessive cost of construction.
2. Faulty alignment.
3. Maladministration.
4. Illiberality in the charge for water.
5. Uncertainty of supply.
6. Sparseness of population.
7. Want of communications and absence of local markets for rice.
8. Ignorance of the methods of wet cultivation.

Vide Mr. Lister's report embodied in Board's Proceedings, dated 21st May 1879, No. 1370.
Report of Committee printed in Board's Proceedings, dated 27th March 1882, No. 896.
Chapter VIII, Appendix V, to the report of the Famine Commission.
Vide the Honorable Mr. Master's report embodied in G.O., dated 21st August 1872, No. 1239.

As a matter of fact much of the land that is irrigated in this district, for instance whole of the ayacut under the large Kanekal* tank in Ráyadrug, is regadi soil. It must be borne in mind that irrigation entails considerable initial outlay and a continuance of more expensive cultivation, whereas with a moderate rainfall crops which are sufficiently remunerative to satisfy the ryot can be obtained without irrigation. The rainfall in the country traversed by the Kurnool canal is, I believe, ordinarily heavier and more regular than it is in Bellary, and for a long time at least no attempt was made to encourage extension of irrigation by offering water on easy terms. Looking to the causes of the failure of the enterprise, the result cannot be taken as indicating that a properly conducted system of irrigation in Bellary will meet with the same want of success. Here the rainfall is very precarious, and if sufficient inducements are offered to the ryot to change his methods, he will, I think, readily avail himself of the water. The conditions which the Honorable Mr. Sullivan in his minute printed at page 64 of Appendix V to the report of the Famine Commission indicates as essential for successful artificial irrigation are here present. The substratum is limestone, and there is therefore drainage to prevent water logging, the people understand this mode of cultivation, are possessed of sufficient means to avail themselves of it, and there is a large local demand for the produce so raised, as witness the very considerable and continuous importations of rice into the district. The rice grown in Hospet is of superior quality and commands a high price, whilst sugar-cane is largely grown wherever irrigation is available.

	Circar and Inam. ACS.
Ayacut	2,113
Cultivation	1,404

21. The third objection can be obviated by storing the water in reservoirs which has always been part of the scheme. During the freshes in the Tungabhadra river a large volume of water which might be utilized in this way without detriment to the irrigation lower down is vasted, and if the capacity of the Daroji tank can safely be increased, the construction of new reservoirs may perhaps be dispensed with.

22. The importance of the question in the interests of this district will, I trust, be accepted as sufficient excuse for re-opening the subject notwithstanding that the professional advisers of Government have expressed an opinion adverse to the scheme.

23. As regards civil agency works, schedules of works proposed were forwarded with my letter embodied in G.O., dated 10th January 1885, No. 29, and have been accepted as constituting the district programme prescribed by Section 28 of the Famine Code. These lists were drawn up before I joined the district; they contain a number of petty works which I would not put in hand, except in the last resort, as the execution of numerous small works must lead to extravagant expenditure. Estimates for the most important of them have been under preparation for some months past, and I submit a list (K) of those which are ready for execution or can be put in hand as soon as the estimates are received. The Executive Engineer has still to furnish estimate for twenty works, but owing to the withdrawal of the special staff sanctioned for their preparation in accordance with G.O., dated 8th July, No. 333-E, he is unable to complete them. As the estimates still due are for tanks in the Kúdligi, Hadagali, Harpanahalli and Hospet taluks, where employment is likely to be first needed, under present circumstances, and the works are chiefly civil agency, the necessary assistance can, I think, be given in the Revenue Department under the authority of G.O., dated 27th July 1885, No. 1124, Financial. I have informed the Executive Engineer accordingly. The list submitted comprises all the agricultural repairs that appear to be suitable for the employment of unskilled labor. If other works are required and no large project is available, it will be absolutely necessary to fall back upon road-making, however useless such work is likely to be. Three surveyors are at present engaged in the preparation of estimates for roads in the western taluks. For Bellary, Alúr and Adóni sufficient sanctioned estimates are ready for a commencement whenever necessity may arise. They comprise the most important lines which have been proposed; other minor lines can be taken up afterwards if necessary.

24. The second part of IV (*a*) requires submission of "a rough estimate of the maximum number of people for which, in the event of scarcity becoming famine, relief might be required, and the number which will be provided for by the relief works of which a list is given." There are no data, however, on which such an estimate can

be framed at present with any pretence to accuracy. Unless the failure of crop extends to other districts, I anticipate merely a continuance of the high prices which have ruled for the last year, and there is no danger of scarcity becoming famine. Prices have not yet approached to scarcity rates and have not been so high as to cause distress to those who have regular employment; hitherto the poorer ryots and those who live by field labor have been the classes principally affected. Owing to the failure of the harvest last year the majority of those who depend on agriculture for their subsistence have no stocks of grain to fall back upon, and their means of obtaining a livelihood have been curtailed this year also. So far the failure principally affects the western taluks in which it may perhaps become necessary to open some works later on and to maintain them until the next cultivating season commences. If the later crop should also fail, it might become necessary to provide work throughout the district, but distress may be averted to a considerable extent by a plentiful later harvest. Assuming that one-fifth of the agricultural classes may, under certain contingencies, have to be provided with work by the State, the maximum number for each taluk will stand as marginally noted. Of course this estimate is a mere guess, but as far as I can judge at present it may be taken as an approximation. For the western taluks of Hospet, Kúdligi, Hadagali and Harpanahalli only one estimate under the head "Agricultural repairs" has been received as yet. The others will probably amount to about Rs. 20,000. Estimates of road repairs will be framed as speedily as possible. The provision for the eastern taluks is in a more forward state because it was anticipated early in the year that the need would first arise in that direction. The value of the estimates for tanks is Rs. 27,061 and for roads Rs. 2,61,080. At the rate of ten coolies per diem for a rupee, this sum will suffice for about 32,000 people for three months, which will meet requirements for the present.

	Rs.
Bellary	9,347
Ráyadrug	7,556
Hospet	7,160
Kúdligi	8,607
Hadagali	5,830
Harpanahalli	7,591
Adóni	7,475
Alúr	5,739
Total ...	59,305

Enclosures Nos. 1 to 13.—Statements.

Enclosure No. 14.—Map.

Resolution—dated 12th October 1885, No. 2844.

Submitted for the orders of Government.

2. The Collector's very full report shows that the people in general are in a low economical condition, that the rainfall is very precarious and seasons frequently adverse, that well irrigation is attended with difficulties, while the irrigated area generally is insignificant. It is also clear that in Bellary it is very difficult to find useful work for large bodies of laborers.

3. It is observed that the sum of the losses of revenue by bad seasons during only the past ten or twelve years, and of the expenditure on recent famine relief, would probably have more than paid the cost of carrying out the Tungabhadra channel project, the execution of which, whether as a relief work or as a valuable district improvement, the Collector so strongly urges. The Board suggest that a reconsideration of the question is worthy the attention of Government.

(A true Copy and Extract.)

(Signed) F. A. NICHOLSON,
Acting Secretary.

To the Secretary to Government, Revenue Department,
with fourteen enclosures.

Copy to the Collector of Bellary.
" " Director of Revenue Settlement and Agriculture,
with copy of Board's Procs., No. 2232, of 31st July 1885.

Read—the following G.O., dated 3rd November 1885, No. 2579 W., Public Works:—

Read—the following letter from the Superintending Engineer, III Circle, to the Secretary to Government, Public Works Department, dated 22nd October 1885, No. 1550:—

With reference to your endorsement, No. 702-E., dated 5th October 1885, I have the honor to submit revised lists of relief works showing only those works which are likely to be carried out by "professional agency."

2. These works cannot be strictly called "class A" works as defined in section 18 of the Famine Code, for neither have the estimates been sanctioned nor do the works appear in the budgets.

3. List I shows estimates lately prepared for removing silt from beds of imperial tanks in the Anantapur district agreeably to G.O., No. 126 I., dated 10th February 1885. The Collector has been requested to submit them for the orders of Government. The outlay proposed is heavy, and it seems to me that the estimates cannot be sanctioned by me.

4. List II shows works alluded to in the Government Order noted in the margin. These works are considered suitable in case of necessity arising for relief measures on a large scale, but no estimate for any of them has yet been sanctioned. In fact the projects need re-investigation and revision.

G.O., No. 3027, of 29th September 1877, in the Revenue Department.
Irrigation Chief Engineer's printed list showing irrigation and connected works available for employment of famine labor in each district.

5. The "Tungabhadra project" entered in the list is the modified project now under investigation by the C. Project division to bring a supply of water into Bellary at a considerably reduced cost. It is thought that this project would be useful as a relief work; hence it has been included in the list.

Enclosures.

I.—Statement showing Irrigation Works available for the Employment of Famine Labor.

Name of Work.	Estimated Cost.	Number of Laborers that can be employed on Project.	Number of Months.
Anantapur District.	Rs.		
Madigubba tank	33,780	2,400	23
Singanamala tank	2,10,250	15,660	23
Cummoor tank	73,230	5,400	30
Bramanayacheruvu tank	2,10,852	14,800	3
Raptad tank	62,015	4,500	5
Purghee tank	9,60,356	73,500	146
Harrasamudram tank	2,09,080	15,600	56
Gooty tank	* 10,375	100	3
Gooty tank	2,35,068	17,400	36
Mallianoor tank	2,01,990	15,000	3
Kumbadoor tank	2,80,547	20,000	3
Mulakaladu tank	2,94,150	22,000	3
Anantapur tank	4,96,175	36,000	3
Agali tank	2,23,256	16,700	3
Amrapuram tank	2,02,000	15,000	3
Murabagula tank	37,800	28,000	3
Dundanaripally tank	5,000	† 400	3
Salacunchervoo tank	60,833	4,400	3
Marvapally Agraharam tank	1,62,422	12,000	3
Royalcheruvu tank	2,15,200	16,000	3

* For repairs to bund, &c. † For repairs.

II.—Statement showing Irrigation Works available for the Employment of Famine Labor.

District.	Name of Work.	Amount of Estimate. Earth-work.	Other works.	Total.	Number of Coolies that can be employed.	Probable time required to complete Earth-work.	Remarks.
		Rs.	Rs.	Rs.		Months.	
Anantapur..	Bookacherla Project.	13,98,560	1,96,440	15,95,000	30,000	18	The channel from the anicut, 18 miles in length, would run through a rough rocky country. The main channel is designed to carry 3,750 cubic feet a second. The project is for feeding Bookacherla tank in the Dharmaveram taluk and the Singanamalla and Anantapur tanks from the Pennér. Further details will be found recorded in the Irrigation Chief Engineer's printed list of works available for employment of famine labor. But the project as regards most details would need revision.
Do. ..	Hindupur Project.	1,10,200	58,850	1,69,050	10,000	4	The project provides for constructing an anicut across the Pennér river for the supply of eleven tanks with head-sluices and channels. The district having very little irrigation, the work would be of value as a relief work. Plans and estimates were prepared many years ago, but the project will probably need revision.
Do. ..	Roddum Project.	48,280	54,940	1,03,220	4,500	4	The project provides for an anicut across the Pennér to supply Roddum large tank.
Do. ..	Pootholacuntah Project.	12,000	4,000	16,000	2,250	2	It is intended to store water for irrigating 600 acres of land.
Bellary ..	Tungabhadra Channel.	12,00,000	18,00,000	30,00,000	50,000	18	The cost of the work was estimated by the officers of the late Irrigation and Canal Company at Rs. 1,43,88,000. The project is now being re-investigated by the C. Project division in order to see if water can be brought to Bellary for a more reasonable sum by reducing the dimensions of the canal, by omitting reservoirs altogether and depending entirely upon the river, by altering the line of canal, and by designing cheaper masonry works. It is presumed that the cost of the modified project will only be one-third the estimated cost of the original project, and it is this revised project which is recommended for execution as a relief work.

Bellary,
22nd October 1885.

(Signed) H. M. VIBART, Lieut.-Col., R.E.,
Superintending Engineer, III Circle.

Order—dated 3rd November 1885, No. 2579 W., Public Works.

Communicated to the Revenue Department with advertence to Proceedings in that department, No. 5236, dated 28th September 1885.

(True Extract.)

(Signed) D. McN. CAMPBELL, Captain, R.E.,
Under Secretary to Govt., P.W.D.

To the Revenue Department.

ORDER—dated 30th November 1885, No. 1327, Revenue.

Irrigation, No. 28.

The foregoing papers furnish, as regards the Bellary district, the information called for by the Government of India under Nos. IV (*a*) and IV (*b*) of the rules circulated with their letter, No. 90 F., dated 23rd June 1885, embodied in G.O., No. 837, dated 17th July 1885.

2. Similar information called for from the Collector regarding the Anantapur district has not yet been submitted and should be expedited.

3. The lists furnished by the Public Works Department embrace works in the Anantapur district also, and those specified in list No. I appear to be, for the most part, the same as those dealt with in G.O., No. 1208, dated 2nd November 1885.

4. It is observed that for most of the works in the lists now received no estimates have been prepared.

5. The information collected under rules IV (*a*) and IV (*b*) was intended for incorporation in the special monthly reports to the Government of India on the agricultural prospects of the affected districts. The recent abundant falls of rain in Bellary and Anantapur have, however, rendered these monthly reports unnecessary, and the Government of India have sanctioned their discontinuance. Nevertheless the report from Bellary and the lists of works furnished by the Collector and the Public Works Department will be communicated to the Government of India for record.

6. The remarks of the Collector and the Board of Revenue regarding the Tungabhadra project will be referred to the Public Works Department for consideration. Attention is directed to paragraphs 17 and 18 of Mr. Galton's letter and paragraph 3 of the Board's resolution. It is observed that a limited project to convey water from the Tungabhadra into the Bellary town is the only professional agency work for the district entered in the lists.

(True Extract.)

(Signed) J. F. PRICE,
Ag. Secretary to Government.

To the Board of Revenue, with fourteen enclosures returned.
,, the Public Works Department, Irrigation Branch.

No. 1327-A.

Copy to the Government of India, Revenue and Agricultural Department.

(Signed) J. F. PRICE,
Ag. Secretary to Government.

Exd. J. W. Fisher.

120 Copies.

P. W. D.

No. 3045 Wdy 17 December 85

Communicated to the Chief Engineer for Irrigation & the Superintending Engineer III Circle, in continuation of G.O No 2968 W dy 10th December 1885.

2 The attention of those officers is drawn to paras 17 & 18 of Mr Galton's letter & para 3 of the Revenue Board's Proc:, with advertence to G.O No 955 J. dy 13th November 1885

/Sdy Dn Ch C.
DW

Chief Engineer for Irrn:
S. E. III Circle
Rev: Deptt.

Govt. of {1885} Madras.

REVENUE.

Issued

Recd. *Encl.*

G.O., 30th November 1885, No. 1327, 1327A.

No. 3045 Wdy 17 Decmb 1885

NOVEMBER.

Information to be supplied in times of Scarcity.

Report on the economic condition of the Bellary district and lists of works for famine relief purposes forwarded to the Government of India for record.

With order

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following Proceedings of the Board of Revenue, dated 12th October 1885, No. 2844:—

Read—the following letter from C. A. GALTON, Esq., Acting Collector of Bellary, to the Secretary to the Board of Revenue, dated 26th September 1885, No. 3408:—

I have the honor to submit the report called for in Board's Proceedings, dated 31st July, No. 2232, which reached me only on the 10th August. The delay in replying to the reference is due to the necessity for procuring certain information from the taluks and tabulating statistics.

2. It will be convenient to notice the several points enumerated in Rule IV (*b*) before supplying the information required by Rule IV (*a*).

3. *First, as to "the economic condition of the tract in ordinary times."*—The Bellary district, from its situation almost in the centre of the Peninsula, comes within the influence of both monsoons, but does not get the full force of either; hence constant failures of one or the other and sometimes of both. The bulk of the rainfall is registered during the six months, May to November, very little being received during the remainder of the year. The average fall for each taluk during a series of eighteen years, excluding bad seasons, is shown in the margin. Details are given in statement A.

Taluks.	Average Rainfall. INCHES
Bellary	18·08
Ráyadrug	20·22
Hospet	27·48
Kúdligi	26 02
Hadagali	21·51
Harpanahalli	23·15
Adóni	28·32
Alúr	24·16

As regards soil, the district is divided into two distinct tracts, the regadi or black cotton soil, and the red (lal) and mixed (masub) soils. The proportions in which these two main classes of soil are found in the several taluks are specified in the margin. The figures are merely approximate; the only statistics available are those given in the ditwar accounts prepared in fasli 1268. Details for dry lands are exhibited in statement B. It will be seen that the eastern half of the district is chiefly black cotton soil, whilst the area of this description of soil is trifling in the four western taluks, viz., Hospet, Hadagali, Harpanahalli and Kúdligi. The accompanying map on which the two tracts are shown in distinctive colors roughly shows their situation.

	Regadi (black). Percentage.	Masub and Lal (mixed and red). Percentage.
Bellary	65	35
Ráyadrug	29	71
Hospet	4	96
Kúdligi	4	96
Hadagali	17	83
Harpanahalli	10	90
Alúr	84	16
Adóni	51	49

4. As the soil differs, so does the agricultural practice. The red soils are principally sown at the very commencement of the south-west monsoon towards the end of May or beginning of June, and the crop is harvested in September and October. This is called the mungari or early crop. A comparatively small area of black cotton soil is brought under cultivation for an early crop, as a rule only manured lands near the village being so cultivated. The early crop generally consists of cereals, such as

yellow cholum, cumbu and korra, oil-seeds of various descriptions and pulses, or cereals mixed with oil-seeds and pulses. Very little red soil land is reserved for a later crop termed hingari, but if the first crop should fail, a later crop is raised in some parts of the district, though in others this is not the practice, the ryots depending entirely on the early crop. When a later crop is sown on the red and mixed soils, it is almost invariably horse-gram which requires very little rain in its later stages and is matured by the heavy dew.

5. The bulk of the black cotton soil is brought under cultivation in August, September and October. Very heavy falls of rain are required for the preparation of the ground, if moistened to the depth of nearly a foot before sowing, but little rain is required afterwards as the soil retains the moisture like a sponge, and the crop during its later stages can be matured by light showers, and the heavy dews which are usually experienced after the north-east monsoon. The principal crops grown on black soils are cotton, korra and white cholum; pulses and oil-seeds are raised only to a minor extent. Cotton and korra are usually sown during the latter half of August or first half of September, after which white cholum is the approved grain to put down. Cotton is by far the most remunerative crop of the three, and the welfare of the ryot in the eastern taluks depends in a great measure on the cotton crop. From this brief account of the agricultural practice of the country, from which no ryot in the Ceded districts ever dreams of departing, it will be seen that the distribution of the rainfall is a matter of more vital importance than the total quantity registered. For the dry crops frequent showers during June, July and August, heavy downpours between the middle of August and middle of September, and moderate rain in October and November are most favorable to growth.

6. The above remarks refer to unprotected lands, the irrigated area in this district being insignificant. The supply under the channels led from the Tungabhadra and Hagari rivers is, generally speaking, ample; the supply from the tanks, on the other hand, is precarious owing to the great variance in the rainfall and has to be supplemented to a great extent from wells. In a year like the present the tanks may receive only a few days' supply all the year round, the two largest reservoirs in the district, viz., Daroji in Hospet and Kanekal in Ráyadrug, were empty at the time of the heavy rain of last week. The tank-filling rain is, however, usually received in October under the north-east monsoon. The area under channels and tanks, respectively, is marginally noted.* Very fair crops of paddy and sugar-cane are raised under these sources, whilst dry cereals (cholum, ragi and korra) and garden produce, such as chillies, tobacco and vegetables are harvested without fail under wells. The protected area compared to the total is, however, unfortunately insignificant. There are no accurate statistics regarding the area under wells. A statement D showing the extent cultivated under "wet" and "dry" from fasli 1277 to fasli 1293, exclusive of inams, is appended. The average prior to the last famine is 39,068 acres under wet and 1,321,496 acres under dry, whereas the average subsequently is only 29,856 and 982,867, respectively. The acreage under the principal food-grains is marginally noted.†

	Acres.
* Holdings under tanks	17,850
Do. do. channels	19,501
Details given in Statement C.	

† Ryotwar and inam, fasli 1293—	Acres.
Rice	26,099
Cholum	660,652
Ragi	26,310
Cumbu	75,571
Korra and thenay	270,362
Total ...	1,058,994
Out of total area of cultivation ...	1,567,564

7. As to the quality of the soil, the black cotton tract is exceedingly fertile, and whenever the rainfall is sufficient, the finest crops are raised on it. The Alúr taluk, which has suffered most frequently from deficient rainfall, is the richest of all in its soil, and although it too often presents the appearance of a barren desert, it only requires sufficient moisture to produce the most luxuriant crops. It will naturally suggest itself that this defect might be remedied by well irrigation, but there are two causes which operate to prevent any great extension of well irrigation in black cotton soils.

First, the great cost of construction owing to the underlying stratum of limestone, and the necessity for revetting the sides of the wells with stone to prevent their becoming speedily choked by the crumbling soil. *Second*, the bad quality of the subterranean water-supply which is generally brackish and unsuited for irrigation purposes. The ryots are deterred by the expense, the cost of a well in black soil being often as high as Rs. 1,000, and the uncertainly of obtaining sweet water from sinking wells. The only hope of improvement lies in a well-considered scheme of river irrigation to which I shall presently advert.

8. The prevailing quality of the red soils is good, there being some very rich lands in Adóni and Hospet; in the south-western portion of the district, comprising the Harpanahalli and Kúdligi taluks, the soil is poor, and there are extensive tracts of uncultivable waste. A statement (E) showing the area under each rate of assessment is submitted. The preponderance of the lowly-rated soils in Kúdligi, Harpanahalli, Hadagali and Ráyadrug is very marked. With reference to these figures, however, it must be observed that much of the best land in the district is very lightly assessed; the charge on a great deal of the black cotton and best red soils will probably be enhanced three or fourfold at the revision of settlement. Most of the lowly-rated red soil is, however, of very poor quality. This, of course, has an important bearing on the circumstances of the agricultural classes; the ryots where the poor soils prevail are undoubtedly much worse off than those where the quality is superior, and a cultivator of Alúr or Adóni is in a much better position to withstand a bad year than his fellow countryman in Kúdligi or Harpanahalli. The rent-roll of the district also throws some light on this point, and I enclose a statement (F) showing the average holdings for each taluk. Three-fourths of the farmers in Kúdligi and Harpanahalli pay less than Rs. 10 per annum, and can, therefore, hardly subsist on the produce of their farms alone. The ryot of the Bellary district is, as a rule, indigent; he lives frugally on cholum or korra, spends little or nothing on dress or ornaments for his female relations, and is generally in debt to the village sowcar. Flocks and herds constitute a large portion of the possessions of the agricultural classes. In the western taluks there are extensive tracts of waste and considerable flocks of sheep and goats are pastured thereon. The cumbly-weaving industry in this part of the country employs a large number. In Adóni and other places cotton-weaving is the occupation of a considerable section of the population, but few do more than earn a livelihood by this trade, which has been gradually declining everywhere owing to the competition of cheap European fabrics. An extract from the census schedules (G) is appended to show the classification of the population with reference to their principal occupations.

9. Of the bulk of the population, it may be said that they live from hand to mouth, and that they are dependent on daily wages for their support. When agricultural labor fails owing to deficient rainfall and scanty harvests, a large number earn a precarious livelihood by cutting and selling grass and firewood or migrate to more favored parts of the district, to the Nizam's dominions and Mysore in search of work. There is a limit, however, to the demand for grass and firewood, and in the black soil tract both are so scarce that it is difficult to earn a livelihood by this means for any length of time; moreover, when this district is affected, the surrounding country is generally in similar condition, and not in a position to support outsiders. Hence the necessity for providing special work for day laborers, inasmuch as the ordinary public works do not afford sufficient employment for all who must live by daily wages; the irrigation works are few, public buildings are unsuited for large bodies of unskilled laborers, and the ordinary road repairs are hindered by the want of water for consolidation of material.

10. One more point remains to be noticed in connection with the first question, viz., the extent to which this district has suffered from recurring periods of drought and successive bad years. At pages 77 to 80 of Kelsall's Manual will be found a statement showing the character of each year from 1800 to 1869. In 1803 there was scarcity amounting to famine; in 1823 famine was anticipated and relief works started; in 1832 both monsoons failed and the year was the "worst on record" up to that time; 1838 was "almost a famine year"; 1853 and 1854 were famine.

years; in 1865 there was anticipation of distress, which culminated in famine in the following year; besides these years of distress the season is described as unfavorable in no less than 24 years out of the series of 70. I continue below the record up to date :—

Fasli.	Rainfall.	Prevalence of disease.	Remarks.
1280	Good and seasonable	...	
1281	Early rains not seasonable ...	...	
1282	Season good	...	
1283	Failure of early rains	...	
1284	Abundant	...	
1285	Season unfavorable	Cholera ...	Dry remissions granted.
1286	Failure	Do. ...	Great famine; dry remissions granted; relief works opened.
1287	Unfavorable, being unseasonable	Do. ...	Dry remissions granted.
1288	Season favorable, but ryots were unable to take advantage of same	Do. ...	Early dry crops damaged by grasshoppers and later crops by rats.
1289	Fair	...	Effects of famine still felt.
1290	Favorable	...	
1291	Unfavorable both monsoons ...	...	Dry remissions granted.
1292	Favorable	...	
1293	Unfavorable both monsoons ...	...	
1294	Unfavorable	...	

Only eight years have elapsed since the last famine, and even during this short period there have been four bad seasons. Last year both monsoons failed, the early harvest being very scanty and the later crops a complete failure. This record is sufficient to show how seriously the resources of the ryots have been affected by a constant succession of adverse years. It is difficult to estimate the loss to Government and the ryots which has been sustained from this cause, but with my letter printed in Board's Proceedings, dated 11th March 1885, No. 810, I submitted a statement showing that there has been a loss of land revenue alone to the extent of three *lakhs of rupees annually* since the last famine, and whereas the receipts from this source exhibited a gradual improvement up to 1876; they have been absolutely stationary since. The figures given below, however, show that the loss is even greater, the average revenue for ten years prior to the famine being Rs. 14,42,420, and the average for the nine years since being Rs. 10,07,089, or a loss of Rs. 4,35,331 annually :—

Average from—	Rs.
Fasli 1274 to 1279	13,91,747
„ 1281 to 1286	14,54,992
„ 1289 to 1294	11,42,510

Fasli.	Collections. Rs.
1276	13,88,403
1277	13,93,219
1278	14,44,577
1279	14,50,945
1280	14,72,104
1281	14,06,570
1282	14,51,544
1283	14,57,060
1284	15,14,165
1285	14,45,620
Total ...	1,44,24,207
Or average ...	14,42,420

Fasli.	Collections. Rs.
1286	3,72,076
1287	12,39,601
1288	11,18,175
1289	11,19,657
1290	11,67,277
1291	10,52,985
1292	11,99,965
1293	11,72,667
1294	6,21,400
Total ...	90,63,803
Or average ...	10,07,089

The remissions on account of last fasli for each taluk are marginally noted, the demand as fixed at the jamabandi (annual settlement) was only Rs. 6,20,769, which has been taken as the revenue for the year, although the whole of it is not likely to be realized. Although this liberal treatment has enabled the land-owning classes to tide over the last year, stocks of grain are low, prices have been ruling very high for more than a year, and another failure of the harvest would necessarily be productive of great distress amongst the poorer classes, whose credit is exhausted.

	Rs.
Bellary	1,82,770
Ráyadrug	64,579
Hospet	22,292
Kúdligi	59,079
Hadagali	49,497
Harpanahalli	48,310
Alúr	1,60,987
Adóni	68,026
Total ...	6,55,550

11. *Secondly*, "*the crops affected and the extent to which they have suffered.*"—The description given above of the agricultural practice of the district indicates that the failure of the south-west monsoon has principally affected the mungari or early crop, the time for harvesting which is approaching. My monthly reports for July and August have given an account of the progress of the season, and it is unnecessary to go over the same ground. Since the middle of July the rainfall has been very scanty, and the early crops have been gradually withering until in many parts of the district they are past recovery. The recent heavy falls which commenced on the 14th September and have continued throughout the week will prove of inestimable benefit and there is room for hope that a considerable area will now yield some return. Had this rain fallen a fortnight ago the whole would probably have been saved and an average outturn have been secured. The harvest on the red soils will be even worse, I fear, than last year's, but the exact extent of the loss cannot be ascertained for a month or so. The taluks principally affected are those which chiefly consist of red soils, Hospet, Hadagali, Harpanahalli and Kúdligi; in Ráyadrug although red soil predominates, the season has been more propitious and the crops are not yet past hope in many parts of the taluk. In Bellary and Alúr the failure has been general, but these two taluks comprise a very large area of black cotton soil on which the hingari or later crop is grown, and the loss of the mungari consequently is not quite so serious. Adóni is the only taluk which has not suffered to any material extent, the rainfall up to date not having come very far short of the average. The recent falls have ensured a fair harvest.

12. As regards the black cotton soil, sowing has been retarded for want of sufficient moisture. A small area has been sown with korra and cotton, which is just springing up and looks well so far, but the bulk of the land has till now remained unsown. The recent rains are however just what is required for this description of cultivation. It is rather late for putting down cotton which is by far the most remunerative product, but as the last week has been so propitious cotton is likely to be largely planted and white cholum and Bengal gram can be sown even up to the latter part of November. If the north-east monsoon should prove but moderately propitious, there will be no cause for apprehension as regards this portion of the district.

13. *Thirdly*, "*the contingencies on which the probable duration of distress depends.*"—As I have already explained the tract which has so far suffered most is that depending mainly on the early crop. A second crop of gram may be put down here and there, but that will not compensate for the loss of the principal harvest, and in some parts the ryots will not make any attempt to cultivate again, their sole reason apparently being that it has not been the custom. In the southern parts of Anantapur which are similar in character, gram is widely grown when the first crop has proved a failure, but the ryots here will not try the experiment because their forefathers did not follow the practice. The harvest will be scanty, and there will be no agricultural operations till next May. Owing to the failure of last year's harvest stocks of grain are much reduced and the credit of the poorest classes is at a low ebb. It may therefore become necessary to find work for the people later in the year until agricultural operations are resumed. Some relief may be afforded by a temporary suspension of the collection of the revenue, a step which has already been sanctioned, and the opening of relief works should be deferred until it is seen whether the people can maintain themselves by work elsewhere or by obtaining supplies of grain on credit. A failure of the later crop which there is no reason to apprehend at present would be productive of similar results in the other taluks.

Hospet.	Harpanhalli.
Hadagali.	Kúdligi.

14. *Fourthly*, "*the position of the affected area as to local trade, food-supply and communications.*"—The district is well provided with means of communication, the main line of railway from Bombay to Madras traverses it from north to south, whilst the Southern Mahratta Railway connects it with Dharwar; food supplies can also be brought in by road from the Nizam's dominions on the other side of the Tungabhadra river and from Mysore. The principal towns and villages are connected by good metalled roads, of which 913 miles are kept in repairs. There are few districts which present greater facilities for distribution. Trade is active as is sufficiently evidenced by the imports of food-grains both by rail and road during the last twelve months since the district stocks fell low and high prices stimulated importation. Two statements (H) of imports of food-grains since September last by rail and road are appended. The totals are marginally noted.* As long as plentiful stocks are available elsewhere, there is no reason to apprehend any lack of food, nor do I anticipate any approach to scarcity rates unless at any time failure of harvests should be widespread, as competition will tend to keep down prices. The highest quotations at any period of the last twelve months are compared below with what are termed scarcity rates, showing that during the time of pressure there was always a considerable margin :—

—	Rice.	Cholum.	Ragi.	Cumbu.
	TONS.	TONS.	TONS.	TONS.
By rail ...	4,459	3,683	1,623	302
By road ...	472	3,780	830	1
Total ...	4,931	7,463	2,453	303

—	Rice.	Cholum.	Ragi.	Cumbu.
	SEERS.	SEERS.	SEERS.	SEERS.
Scarcity rates	9·5	13·5	14·5	13·
Highest quotation during last twelve months ..	12·18	17·82	22·65	17·59
Present prices	12·45	21·41	25·30	20·20

The effect of the recent change in the season was an immediate fall of about three seers in the staple food-grain, cholum; there had been a considerable advance in the previous week, and the sudden decline shows that the grain merchants consider that the prospects of the harvest have materially improved.

Prices at Head-quarters.

—	Rice.	White cholum.	Ragi.	Cumbu.
5th September...	12·96	21·63	24·57	21·93
10th do.	12·96	19·57	23·28	20·90
12th do.	12·60	18·88	22·63	20·68
17th do.	12·42	23·18	23·28	21·62
19th do.	12·78	23·52	23·93	22·25

15. I now turn to the consideration of IV (*a*). Information is required as to "the relief works which may in case of need be made available." Although I am only required to submit a list of *civil agency works* as defined in section 21 of the Famine Code, I venture to draw attention to the following remarks made in my letter of the 29th December last, No. 3560, printed in G.O., dated 10th January 1885, No. 29, as to the kind of work which is best suited to the requirements of this district—

"What is wanted is the scheme of some magnitude which will afford employment to a large number of unskilled laborers for a considerable time; it should be accessible to the population of the affected area, but if possible at a sufficient distance from the homes of the majority to make resort to the work a test of the necessity for providing labor, and last, but not least, it should be a work which will render some return hereafter, or at any rate prove a lasting benefit to the people of the neighbourhood instead of being merely a source of expense without any corresponding advantage. These conditions are satisfied by hardly any of the works proposed; those entered in the local fund lists fall under the three heads of (*a*) construction and repair of roads, (*b*) improvement of village-sites, and (*c*) improvement of water-supply. As to the first class although mere metalled roads would no doubt be useful in the black cotton soil tract, and, if absolutely necessary, a large number can be employed in this manner in the Alúr and Bellary taluks where employment is chiefly required at present, I am doubtful whether it is a good policy to spend any more money in this way. The Board can with difficulty maintain the roads already opened, and the proportion of the funds available for repair of roads is likely to be curtailed when the new Act is introduced, as the heads of service dependent on the general fund have hitherto received an insufficient share of the assets. Another forcible objection to this description of work is that in a season of drought like the present when water is not available within a reasonable distance for the consolidation of the material, the cost must necessarily be much greater than it ordinarily would be.

As regards second and third classes they are mostly petty works which would not afford employment for more than a few days, and in the case of improvements to wells and tanks, especially on black cotton soil, it will generally be found that the work is too hard for unskilled labor, and that wudders must be employed. Even when the nature of the work is suitable, I do not consider it at all advisable to start works in the immediate vicinity of each village at the present juncture. Such employment should be reserved for a later stage when the cultivation season is approaching, and it is desirable to provide labor for the ryots in the vicinity of their homes. At present there is no necessity for keeping them near the villages as there would be no cultivation operations for the next five months and the distance to which they will go for employment will be a test of their necessity. If works are started too near their homes numbers will flock to them who are not in such need as to induce them to go to any distance. Moreover, a large number of petty scattered works cannot be properly supervised, and much of the money will be wasted. For proper supervision there must be concentration of labor and a large scheme is required."

16. The list of professional agency works contains only three schemes, two of which apparently, the Hagari-Ráyadrug project and the formation of a tank in the Sondur valley, are not likely to be seriously considered. The Tungabhadra project has however been frequently advocated, and as it has recently been re-investigated and might, I understand, be put in hand in case of need without any great delay I venture to bring it forward again and respectfully to urge a reconsideration of the decision arrived at in G.O., dated 26th January 1885, No. 108, Revenue Department. The value of some large scheme of irrigation to this district would be inestimable, and the superiority of the Tungabhadra scheme as compared with other projects was admitted in G.O., dated 20th August 1866, No. 2606, Department of Public Works. The advantages likely to be derived from this scheme are very fully set forth in Mr. Wedderburn's letter, printed in Board's Proceedings, dated 31st July 1866, No. 5243, and 6th January

1877, No. 60, and as they have been admitted by both the Board and Government, I need not recapitulate them.

17. The objections which have been raised are, I believe, the following:—
(*a*) That the project will not be remunerative.
(*b*) That the water is not likely to be utilized for the black cotton soils.
(*c*) That it is doubtful whether the water-supply will suffice without prejudice to the Kurnool canal and Kistna works.

The scheme as originally designed was estimated to cost 100 lakhs of rupees which would require a return of four lakhs per annum according to the standard for productive works. Viewed from this stand point it may readily be conceded that the work is not likely to pay *directly* for a long time to come, but the indirect advantages have also to be taken into consideration. The cost of the famine of 1854 was estimated by Mr. Wedderburn (*vide* his letter, dated 25th July 1866, in Board's Proceedings, dated 31st July 1866) at nearly 200,000 pounds sterling, besides the loss to the people of their cattle and crops which was set down as "probably not under half a million sterling." There have been two famines since, in 1866 and 1876-77. The cost of the former I have not been able to ascertain. As regards the latter I submit a statement (J) exhibiting the *total cost to Government* under relief works, gratuitous relief, establishment, and advances of different kinds, much of which is irrecoverable. The totals are marginally noted * as well as the highest numbers on relief at any time. Nearly the whole population came on relief and the total outlay was at least 95 lakhs † —very little short of the cost of a project which would have contributed in no small measure to avert famine from a portion of the district at least. I have shown moreover that apart from the expenditure *directly* incurred during the last famine on relief, there has been a decrease of land revenue to the amount of $4\frac{1}{3}$ lakhs per annum during the last nine years; similarly under abkári there was a loss of $4\frac{1}{2}$ lakhs by resale of farms and remissions; other branches of revenue must also have suffered in the same way, owing to the loss of population and diminution in the material wealth of the people, so that if all the loss resulting to the State from the ever-recurring bad seasons in the shape of State relief, remissions, loss of revenue under different heads, &c., could be ascertained, they would amount to an enormous total, apart from the loss to the ryots, which is incalculable.

	Rs.
* Relief works	66,83,783
Gratuitous relief	18,54,231
Establishment	5,70,828
Tuccavy advances	2,53,714
Advances to weavers	1,98,914
Do. for seed-grain	94,620
Total ...	96,56,090
Number on relief	6,59,187

† The item establishment relates to the Bellary district as then constituted, that is, inclusive of the present district of Anantapur, taluk-war details under this head not being available.

18. There are other incidental advantages which have also to be taken into consideration. The extension of irrigation by creating a more humid atmosphere would tend to increase the rainfall; prices of grain and fodder would fall and the cost to Government in connection with the maintenance of the large force at Bellary would be reduced (*vide* statistics furnished in Board's Proceedings, dated 30th August 1866, No. 6190), whilst the water-supply of the cantonment and town, which is now so precarious, would be assured.

I think it is reasonable that all these indirect benefits should be weighed, and that the scheme should not be judged solely with reference to its value as a productive work of irrigation. If a less ambitious design which will secure to a great extent the advantages of the larger project can be carried out at a cost of only 50 lakhs as recent investigation has, I understand, shown to be likely, the interest on the outlay will only be two lakhs of rupees, and a considerable portion of this, if not eventually the whole, will be recovered by extension of irrigation.

19. It is admitted that the selection of suitable works within the Bellary district for the employment of relief labor is matter of no ordinary difficulty. The Chief Engineer in his note embodied in G.O., dated 20th January 1885, No. 108, Revenue Department, states that after a careful consideration he can only suggest the following, and that none of them is calculated to give long employment to a large body of laborers.

(1) *The earthwork on the Guntakul-Hindupur line.*—The earthwork has, I believe, been nearly completed as far as Penukonda; this work, if re-opened, will no longer serve the Bellary district, as it is too distant.

(2) *The proposed railway feeder roads, ten in number.*—These vary from $1\frac{1}{2}$ miles to 8 miles in length, and would be finished in a few days. As to roads elsewhere the district has already more metalled roads than the district board can afford to maintain, and several of the roads constructed during the last famine at vast expense have never been completed and are not kept up. All that there is to show for 19 lakhs of expenditure in the Adóni taluk is some 19 miles of road with a gap of 3 or 4 miles in the centre which renders the whole road useless, the soil being black cotton and impassable in wet weather, when alone a metalled road is required. The cost was therefore about a lakh a mile. I respectfully submit that, if a vast expenditure is to be incurred in providing work for the people, it may just as well be laid out in excavating a channel even though it may "mean digging a hole to be gradually filled up by weather" in the words of the Chief Engineer for Irrigation. The channel cannot be more useless than the roads, and it is certainly better suited for a relief work as it is easier to supervise the coolies, and water, which is non-existent for miles here, is needed for making roads properly.

(3) *The deepening of the Bellary, Adóni and other tanks.*—As the tanks in this district seldom or ever receive a full supply, increasing their capacity would not be a work of utility, and would, in fact, amount to "digging holes" for the sake of employing labor. I have already in my letter, dated 2nd February 1885, No. 27, reported that it would be useless to deepen the Bellary tank unless the supply to it can be supplemented, as it has not been known to discharge over the calingula oftener than once or twice in a long series of years, and the Superintending Engineer has stated that no increase of supply can be secured from existing sources. The same objection applies to the deepening of other reservoirs in the district. I submit, therefore, that, looking to the extreme difficulty of finding any useful work for relief purposes, the question of undertaking a project like the Tungabhadra canal must not be judged solely with reference to its proving a directly remunerative investment.

20. The second argument against the construction of the canal is that the water is not likely to be utilized for the irrigation of the black cotton soils, except occasionally in years of deficient rainfall. The experience of the Kurnool canal has been adduced in support of this position, but the circumstances are not analogous, for it has been shown that the ill-success of the Irrigation Company's canal was due principally to the causes enumerated in the margin rather than to the unsuitability of the soil for irrigation. The reluctance of the ryots to take the water in Kurnool was owing in a great measure to the fact that the rainfall of the country through which the canal passes is generally ample to ensure abundant harvests without irrigation. The question of irrigating black cotton soils was thoroughly discussed in connection with the Kistna works some years ago, and it was shown that the ryots will irrigate black cotton soil if it is to their interest to do so.

1. Excessive cost of construction.
2. Faulty alignment.
3. Maladministration.
4. Illiberality in the charge for water.
5. Uncertainty of supply.
6. Sparseness of population.
7. Want of communications and absence of local markets for rice.
8. Ignorance of the methods of wet cultivation.

Vide Mr. Lister's report embodied in Board's Proceedings, dated 21st May 1879, No. 1370.
Report of Committee printed in Board's Proceedings, dated 27th March 1882, No. 896.
Chapter VIII, Appendix V, to the report of the Famine Commission.
Vide the Honorable Mr. Master's report embodied in G.O., dated 21st August 1872, No. 1239.

As a matter of fact much of the land that is irrigated in this district, for instance whole of the ayacut under the large Kanekal * tank in Ráyadrug, is regadi soil. It must be borne in mind that irrigation entails considerable initial outlay and a continuance of more expensive cultivation, whereas with a moderate rainfall crops which are sufficiently remunerative to satisfy the ryot can be obtained without irrigation. The rainfall in the country traversed by the Kurnool canal is, I believe, ordinarily heavier and more regular than it is in Bellary, and for a long time at least no attempt was made to encourage extension of irrigation by offering water on easy terms. Looking to the causes of the failure of the enterprise, the result cannot be taken as indicating that a properly conducted system of irrigation in Bellary will meet with the same want of success. Here the rainfall is very precarious, and if sufficient inducements are offered to the ryot to change his methods, he will, I think, readily avail himself of the water. The conditions which the Honorable Mr. Sullivan in his minute printed at page 64 of Appendix V to the report of the Famine Commission indicates as essential for successful artificial irrigation are here present. The substratum is limestone, and there is therefore drainage to prevent water logging, the people understand this mode of cultivation, are possessed of sufficient means to avail themselves of it, and there is a large local demand for the produce so raised, as witness the very considerable and continuous importations of rice into the district. The rice grown in Hospet is of superior quality and commands a high price, whilst sugar-cane is largely grown wherever irrigation is available.

	Circar and Inam.
	ACS.
Ayacut	2,113
Cultivation	1,404

21. The third objection can be obviated by storing the water in reservoirs which has always been part of the scheme. During the freshes in the Tungabhadra river a large volume of water which might be utilized in this way without detriment to the irrigation lower down is vasted, and if the capacity of the Daroji tank can safely be increased, the construction of new reservoirs may perhaps be dispensed with.

22. The importance of the question in the interests of this district will, I trust, be accepted as sufficient excuse for re-opening the subject notwithstanding that the professional advisers of Government have expressed an opinion adverse to the scheme.

23. As regards civil agency works, schedules of works proposed were forwarded with my letter embodied in G.O., dated 10th January 1885, No. 29, and have been accepted as constituting the district programme prescribed by Section 28 of the Famine Code. These lists were drawn up before I joined the district; they contain a number of petty works which I would not put in hand, except in the last resort, as the execution of numerous small works must lead to extravagant expenditure. Estimates for the most important of them have been under preparation for some months past, and I submit a list (K) of those which are ready for execution or can be put in hand as soon as the estimates are received. The Executive Engineer has still to furnish estimate for twenty works, but owing to the withdrawal of the special staff sanctioned for their preparation in accordance with G.O., dated 8th July, No. 333-E, he is unable to complete them. As the estimates still due are for tanks in the Kúdligi, Hadagali, Harpanahalli and Hospet taluks, where employment is likely to be first needed, under present circumstances, and the works are chiefly civil agency, the necessary assistance can, I think, be given in the Revenue Department under the authority of G.O., dated 27th July 1885, No. 1124, Financial. I have informed the Executive Engineer accordingly. The list submitted comprises all the agricultural repairs that appear to be suitable for the employment of unskilled labor. If other works are required and no large project is available, it will be absolutely necessary to fall back upon road-making, however useless such work is likely to be. Three surveyors are at present engaged in the preparation of estimates for roads in the western taluks. For Bellary, Alúr and Adóni sufficient sanctioned estimates are ready for a commencement whenever necessity may arise. They comprise the most important lines which have been proposed; other minor lines can be taken up afterwards if necessary.

24. The second part of IV (*a*) requires submission of "a rough estimate of the maximum number of people for which, in the event of scarcity becoming famine, relief might be required, and the number which will be provided for by the relief works of which a list is given." There are no data, however, on which such an estimate can

be framed at present with any pretence to accuracy. Unless the failure of crop extends to other districts, I anticipate merely a continuance of the high prices which have ruled for the last year, and there is no danger of scarcity becoming famine. Prices have not yet approached to scarcity rates and have not been so high as to cause distress to those who have regular employment; hitherto the poorer ryots and those who live by field labor have been the classes principally affected. Owing to the failure of the harvest last year the majority of those who depend on agriculture for their subsistence have no stocks of grain to fall back upon, and their means of obtaining a livelihood have been curtailed this year also. So far the failure principally affects the western taluks in which it may perhaps become necessary to open some works later on and to maintain them until the next cultivating season commences. If the later crop should also fail, it might become necessary to provide work throughout the district, but distress may be averted to a considerable extent by a plentiful later harvest. Assuming that one-fifth of the agricultural classes may, under certain contingencies, have to be provided with work by the State, the maximum number for each taluk will stand as marginally noted. Of course this estimate is a mere guess, but as far as I can judge at present it may be taken as an approximation. For the western taluks of Hospet, Kúdligi, Hadagali and Harpanahalli only one estimate under the head "Agricultural repairs" has been received as yet. The others will probably amount to about Rs. 20,000. Estimates of road repairs will be framed as speedily as possible. The provision for the eastern taluks is in a more forward state because it was anticipated early in the year that the need would first arise in that direction. The value of the estimates for tanks is Rs. 27,061 and for roads Rs. 2,61,080. At the rate of ten coolies per diem for a rupee, this sum will suffice for about 32,000 people for three months, which will meet requirements for the present.

	Rs.
Bellary	9,347
Ráyadrug	7,556
Hospet	7,160
Kúdligi	8,607
Hadagali	5,830
Harpanahalli	7,591
Adóni	7,475
Alúr	5,739
Total ...	59,305

Enclosures Nos. 1 to 13.—Statements.

Enclosure No. 14.—Map.

Resolution—dated 12th October 1885, No. 2844.

Submitted for the orders of Government.

2. The Collector's very full report shows that the people in general are in a low economical condition, that the rainfall is very precarious and seasons frequently adverse, that well irrigation is attended with difficulties, while the irrigated area generally is insignificant. It is also clear that in Bellary it is very difficult to find useful work for large bodies of laborers.

3. It is observed that the sum of the losses of revenue by bad seasons during only the past ten or twelve years, and of the expenditure on recent famine relief, would probably have more than paid the cost of carrying out the Tungabhadra channel project, the execution of which, whether as a relief work or as a valuable district improvement, the Collector so strongly urges. The Board suggest that a reconsideration of the question is worthy the attention of Government.

(A true Copy and Extract.)

(Signed) F. A. NICHOLSON,
Acting Secretary.

To the Secretary to Government, Revenue Department,
with fourteen enclosures.

Copy to the Collector of Bellary.
" " Director of Revenue Settlement and Agriculture,
with copy of Board's Procs., No. 2232, of 31st July 1885.

Read—the following G.O., dated 3rd November 1885, No. 2579 W., Public Works :—

Read—the following letter from the Superintending Engineer, III Circle, to the Secretary to Government, Public Works Department, dated 22nd October 1885, No. 1550 :—

With reference to your endorsement, No. 702-E., dated 5th October 1885, I have the honor to submit revised lists of relief works showing only those works which are likely to be carried out by "professional agency."

2. These works cannot be strictly called "class A" works as defined in section 18 of the Famine Code, for neither have the estimates been sanctioned nor do the works appear in the budgets.

3. List I shows estimates lately prepared for removing silt from beds of imperial tanks in the Anantapur district agreeably to G.O., No. 126 I., dated 10th February 1885. The Collector has been requested to submit them for the orders of Government. The outlay proposed is heavy, and it seems to me that the estimates cannot be sanctioned by me.

4. List II shows works alluded to in the Government Order noted in the margin. These works are considered suitable in case of necessity arising for relief measures on a large scale, but no estimate for any of them has yet been sanctioned. In fact the projects need re-investigation and revision.

G.O., No. 3027, of 29th September 1877, in the Revenue Department.
Irrigation Chief Engineer's printed list showing irrigation and connected works available for employment of famine labor in each district.

5. The "Tungabhadra project" entered in the list is the modified project now under investigation by the C. Project division to bring a supply of water into Bellary at a considerably reduced cost. It is thought that this project would be useful as a relief work; hence it has been included in the list.

Enclosures.

I.—Statement showing Irrigation Works available for the Employment of Famine Labor.

Name of Work.	Estimated Cost.	Number of Laborers that can be employed on Project.	Number of Months.
Anantapur District.	Rs.		
Madigubba tank	33,780	2,400	23
Singanamala tank	2,10,250	15,660	23
Cummoor tank	73,230	5,400	30
Bramanayacheruvu tank	2,10,852	14,800	3
Raptad tank	62,015	4,500	5
Purghee tank	9,60,356	73,500	146
Harrasamudram tank	2,09,080	15,600	56
Gooty tank	* 10,375	100	3
Gooty tank	2,35,068	17,400	36
Mallianoor tank	2,01,990	15,000	3
Kumbadoor tank	2,80,547	20,000	3
Mulakaladu tank	2,94,150	22,000	3
Anantapur tank	4,96,175	36,000	3
Agali tank	2,23,256	16,700	3
Amrapuram tank	2,02,000	15,000	3
Murabagula tank	37,800	28,000	3
Dundanaripally tank	5,000	† 400	3
Salacunchervoo tank	60,833	4,400	3
Marvapally Agraharam tank	1,62,422	12,000	3
Royalcheruvu tank	2,15,200	16,000	3

* For repairs to bund, &c. † For repairs.

II.—Statement showing Irrigation Works available for the Employment of Famine Labor.

District.	Name of Work.	Amount of Estimate. Earth-work.	Other works.	Total.	Number of Coolies that can be employed.	Probable time required to complete Earth-work.	Remarks.
		Rs.	Rs.	Rs.		Months.	
Anantapur..	Bookacherla Project.	13,98,560	1,96,440	15,95,000	30,000	18	The channel from the anicut, 18 miles in length, would run through a rough rocky country. The main channel is designed to carry 3,750 cubic feet a second. The project is for feeding Bookacherla tank in the Dharmaveram taluk and the Singanamalla and Anantapur tanks from the Pennér. Further details will be found recorded in the Irrigation Chief Engineer's printed list of works available for employment of famine labor. But the project as regards most details would need revision.
Do. ..	Hindupur Project.	1,10,200	58,850	1,69,050	10,000	4	The project provides for constructing an anicut across the Pennér river for the supply of eleven tanks with head-sluices and channels. The district having very little irrigation, the work would be of value as a relief work. Plans and estimates were prepared many years ago, but the project will probably need revision.
Do. ..	Roddum Project.	48,280	54,940	1,03,220	4,500	4	The project provides for an anicut across the Pennér to supply Roddum large tank.
Do. ..	Pootholacuntah Project.	12,000	4,000	16,000	2,250	2	It is intended to store water for irrigating 600 acres of land.
Bellary ..	Tungabhadra Channel.	12,00,000	18,00,000	30,00,000	50,000	18	The cost of the work was estimated by the officers of the late Irrigation and Canal Company at Rs. 1,43,88,000. The project is now being re-investigated by the C. Project division in order to see if water can be brought to Bellary for a more reasonable sum by reducing the dimensions of the canal, by omitting reservoirs altogether and depending entirely upon the river, by altering the line of canal, and by designing cheaper masonry works. It is presumed that the cost of the modified project will only be one-third the estimated cost of the original project, and it is this revised project which is recommended for execution as a relief work.

Bellary,
22nd October 1885.

(Signed) H. M. VIBART, Lieut.-Col., R.E.,
Superintending Engineer, III Circle.

Order—dated 3rd November 1885, No. 2579 W., Public Works.

Communicated to the Revenue Department with advertence to Proceedings in that department, No. 5236, dated 28th September 1885.

(True Extract.)

(Signed) D. McN. CAMPBELL, Captain, R.E.,
Under Secretary to Govt., P.W.D.

To the Revenue Department.

ORDER—dated 30th November 1885, No. 1327, Revenue.

Irrigation, No. 28.

The foregoing papers furnish, as regards the Bellary district, the information called for by the Government of India under Nos. IV (*a*) and IV (*b*) of the rules circulated with their letter, No. 90 F., dated 23rd June 1885, embodied in G.O., No. 837, dated 17th July 1885.

2. Similar information called for from the Collector regarding the Anantapur district has not yet been submitted and should be expedited.

3. The lists furnished by the Public Works Department embrace works in the Anantapur district also, and those specified in list No. I appear to be, for the most part, the same as those dealt with in G.O., No. 1208, dated 2nd November 1885.

4. It is observed that for most of the works in the lists now received no estimates have been prepared.

5. The information collected under rules IV (*a*) and IV (*b*) was intended for incorporation in the special monthly reports to the Government of India on the agricultural prospects of the affected districts. The recent abundant falls of rain in Bellary and Anantapur have, however, rendered these monthly reports unnecessary, and the Government of India have sanctioned their discontinuance. Nevertheless the report from Bellary and the lists of works furnished by the Collector and the Public Works Department will be communicated to the Government of India for record.

6. The remarks of the Collector and the Board of Revenue regarding the Tungabhadra project will be referred to the Public Works Department for consideration. Attention is directed to paragraphs 17 and 18 of Mr. Galton's letter and paragraph 3 of the Board's resolution. It is observed that a limited project to convey water from the Tungabhadra into the Bellary town is the only professional agency work for the district entered in the lists.

(True Extract.)

Ag. Secretary to Government.

To the Board of Revenue, with fourteen enclosures returned.
„ the Public Works Department, Irrigation Branch.

No. 1327-A.

Copy to the Government of India, Revenue and Agricultural Department.

(Signed) J. F. PRICE,
Ag. Secretary to Government.

Exd. J. W. Fisher.

120 Copies.

yellow cholum, cumbu and korra, oil-seeds of various descriptions and pulses, or cereals mixed with oil-seeds and pulses. Very little red soil land is reserved for a later crop termed hingari, but if the first crop should fail, a later crop is raised in some parts of the district, though in others this is not the practice, the ryots depending entirely on the early crop. When a later crop is sown on the red and mixed soils, it is almost invariably horse-gram which requires very little rain in its later stages and is matured by the heavy dew.

5. The bulk of the black cotton soil is brought under cultivation in August, September and October. Very heavy falls of rain are required for the preparation of the ground, if moistened to the depth of nearly a foot before sowing, but little rain is required afterwards as the soil retains the moisture like a sponge, and the crop during its later stages can be matured by light showers, and the heavy dews which are usually experienced after the north-east monsoon. The principal crops grown on black soils are cotton, korra and white cholum; pulses and oil-seeds are raised only to a minor extent. Cotton and korra are usually sown during the latter half of August or first half of September, after which white cholum is the approved grain to put down. Cotton is by far the most remunerative crop of the three, and the welfare of the ryot in the eastern taluks depends in a great measure on the cotton crop. From this brief account of the agricultural practice of the country, from which no ryot in the Ceded districts ever dreams of departing, it will be seen that the distribution of the rainfall is a matter of more vital importance than the total quantity registered. For the dry crops frequent showers during June, July and August, heavy downpours between the middle of August and middle of September, and moderate rain in October and November are most favorable to growth.

6. The above remarks refer to unprotected lands, the irrigated area in this district being insignificant. The supply under the channels led from the Tungabhadra and Hagari rivers is, generally speaking, ample; the supply from the tanks, on the other hand, is precarious owing to the great variance in the rainfall and has to be supplemented to a great extent from wells. In a year like the present the tanks may receive only a few days' supply all the year round, the two largest reservoirs in the district, viz., Daroji in Hospet and Kanekal in Ráyadrug, were empty at the time of the heavy rain of last week. The tank-filling rain is, however, usually received in October under the north-east monsoon. The area under channels and tanks, respectively, is marginally noted.* Very fair crops of paddy and sugar-cane are raised under these sources, whilst dry cereals (cholum, ragi and korra) and garden produce, such as chillies, tobacco and vegetables are harvested without fail under wells. The protected area compared to the total is, however, unfortunately insignificant. There are no accurate statistics regarding the area under wells. A statement D showing the extent cultivated under "wet" and "dry" from fasli 1277 to fasli 1293, exclusive of inams, is appended. The average prior to the last famine is 39,068 acres under wet and 1,321,496 acres under dry, whereas the average subsequently is only 29,856 and 982,867, respectively. The acreage under the principal food-grains is marginally noted.†

	ACRES.
* Holdings under tanks	17,850
Do. do. channels	19,501
Details given in Statement C.	

† Ryotwar and inam, fasli 1293—	ACRES.
Rice	26,099
Cholum	660,652
Ragi	26,310
Cumbu	75,571
Korra and thenay	270,362
Total ...	1,058,994
Out of total area of cultivation ...	1,567,564

7. As to the quality of the soil, the black cotton tract is exceedingly fertile, and whenever the rainfall is sufficient, the finest crops are raised on it. The Alúr taluk, which has suffered most frequently from deficient rainfall, is the richest of all in its soil, and although it too often presents the appearance of a barren desert, it only requires sufficient moisture to produce the most luxuriant crops. It will naturally suggest itself that this defect might be remedied by well irrigation, but there are two causes which operate to prevent any great extension of well irrigation in black cotton soils.

First, the great cost of construction owing to the underlying stratum of limestone, and the necessity for revetting the sides of the wells with stone to prevent their becoming speedily choked by the crumbling soil. *Second*, the bad quality of the subterranean water-supply which is generally brackish and unsuited for irrigation purposes. The ryots are deterred by the expense, the cost of a well in black soil being often as high as Rs. 1,000, and the uncertainly of obtaining sweet water from sinking wells. The only hope of improvement lies in a well-considered scheme of river irrigation to which I shall presently advert.

8. The prevailing quality of the red soils is good, there being some very rich lands in Adóni and Hospet; in the south-western portion of the district, comprising the Harpanahalli and Kúdligi taluks, the soil is poor, and there are extensive tracts of uncultivable waste. A statement (E) showing the area under each rate of assessment is submitted. The preponderance of the lowly-rated soils in Kúdligi, Harpanahalli, Hadagali and Ráyadrug is very marked. With reference to these figures, however, it must be observed that much of the best land in the district is very lightly assessed; the charge on a great deal of the black cotton and best red soils will probably be enhanced three or fourfold at the revision of settlement. Most of the lowly-rated red soil is, however, of very poor quality. This, of course, has an important bearing on the circumstances of the agricultural classes; the ryots where the poor soils prevail are undoubtedly much worse off than those where the quality is superior, and a cultivator of Alúr or Adóni is in a much better position to withstand a bad year than his fellow countryman in Kúdligi or Harpanahalli. The rent-roll of the district also throws some light on this point, and I enclose a statement (F) showing the average holdings for each taluk. Three-fourths of the farmers in Kúdligi and Harpanahalli pay less than Rs. 10 per annum, and can, therefore, hardly subsist on the produce of their farms alone. The ryot of the Bellary district is, as a rule, indigent; he lives frugally on cholum or korra, spends little or nothing on dress or ornaments for his female relations, and is generally in debt to the village sowcar. Flocks and herds constitute a large portion of the possessions of the agricultural classes. In the western taluks there are extensive tracts of waste and considerable flocks of sheep and goats are pastured thereon. The cumbly-weaving industry in this part of the country employs a large number. In Adóni and other places cotton-weaving is the occupation of a considerable section of the population, but few do more than earn a livelihood by this trade, which has been gradually declining everywhere owing to the competition of cheap European fabrics. An extract from the census schedules (G) is appended to show the classification of the population with reference to their principal occupations.

9. Of the bulk of the population, it may be said that they live from hand to mouth, and that they are dependent on daily wages for their support. When agricultural labor fails owing to deficient rainfall and scanty harvests, a large number earn a precarious livelihood by cutting and selling grass and firewood or migrate to more favored parts of the district, to the Nizam's dominions and Mysore in search of work. There is a limit, however, to the demand for grass and firewood, and in the black soil tract both are so scarce that it is difficult to earn a livelihood by this means for any length of time; moreover, when this district is affected, the surrounding country is generally in similar condition, and not in a position to support outsiders. Hence the necessity for providing special work for day laborers, inasmuch as the ordinary public works do not afford sufficient employment for all who must live by daily wages; the irrigation works are few, public buildings are unsuited for large bodies of unskilled laborers, and the ordinary road repairs are hindered by the want of water for consolidation of material.

10. One more point remains to be noticed in connection with the first question, viz., the extent to which this district has suffered from recurring periods of drought and successive bad years. At pages 77 to 80 of Kelsall's Manual will be found a statement showing the character of each year from 1800 to 1869. In 1803 there was scarcity amounting to famine; in 1823 famine was anticipated and relief works started; in 1832 both monsoons failed and the year was the "worst on record" up to that time; 1838 was "almost a famine year"; 1853 and 1854 were famine

13. *Thirdly*, "*the contingencies on which the probable duration of distress depends*"—As I have already explained the tract which has so far suffered most is that depending mainly on the early crop. A second crop of gram may be put down here and there, but that will not compensate for the loss of the principal harvest, and in some parts the ryots will not make any attempt to cultivate again, their sole reason apparently being that it has not been the custom. In the southern parts of Anantapur which are similar in character, gram is widely grown when the first crop has proved a failure, but the ryots here will not try the experiment because their forefathers did not follow the practice. The harvest will be scanty, and there will be no agricultural operations till next May. Owing to the failure of last year's harvest stocks of grain are much reduced and the credit of the poorest classes is at a low ebb. It may therefore become necessary to find work for the people later in the year until agricultural operations are resumed. Some relief may be afforded by a temporary suspension of the collection of the revenue, a step which has already been sanctioned, and the opening of relief works should be deferred until it is seen whether the people can maintain themselves by work elsewhere or by obtaining supplies of grain on credit. A failure of the later crop which there is no reason to apprehend at present would be productive of similar results in the other taluks.

Hospet.	Harpanhalli.
Hadagali.	Kúdligi.

14. *Fourthly*, "*the position of the affected area as to local trade, food-supply and communications.*"—The district is well provided with means of communication, the main line of railway from Bombay to Madras traverses it from north to south, whilst the Southern Mahratta Railway connects it with Dharwar; food supplies can also be brought in by road from the Nizam's dominions on the other side of the Tungabhadra river and from Mysore. The principal towns and villages are connected by good metalled roads, of which 913 miles are kept in repairs. There are few districts which present greater facilities for distribution. Trade is active as is sufficiently evidenced by the imports of food-grains both by rail and road during the last twelve months since the district stocks fell low and high prices stimulated importation. Two statements (H) of imports of food-grains since September last by rail and road are appended. The totals are marginally noted.* As long as plentiful stocks are available elsewhere, there is no reason to apprehend any lack of food, nor do I anticipate any approach to scarcity rates unless at any time failure of harvests should be widespread, as competition will tend to keep down prices. The highest quotations at any period of the last twelve months are compared below with what are termed scarcity rates, showing that during the time of pressure there was always a considerable margin :—

—	Rice.	Cholum.	Ragi.	Cumbu.
	TONS.	TONS.	TONS.	TONS.
By rail ...	4,459	3,683	1,623	302
By road ...	472	3,780	830	1
Total ...	4,931	7,463	2,453	303

—	Rice.	Cholum.	Ragi.	Cumbu.
	SEERS.	SEERS.	SEERS.	SEERS.
Scarcity rates	9·5	13·5	14·5	13·
Highest quotation during last twelve months .	12·18	17·82	22·65	17·59
Present prices	12·45	21·41	25·30	20·20

The effect of the recent change in the season was an immediate fall of about three seers in the staple food-grain, cholum; there had been a considerable advance in the previous week, and the sudden decline shows that the grain merchants consider that the prospects of the harvest have materially improved.

Prices at Head-quarters.

—	Rice.	White cholum.	Ragi.	Cumbu.
5th September...	12·96	21·63	24·57	21·93
10th do.	12·96	19·57	23·28	20·90
12th do.	12·60	18·88	22·63	20·68
17th do.	12·42	23·18	23·28	21·62
19th do. ...	12·78	23·52	23·93	22·25

15. I now turn to the consideration of IV (*a*). Information is required as to "the relief works which may in case of need be made available." Although I am only required to submit a list of *civil agency works* as defined in section 21 of the Famine Code, I venture to draw attention to the following remarks made in my letter of the 29th December last, No. 3560, printed in G.O., dated 10th January 1885, No. 29, as to the kind of work which is best suited to the requirements of this district—

"What is wanted is the scheme of some magnitude which will afford employment to a large number of unskilled laborers for a considerable time; it should be accessible to the population of the affected area, but if possible at a sufficient distance from the homes of the majority to make resort to the work a test of the necessity for providing labor, and last, but not least, it should be a work which will render some return hereafter, or at any rate prove a lasting benefit to the people of the neighbourhood instead of being merely a source of expense without any corresponding advantage. These conditions are satisfied by hardly any of the works proposed; those entered in the local fund lists fall under the three heads of (*a*) construction and repair of roads, (*b*) improvement of village-sites, and (*c*) improvement of water-supply. As to the first class although mere metalled roads would no doubt be useful in the black cotton soil tract, and, if absolutely necessary, a large number can be employed in this manner in the Alúr and Bellary taluks where employment is chiefly required at present, I am doubtful whether it is a good policy to spend any more money in this way. The Board can with difficulty maintain the roads already opened, and the proportion of the funds available for repair of roads is likely to be curtailed when the new Act is introduced, as the heads of service dependent on the general fund have hitherto received an insufficient share of the assets. Another forcible objection to this description of work is that in a season of drought like the present when water is not available within a reasonable distance for the consolidation of the material, the cost must necessarily be much greater than it ordinarily would be.

As regards second and third classes they are mostly petty works which would not afford employment for more than a few days, and in the case of improvements to wells and tanks, especially on black cotton soil, it will generally be found that the work is too hard for unskilled labor, and that wudders must be employed. Even when the nature of the work is suitable, I do not consider it at all advisable to start works in the immediate vicinity of each village at the present juncture. Such employment should be reserved for a later stage when the cultivation season is approaching, and it is desirable to provide labor for the ryots in the vicinity of their homes. At present there is no necessity for keeping them near the villages as there would be no cultivation operations for the next five months and the distance to which they will go for employment will be a test of their necessity. If works are started too near their homes numbers will flock to them who are not in such need as to induce them to go to any distance. Moreover, a large number of petty scattered works cannot be properly supervised, and much of the money will be wasted. For proper supervision there must be concentration of labor and a large scheme is required."

16. The list of professional agency works contains only three schemes, two of which apparently, the Hagari-Ráyadrug project and the formation of a tank in the Sondur valley, are not likely to be seriously considered. The Tungabhadra project has however been frequently advocated, and as it has recently been re-investigated and might, I understand, be put in hand in case of need without any great delay I venture to bring it forward again and respectfully to urge a reconsideration of the decision arrived at in G.O, dated 26th January 1885, No. 108, Revenue Department. The value of some large scheme of irrigation to this district would be inestimable, and the superiority of the Tungabhadra scheme as compared with other projects was admitted in G.O., dated 20th August 1866, No. 2606, Department of Public Works. The advantages likely to be derived from this scheme are very fully set forth in Mr. Wedderburn's letter, printed in Board's Proceedings, dated 31st July 1866, No. 5243, and 6th January

1877, No. 60, and as they have been admitted by both the Board and Government, I need not recapitulate them.

17. The objections which have been raised are, I believe, the following:—
(*a*) That the project will not be remunerative.
(*b*) That the water is not likely to be utilized for the black cotton soils.
(*c*) That it is doubtful whether the water-supply will suffice without prejudice to the Kurnool canal and Kistna works.

The scheme as originally designed was estimated to cost 100 lakhs of rupees which would require a return of four lakhs per annum according to the standard for productive works. Viewed from this stand point it may readily be conceded that the work is not likely to pay *directly* for a long time to come, but the indirect advantages have also to be taken into consideration. The cost of the famine of 1854 was estimated by Mr. Wedderburn (*vide* his letter, dated 25th July 1866, in Board's Proceedings, dated 31st July 1866) at nearly 200,000 pounds sterling, besides the loss to the people of their cattle and crops which was set down as "probably not under half a million sterling." There have been two famines since, in 1866 and 1876-77. The cost of the former I have not been able to ascertain. As regards the latter I submit a statement (J) exhibiting the *total cost to Government* under relief works, gratuitous relief, establishment, and advances of different kinds, much of which is irrecoverable. The totals are marginally noted * as well as the highest numbers on relief at any time. Nearly the whole population came on relief and the total outlay was at least 95 lakhs † —very little short of the cost of a project which would have contributed in no small measure to avert famine from a portion of the district at least. I have shown moreover that apart from the expenditure *directly* incurred during the last famine on relief, there has been a decrease of land revenue to the amount of $4\frac{1}{3}$ lakhs per annum during the last nine years; similarly under abkári there was a loss of $4\frac{1}{2}$ lakhs by resale of farms and remissions; other branches of revenue must also have suffered in the same way, owing to the loss of population and diminution in the material wealth of the people, so that if all the loss resulting to the State from the ever-recurring bad seasons in the shape of State relief, remissions, loss of revenue under different heads, &c., could be ascertained, they would amount to an enormous total, apart from the loss to the ryots, which is incalculable.

	Rs.
* Relief works	66,83,783
Gratuitous relief	18,54,231
Establishment	5,70,828
Tuccavy advances	2,53,714
Advances to weavers	1,98,914
Do. for seed-grain	94,620
Total ...	96,56,090
Number on relief	6,59,187

† The item establishment relates to the Bellary district as then constituted, that is, inclusive of the present district of Anantapur, taluk-war details under this head not being available.

18. There are other incidental advantages which have also to be taken into consideration. The extension of irrigation by creating a more humid atmosphere would tend to increase the rainfall; prices of grain and fodder would fall and the cost to Government in connection with the maintenance of the large force at Bellary would be reduced (*vide* statistics furnished in Board's Proceedings, dated 30th August 1866, No. 6190), whilst the water-supply of the cantonment and town, which is now so precarious, would be assured.

I think it is reasonable that all these indirect benefits should be weighed, and that the scheme should not be judged solely with reference to its value as a productive work of irrigation. If a less ambitious design which will secure to a great extent the advantages of the larger project can be carried out at a cost of only 50 lakhs as recent investigation has, I understand, shown to be likely, the interest on the outlay will only be two lakhs of rupees, and a considerable portion of this, if not eventually the whole, will be recovered by extension of irrigation.

19. It is admitted that the selection of suitable works within the Bellary district for the employment of relief labor is matter of no ordinary difficulty. The Chief Engineer in his note embodied in G.O., dated 20th January 1885, No. 108, Revenue Department, states that after a careful consideration he can only suggest the following, and that none of them is calculated to give long employment to a large body of laborers.

(1) *The earthwork on the Guntakul-Hindupur line.*—The earthwork has, I believe, been nearly completed as far as Penukonda; this work, if re-opened, will no longer serve the Bellary district, as it is too distant.

(2) *The proposed railway feeder roads, ten in number.*—These vary from $1\frac{1}{2}$ miles to 8 miles in length, and would be finished in a few days. As to roads elsewhere the district has already more metalled roads than the district board can afford to maintain, and several of the roads constructed during the last famine at vast expense have never been completed and are not kept up. All that there is to show for 19 lakhs of expenditure in the Adóni taluk is some 19 miles of road with a gap of 3 or 4 miles in the centre which renders the whole road useless, the soil being black cotton and impassable in wet weather, when alone a metalled road is required. The cost was therefore about a lakh a mile. I respectfully submit that, if a vast expenditure is to be incurred in providing work for the people, it may just as well be laid out in excavating a channel even though it may "mean digging a hole to be gradually filled up by weather" in the words of the Chief Engineer for Irrigation. The channel cannot be more useless than the roads, and it is certainly better suited for a relief work as it is easier to supervise the coolies, and water, which is non-existent for miles here, is needed for making roads properly.

(3) *The deepening of the Bellary, Adóni and other tanks.*—As the tanks in this district seldom or ever receive a full supply, increasing their capacity would not be a work of utility, and would, in fact, amount to "digging holes" for the sake of employing labor. I have already in my letter, dated 2nd February 1885, No. 27, reported that it would be useless to deepen the Bellary tank unless the supply to it can be supplemented, as it has not been known to discharge over the calingula oftener than once or twice in a long series of years, and the Superintending Engineer has stated that no increase of supply can be secured from existing sources. The same objection applies to the deepening of other reservoirs in the district. I submit, therefore, that, looking to the extreme difficulty of finding any useful work for relief purposes, the question of undertaking a project like the Tungabhadra canal must not be judged solely with reference to its proving a directly remunerative investment.

20. The second argument against the construction of the canal is that the water is not likely to be utilized for the irrigation of the black cotton soils, except occasionally in years of deficient rainfall. The experience of the Kurnool canal has been adduced in support of this position, but the circumstances are not analogous, for it has been shown that the ill-success of the Irrigation Company's canal was due principally to the causes enumerated in the margin rather than to the unsuitability of the soil for irrigation. The reluctance of the ryots to take the water in Kurnool was owing in a great measure to the fact that the rainfall of the country through which the canal passes is generally ample to ensure abundant harvests without irrigation. The question of irrigating black cotton soils was thoroughly discussed in connection with the Kistna works some years ago, and it was shown that the ryots will irrigate black cotton soil if it is to their interest to do so.

1. Excessive cost of construction.
2. Faulty alignment.
3. Maladministration.
4. Illiberality in the charge for water.
5. Uncertainty of supply.
6. Sparseness of population.
7. Want of communications and absence of local markets for rice.
8. Ignorance of the methods of wet cultivation.

Vide Mr. Lister's report embodied in Board's Proceedings, dated 21st May 1879, No. 1370.
Report of Committee printed in Board's Proceedings, dated 27th March 1882, No. 896.
Chapter VIII, Appendix V, to the report of the Famine Commission.
Vide the Honorable Mr. Master's report embodied in G.O., dated 21st August 1872, No. 1239.

As a matter of fact much of the land that is irrigated in this district, for instance wholé of the ayacut under the large Kanekal * tank in Ráyadrug, is regadi soil. It must be borne in mind that irrigation entails considerable initial outlay and a continuance of more expensive cultivation, whereas with a moderate rainfall crops which are sufficiently remunerative to satisfy the ryot can be obtained without irrigation. The rainfall in the country traversed by the Kurnool canal is, I believe, ordinarily heavier and more regular than it is in Bellary, and for a long time at least no attempt was made to encourage extension of irrigation by offering water on easy terms. Looking to the causes of the failure of the enterprise, the result cannot be taken as indicating that a properly conducted system of irrigation in Bellary will meet with the same want of success. Here the rainfall is very precarious, and if sufficient inducements are offered to the ryot to change his methods, he will, I think, readily avail himself of the water. The conditions which the Honorable Mr. Sullivan in his minute printed at page 64 of Appendix V to the report of the Famine Commission indicates as essential for successful artificial irrigation are here present. The substratum is limestone, and there is therefore drainage to prevent water logging, the people understand this mode of cultivation, are possessed of sufficient means to avail themselves of it, and there is a large local demand for the produce so raised, as witness the very considerable and continuous importations of rice into the district. The rice grown in Hospet is of superior quality and commands a high price, whilst sugar-cane is largely grown wherever irrigation is available.

	Circar and Inam.
	ACS.
Ayacut	2,113
Cultivation	1,404

21. The third objection can be obviated by storing the water in reservoirs which has always been part of the scheme. During the freshes in the Tungabhadra river a large volume of water which might be utilized in this way without detriment to the irrigation lower down is vasted, and if the capacity of the Daroji tank can safely be increased, the construction of new reservoirs may perhaps be dispensed with.

22. The importance of the question in the interests of this district will, I trust, be accepted as sufficient excuse for re-opening the subject notwithstanding that the professional advisers of Government have expressed an opinion adverse to the scheme.

23. As regards civil agency works, schedules of works proposed were forwarded with my letter embodied in G.O., dated 10th January 1885, No. 29, and have been accepted as constituting the district programme prescribed by Section 28 of the Famine Code. These lists were drawn up before I joined the district; they contain a number of petty works which I would not put in hand, except in the last resort, as the execution of numerous small works must lead to extravagant expenditure. Estimates for the most important of them have been under preparation for some months past, and I submit a list (K) of those which are ready for execution or can be put in hand as soon as the estimates are received. The Executive Engineer has still to furnish estimate for twenty works, but owing to the withdrawal of the special staff sanctioned for their preparation in accordance with G.O., dated 8th July, No. 333-E, he is unable to complete them. As the estimates still due are for tanks in the Kúdligi, Hadagali, Harpanahalli and Hospet taluks, where employment is likely to be first needed, under present circumstances, and the works are chiefly civil agency, the necessary assistance can, I think, be given in the Revenue Department under the authority of G.O., dated 27th July 1885, No. 1124, Financial. I have informed the Executive Engineer accordingly. The list submitted comprises all the agricultural repairs that appear to be suitable for the employment of unskilled labor. If other works are required and no large project is available, it will be absolutely necessary to fall back upon road-making, however useless such work is likely to be. Three surveyors are at present engaged in the preparation of estimates for roads in the western taluks. For Bellary, Alúr and Adóni sufficient sanctioned estimates are ready for a commencement whenever necessity may arise. They comprise the most important lines which have been proposed; other minor lines can be taken up afterwards if necessary.

24. The second part of IV (*a*) requires submission of "a rough estimate of the maximum number of people for which, in the event of scarcity becoming famine, relief might be required, and the number which will be provided for by the relief works of which a list is given." There are no data, however, on which such an estimate can

be framed at present with any pretence to accuracy. Unless the failure of crop extends to other districts, I anticipate merely a continuance of the high prices which have ruled for the last year, and there is no danger of scarcity becoming famine. Prices have not yet approached to scarcity rates and have not been so high as to cause distress to those who have regular employment; hitherto the poorer ryots and those who live by field labor have been the classes principally affected. Owing to the failure of the harvest last year the majority of those who depend on agriculture for their subsistence have no stocks of grain to fall back upon, and their means of obtaining a livelihood have been curtailed this year also. So far the failure principally affects the western taluks in which it may perhaps become necessary to open some works later on and to maintain them until the next cultivating season commences. If the later crop should also fail, it might become necessary to provide work throughout the district, but distress may be averted to a considerable extent by a plentiful later harvest. Assuming that one-fifth of the agricultural classes may, under certain contingencies, have to be provided with work by the State, the maximum number for each taluk will stand as marginally noted. Of course this estimate is a mere guess, but as far as I can judge at present it may be taken as an approximation. For the western taluks of Hospet, Kúdligi, Hadagali and Harpanahalli only one estimate under the head "Agricultural repairs" has been received as yet. The others will probably amount to about Rs. 20,000. Estimates of road repairs will be framed as speedily as possible. The provision for the eastern taluks is in a more forward state because it was anticipated early in the year that the need would first arise in that direction. The value of the estimates for tanks is Rs. 27,061 and for roads Rs. 2,61,080. At the rate of ten coolies per diem for a rupee, this sum will suffice for about 32,000 people for three months, which will meet requirements for the present.

	RS.
Bellary	9,347
Ráyadrug	7,556
Hospet	7,160
Kúdligi	8,607
Hadagali	5,830
Harpanahalli	7,591
Adóni	7,475
Alúr	5,739
Total ...	59,305

ENCLOSURES Nos. 1 TO 13.—Statements.

ENCLOSURE No. 14.—Map.

Resolution—dated 12th October 1885, No. 2844.

Submitted for the orders of Government.

2. The Collector's very full report shows that the people in general are in a low economical condition, that the rainfall is very precarious and seasons frequently adverse, that well irrigation is attended with difficulties, while the irrigated area generally is insignificant. It is also clear that in Bellary it is very difficult to find useful work for large bodies of laborers.

3. It is observed that the sum of the losses of revenue by bad seasons during only the past ten or twelve years, and of the expenditure on recent famine relief, would probably have more than paid the cost of carrying out the Tungabhadra channel project, the execution of which, whether as a relief work or as a valuable district improvement, the Collector so strongly urges. The Board suggest that a reconsideration of the question is worthy the attention of Government.

(A true Copy and Extract.)

(Signed) F. A. NICHOLSON,
Acting Secretary.

To the Secretary to Government, Revenue Department,
with fourteen enclosures.

Copy to the Collector of Bellary.
" " Director of Revenue Settlement and Agriculture,
with copy of Board's Procs., No. 2232, of 31st July 1885.

READ—the following G.O., dated 3rd November 1885, No. 2579 W., Public Works:—

Read—the following letter from the Superintending Engineer, III Circle, to the Secretary to Government, Public Works Department, dated 22nd October 1885, No. 1550:—

With reference to your endorsement, No. 702-E., dated 5th October 1885, I have the honor to submit revised lists of relief works showing only those works which are likely to be carried out by "professional agency."

2. These works cannot be strictly called "class A" works as defined in section 18 of the Famine Code, for neither have the estimates been sanctioned nor do the works appear in the budgets.

3. List I shows estimates lately prepared for removing silt from beds of imperial tanks in the Anantapur district agreeably to G.O., No. 126 I., dated 10th February 1885. The Collector has been requested to submit them for the orders of Government. The outlay proposed is heavy, and it seems to me that the estimates cannot be sanctioned by me.

4. List II shows works alluded to in the Government Order noted in the margin. These works are considered suitable in case of necessity arising for relief measures on a large scale, but no estimate for any of them has yet been sanctioned. In fact the projects need re-investigation and revision.

G.O., No. 3027, of 29th September 1877, in the Revenue Department.
Irrigation Chief Engineer's printed list showing irrigation and connected works available for employment of famine labor in each district.

5. The "Tungabhadra project" entered in the list is the modified project now under investigation by the C. Project division to bring a supply of water into Bellary at a considerably reduced cost. It is thought that this project would be useful as a relief work; hence it has been included in the list.

ENCLOSURES.

I.—Statement showing Irrigation Works available for the Employment of Famine Labor.

Name of Work.	Estimated Cost.	Number of Laborers that can be employed on Project.	Number of Months.
Anantapur District.	RS.		
Madigubba tank	33,780	2,400	23
Singanamala tank	2,10,250	15,660	23
Cummoor tank	73,230	5,400	30
Bramanayacheruvu tank	2,10,852	14,800	3
Raptad tank	62,015	4,500	5
Purghee tank	9,60,356	73,500	146
Harrasamudram tank	2,09,080	15,600	56
Gooty tank	* 10,375	100	3
Gooty tank	2,35,068	17,400	36
Mallianoor tank	2,01,990	15,000	3
Kumbadoor tank	2,80,547	20,000	3
Mulakaladu tank	2,94,150	22,000	3
Anantapur tank	4,96,175	36,000	3
Agali tank	2,23,256	16,700	3
Amrapuram tank	2,02,000	15,000	3
Murabagula tank	37,800	28,000	3
Dundanaripally tank	5,000	† 400	3
Salacunchervoo tank	60,833	4,400	3
Marvapally Agraharam tank	1,62,422	12,000	3
Royalcheruvu tank	2,15,200	16,000	3

* For repairs to bund, &c. † For repairs.

II.—Statement showing Irrigation Works available for the Employment of Famine Labor.

District.	Name of Work.	Amount of Estimate. Earth-work.	Other works.	Total.	Number of Coolies that can be employed.	Probable time required to complete Earth-work.	Remarks.
		RS.	RS.	RS.		MONTHS.	
Anantapur..	Bookacherla Project.	13,98,560	1,96,440	15,95,000	30,000	18	The channel from the anicut, 18 miles in length, would run through a rough rocky country. The main channel is designed to carry 3,750 cubic feet a second. The project is for feeding Bookacherla tank in the Dharmaveram taluk and the Singanamalla and Anantapur tanks from the Pennér. Further details will be found recorded in the Irrigation Chief Engineer's printed list of works available for employment of famine labor. But the project as regards most details would need revision.
Do. ..	Hindupur Project.	1,10,200	58,850	1,69,050	10,000	4	The project provides for constructing an anicut across the Pennér river for the supply of eleven tanks with head-sluices and channels. The district having very little irrigation, the work would be of value as a relief work. Plans and estimates were prepared many years ago, but the project will probably need revision.
Do. ..	Roddum Project.	48,280	54,940	1,03,220	4,500	4	The project provides for an anicut across the Pennér to supply Roddum large tank.
Do. ..	Pootholacuntah Project.	12,000	4,000	16,000	2,250	2	It is intended to store water for irrigating 600 acres of land.
Bellary ..	Tungabhadra Channel.	12,00,000	18,00,000	30,00,000	50,000	18	The cost of the work was estimated by the officers of the late Irrigation and Canal Company at Rs. 1,43,88,000. The project is now being re-investigated by the C. Project division in order to see if water can be brought to Bellary for a more reasonable sum by reducing the dimensions of the canal, by omitting reservoirs altogether and depending entirely upon the river, by altering the line of canal, and by designing cheaper masonry works. It is presumed that the cost of the modified project will only be one-third the estimated cost of the original project, and it is this revised project which is recommended for execution as a relief work.

BELLARY,
22nd October 1885.

(Signed) H. M. VIBART, Lieut.-Col., R.E.,
Superintending Engineer, III Circle.

Order—dated 3rd November 1885, No. 2579 W., Public Works.

Communicated to the Revenue Department with advertence to Proceedings in that department, No. 5236, dated 28th September 1885.

(True Extract.)

(Signed) D. McN. CAMPBELL, Captain, R.E.,
Under Secretary to Govt., P.W.D.

To the Revenue Department.

Order—dated 30th November 1885, No. 1327, Revenue.

Irrigation, No. 28.

The foregoing papers furnish, as regards the Bellary district, the information called for by the Government of India under Nos. IV (*a*) and IV (*b*) of the rules circulated with their letter, No. 90 F., dated 23rd June 1885, embodied in G.O., No. 837, dated 17th July 1885.

2. Similar information called for from the Collector regarding the Anantapur district has not yet been submitted and should be expedited.

3. The lists furnished by the Public Works Department embrace works in the Anantapur district also, and those specified in list No. I appear to be, for the most part, the same as those dealt with in G.O., No. 1208, dated 2nd November 1885.

4. It is observed that for most of the works in the lists now received no estimates have been prepared.

5. The information collected under rules IV (*a*) and IV (*b*) was intended for incorporation in the special monthly reports to the Government of India on the agricultural prospects of the affected districts. The recent abundant falls of rain in Bellary and Anantapur have, however, rendered these monthly reports unnecessary, and the Government of India have sanctioned their discontinuance. Nevertheless the report from Bellary and the lists of works furnished by the Collector and the Public Works Department will be communicated to the Government of India for record.

6. The remarks of the Collector and the Board of Revenue regarding the Tungabhadra project will be referred to the Public Works Department for consideration. Attention is directed to paragraphs 17 and 18 of Mr. Galton's letter and paragraph 3 of the Board's resolution. It is observed that a limited project to convey water from the Tungabhadra into the Bellary town is the only professional agency work for the district entered in the lists.

(True Extract.)

(Signed) J. F. PRICE,
Ag. Secretary to Government.

To the Board of Revenue, with fourteen enclosures returned.
„ the Public Works Department, Irrigation Branch.

No. 1327-A.

Copy to the Government of India, Revenue and Agricultural Department.

(Signed) J. F. PRICE,
Ag. Secretary to Government.

Exd. J. W. Fisher.

120 Copies.

P. W. D.

Govt. of {1885} Madras.

REVENUE.

Issued

Recd. Encl.

G.O., 30th November 1885,
No. 1327, 1327A.

NOVEMBER.

Information to be supplied in times of Scarcity.

Report on the economic condition of the Bellary district and lists of works for famine relief purposes forwarded to the Government of India for record.

Wells order

Nº 3065 W. & 17 December 85

Communicated to the Chief Engineer for Irrigation and the Suptg: Engineer III Circle, in continuation of G.O. Nº 2968 W dt/10th December 1885

2 The attention of those officers is drawn to paras 17 & 18 of Mr Gatton's letter & para 3 of the Revenue Board's Proc: with advertence to GO Nº 955 I dt/13th Novr: 1885

(Sd) D. Mc Ch.
DW

Chief Engineer for Irrn:
Suptg: Engineer III Circle
Revenue Department.