

**FINAL REPORT**  
**ON THE**  
**SURVEY OF LANDS DAMAGED**

**BY**  
**EARTHQUAKE IN NORTH BIHAR**

**IN**  
**1934**



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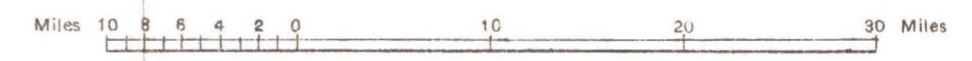
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# NORTH BIHAR

## LANDS DAMAGED BY EARTHQUAKE OF 1934

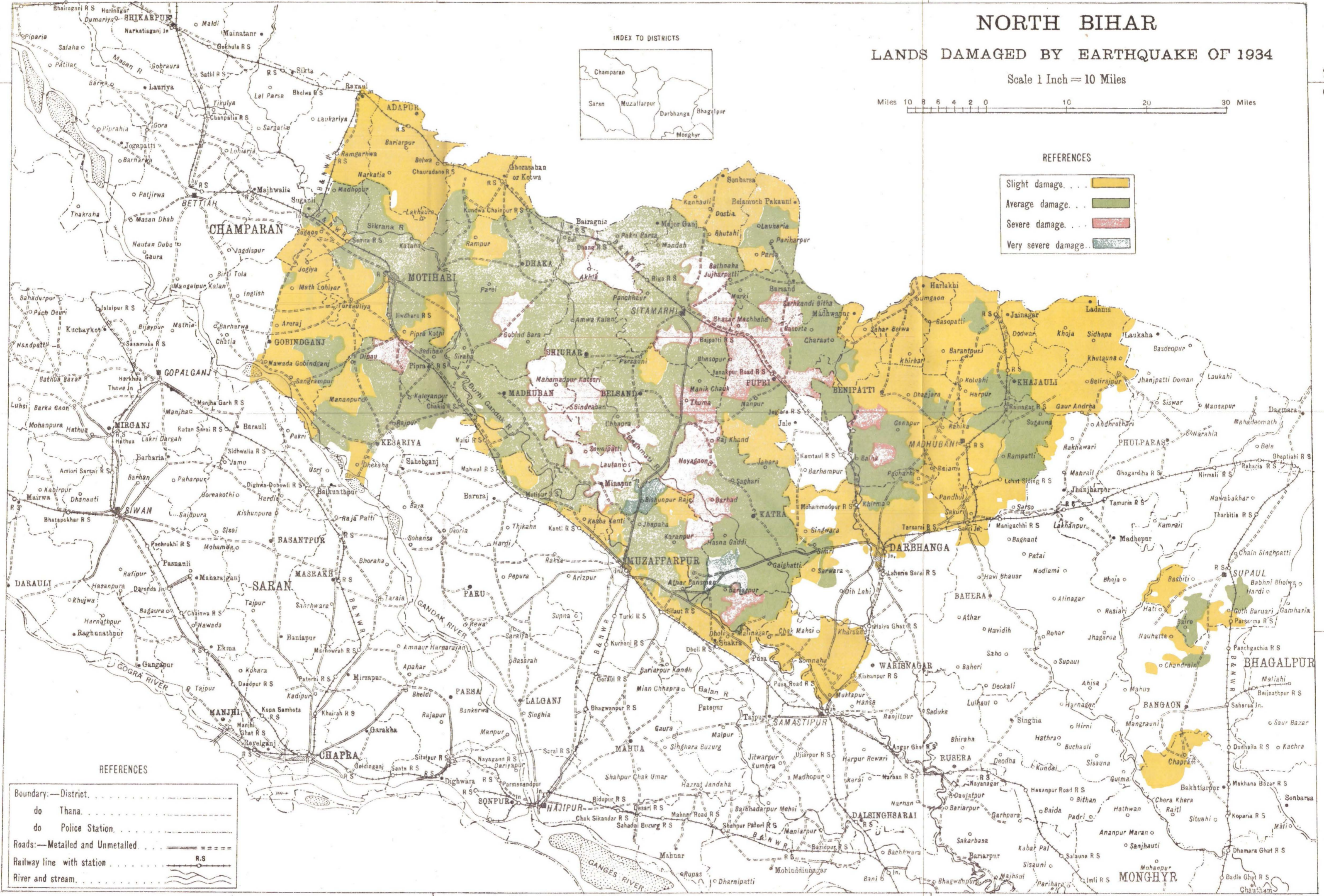
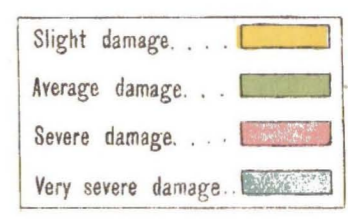
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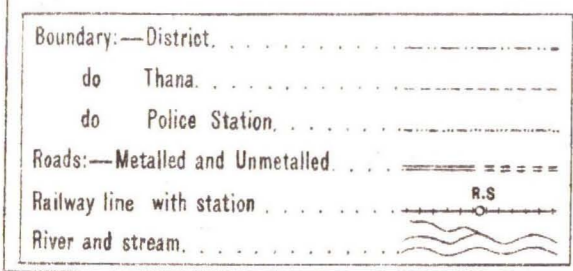
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# FINAL REPORT

ON THE

## Survey of lands damaged by the Earthquake in North Bihar in 1934.

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One of the most remarkable features of the earthquake of the 15th January 1934 in North Bihar was the formation over many hundreds of square miles of craters and fissures in the ground through which sand and water were thrown up. As a consequence considerable areas of fertile land were buried under deposits of sand varying in depth from a few inches to over two feet. It was feared that this sand might have a deleterious effect on the soil, especially where it was too deep for successful ploughing in. The phenomenon of eruption of sand had been noticed in a number of previous earthquakes, in particular in the Assam earthquake of 1897, but the Government of Assam were unable to supply any information as to the effect which the sand had on the fertility of the land, whether that effect was temporary or permanent and what measures, if any, were taken to deal with the problem. The first necessity was to get a clear idea of the extent of the problem. Aerial reconnaissance flights, including those made by His Excellency the Governor, the Hon'ble Mr. Hubback as Member of the Board of Revenue and Mr. Scott, Commissioner of Tirhut, had shown the extent of the area affected by the eruption of sand and water, but did not of course give any indication of the depth of the deposit.

2. The matter was discussed by the Hon'ble Member, Board of Revenue, with the Revenue and Judicial Secretaries and the following proposal was formulated at the conference :—“ As far as it has been ascertained at present, the worst damage is in a square 45×45 miles with a centre at Katra (15 miles east-north-east of Muzaffarpur) the northern boundary running west-north-west to east-south-east. It is likely, however, that there is sufficient damage to justify a survey over considerably more than this area. It is therefore proposed to collect information as follows :—

“ The Collectors of Muzaffarpur, Champaran, Saran, Darbhanga and Purnea will be instructed to send out to all thana officers a copy of the thana skeleton map (1" to the mile or 2" to the mile as may be available). The Collectors of Bhagalpur and Monghyr will be instructed to do the same for North Gangetic thanas. At the next chaukidari parade, the thana officers will question chaukidars about every settlement village in their thanas and note on the map 0, 2, 4, 8 or 12 according as the chaukidar says that there has been no damage, damage of 0-2-0, of 0-4-0, of 0-8-0 or of 0-12-0 by spreading of earthquake mud and sand in the village. Lands still under water, where, but for the earthquake flood they would ordinarily be dry, should be included as they are probably completely covered with earthquake mud. The maps will be returned direct to the Collector and sent on as soon as possible to the Director of Land Records' office at Patna.

“ A great proportion of the area known to be severely damaged is still under water forced up by the earthquake. It is impossible to do a useful survey on this until it dries, which it may not do for at least a month. We considered that it was not practicable to

formulate a general scheme for the survey until some experience has been gained of the difficulties involved in it and the probable rate of progress. The area damaged in any particular village will have extremely irregular boundaries, and since the damage caused by any particular line of vents will frequently overlap the damage caused by one or more such lines, the depth of the deposit will vary in badly damaged villages, considerably over a tract all of which is covered with some amount of deposit. The immediate action we propose is to take Babu Nila Lohita Bhattacharya and two good head inspectors or inspectors from the Chota Nagpur Settlement to conduct a practical test first in the villages surrounding the Musari experimental cane farm and thereafter in as many villages as they can get through in a fortnight. If possible, they should move on to a paddy-growing village which has sufficiently dried for survey, since the work will probably present some different features in the lower-lying villages with stiff clay soil from what it presents in the loamy soil area. A report should be submitted at the end of the fortnight or earlier if possible, putting up a scheme for the survey of say 4,000 square miles. Mr. Swanzy should be asked to see something of the work and give his advice on the scheme.

“ The type of survey that we propose is that the inspector should go over the land, with as many raiyats as he can collect with the map and original *khesras*. He will put on the map on each plot a mark to indicate whether (a) there is some sand but less than 6 inches, (b) more than 6 inches but not more than one foot, (c) more than one foot. At night he will colour up the maps with coloured chalks to indicate the amount of damage and extract area. The difficulties will be about identification of the plots specially on a 40 years old map and the determination of the depth of the sand which will vary most irregularly. The report of the experimental survey should contain a set of rules for the guidance of the staff employed on a full survey indicating what rate of progress should be aimed at. ”

3. I joined my duties as Special officer, Land Damage Survey, on the 10th February 1934 at Muzaffarpur and immediately proceeded to the village Musari, five miles from Muzaffarpur with two head inspectors from Chota Nagpur Settlement to carry on an experimental survey. Though the maps were prepared 40 years ago, there was not much change of fields on the ground and with the help of the tenants, the *khesras* and maps of the last settlements the surveyors were able to identify the fields. Five villages were selected round about Musari and the surveyors showed on the maps the damaged portion of the plots in different colours according to the depth of sands. It was however found that the average outturn per surveyor cannot be expected to be more than 150 acres a day and as the area to be surveyed was more than 4,000 square miles and the number of surveyors was limited to about 120, it was found impossible to complete the survey before the rains unless some speedier method was adopted.

4. A report was submitted to the Hon'ble Member, Board of Revenue, in the 3rd week of February with a set of rules based on the experimental survey. The Hon'ble Member, Board of Revenue, with the Revenue Secretary came down to Muzaffarpur on the 26th February and after considering the reports submitted by me and making local inspections in the country-side decided to carry on the work by a speedier method called Nazar Paimaish. According to this method the surveyors were required to make a guess of the areas of each plot damaged in annas and take the average depth of sand in each plot according to the following classifications :—

|           |     |     |  |
|-----------|-----|-----|--|
| Class I   | ... | ... | Sands less than 6".                        |
| Class II  | ... | ... | Sands 6 inches and above but less than 1'. |
| Class III | ... | ... | Sands 1' and above but less than 2'.       |
| Class IV  | ... | ... | Sands 2' and above.                        |

A set of rules for the guidance of the surveyors and circle officers were prepared and approved of by the Revenue Secretary (vide Appendix A\*).

\* Not printed.

5. The surveyors prepared a *khesra* called the Damage *khesra* showing the plot damaged, the damage in annas and the class of sands. Moharrirs were appointed to show the area of the damaged plot from the last settlement *khesra* and the areas damaged in each plot with the help of a calculation table.

The taccavi enquiring officers who followed the sand survey officers however wanted the surveyors to record the names of owners of the fields and in a conference held at the residence of the Divisional Commissioner at Muzaffarpur presided over by the Hon'ble Member, Board of Revenue, it was decided that the surveyors would record the names of those owners who would be present on the fields, but would not record any names in cases where there was dispute or where the owner was absent. It was further decided that the sand survey officer would record the maximum amount payable for each plot according to the following scale :—

|           |     |     |     |     | Rs.          |
|-----------|-----|-----|-----|-----|--------------|
| Class I   | ... | ... | ... | ... | 10 per acre. |
| Class II  | ... | ... | ... | ... | 20 "         |
| Class III | ... | ... | ... | ... | 30 "         |
| Class IV  | ... | ... | ... | ... | 35 "         |

The loans officers of districts Muzaffarpur and Champaran, however, asked me not to do the calculation of rates plot by plot as their officers were not making use of the figures plot by plot but were calculating the rates on the total area of each holding and accordingly in these districts the calculation of rates was given up.

6. In the district of Champaran, during the last revision survey, *khesras* were destroyed and difficulties arose in this district to find out areas plot by plot. As the *khatian* could not be taken out of the record room, additional lands had to be appointed to extract the areas.

7. Cases arose in which portions of uncultivated lands were brought under reclamation after the last survey by different raiyats. It was found that it would take a long time to survey the different plots according to possession and it was therefore decided to roughly survey the entire area as one plot and record all the tenants as joint owners for the entire area. A few cases also arose in which a considerable area which was recorded as one plot as *zirat* of the landlords was settled with a body of tenants with separate holdings after the last settlement. To survey the individual plots would take a long time and it was therefore decided to record the entire area as joint holdings of all the tenants.

8. In the *khesra* the names of these tenants who were owners of the fields as landlords and raiyats were only recorded. No record of temporary holders such as *zerpeshgidars* or *bataidars* was made. An exception was however made in case of *bataidars* who had been holding for more than 12 years on a fixed produce rents and the names of such tenants were recorded.

9. In the beginning of the survey the tenants took no interest in the survey and in spite of best efforts made by the surveyors, they would not come out of their houses to show their fields and the surveyors had to carry on the work with the help of the village chaukidars who were directed by the Superintendent of Police under orders of the Collector to help the Surveyor. The offers of loans on joint responsibility held out by Government were coolly received by the tenants and interested people who had money-lending business on high interest began to advise the tenants not to take loans on joint responsibility so that after Government closed offers of loans, they could grant loans on high interest. A counter propaganda was therefore carried on by the official and non-official agencies which bore good results and towards the close of the operation, the tenants began to take interest in the survey.

10. The *khesras* prepared by the surveyors were sent directly to the *taccavi* enquiring officer in batches and it must be said to the credit of the survey circle officers that they were able to maintain a continuous flow of records enabling the *taccavi* enquiring officers to carry on their work without a break.

11. Sometimes complaints were made by tenants about surveyors leaving out some plots and in most of the cases on enquiry it was found that either the plots were surveyed or that the area damaged was so small that they were left out by the surveyors under the rules. In a very few cases the complaints were borne out and actions were taken to re-survey the plots and in cases of gross carelessness the surveyors concerned were punished.

12. The original programme was to survey the area bounded on the north by the Nepal boundary, on the south by the Samastipur-Narkatiaganj Railway line, on the east by a line joining the Naya Nagar station and the Nepal boundary at Ladania and on the west by a line joining the village Pipra Kothe and Nepal boundary near Ghorasahan Railway station.

It was however subsequently found after discussion with the Subdivisional Officers, Darbhanga and Madhubani, that there was not much damage to the south of the Muzaffarpur-Darbhanga road and south of the railway line from Darbhanga to Sakri and that there was practically no damage to the east of Sakri-Jainagar railway line. Accordingly the area south of the Muzaffarpur-Darbhanga road and Darbhanga-Sakri railway line and west of the Sakri-Jainagar railway line was excluded, but subsequently at the request of the Collector of Darbhanga a number of villages of Darbhanga and Warisnagar police-stations was taken up.

On the other hand it was found by the Hon'ble Member, Board of Revenue, during his tour in the district of Champaran, that the area lying to the east of Sugauli-Raxaul railway line and Sugauli-Gobindganj road was severely damaged and I was asked to take up survey of that portion.

The Commissioner of Bhagalpur Division reported that a portion of thanas Supaul and Bangaon in the district of Bhagalpur and a portion of Bakhtiarpur thana in the district of Monghyr required to be surveyed and I was directed by the Hon'ble Member, Board of Revenue, to take up survey of that area. The map attached with the report will show the area under survey.

13. The whole area was divided into 11 circles each under a circle officer with 12 to 15 surveyors. As we could not get more than 2 gazetted officers, two non-gazetted officers with experience of survey and 4 kanungoes, the remaining vacancies were filled up by experienced inspectors and head inspectors as follows :—

| Date of starting. | Date of closing. | Circle.                  | Circle officer.  |
|-------------------|------------------|--------------------------|--|
| 1                 | 2                | 3                        | 4  |
| 10th March ...    | 21st May ...     | Circle A ...             | Mr. P. Kandulna, Kanungo.  |
| 10th March ...    | 1st May ...      | Circle B and Warisnagar. | Babu Sukhdeo Prasad, Head Inspector.                               |
| 10th March ...    | 7th May ...      | Circle C ...             | Babu Indu Bhusan Gupta, non-gazetted Assistant Settlement Officer. |
| 18th March ...    | 15th May ...     | Circle D ...             | Babu P. K. Sen, Kanungo.   |
| 20th March ...    | 10th April ...   | Circle E ...             | Babu H. C. Chakravarti, Sub-Deputy Collector.                      |

| Date of starting. | Date of closing. | Circle.      | Circle officer.  |
|-------------------|------------------|--------------|--|
| 1                 | 2                | 3            | 4  |
| 20th March ...    | 15th May ...     | Circle F ... | Mr. M. Ekka, Sub-Deputy Collector.                                 |
| 20th March ...    | 23rd May ...     | Circle G ... | Rai Sahib Lauhar Singh, non-gazetted Assistant Settlement Officer. |
| 20th March ...    | 24th May ...     | Circle H ... | Mirza Abdul Wahid Beg, Head Inspector.                             |
| 1st April ...     | 25th May ...     | Circle J ... | Babu Bhola Nath Singh, Inspector.                                  |
| 4th April ...     | 28th May ...     | Circle K ... | Babu Sukhdeo Singh, Inspector.                                     |
| 15th April ...    | 24th May ...     | Circle L ... | Babu Bhagabati Dube, Inspector.                                    |

14. The actual survey thus started on the 10th March and the field work was completed by 28th May 1934 well in time to allow the sand *taccavi* officers to complete their work before rains.

15. The following police-stations were taken up for survey :—

*District Champaran.*

- P. S. Motihari.
- P. S. Sugauli (portion).
- P. S. Dhaka (Ramchandra).
- P. S. Ghorasahan.
- P. S. Adapur (portion).
- P. S. Raksaul (portion).
- P. S. Madhuban.
- P. S. Kesariya (excluding a small portion).
- P. S. Pipra.
- P. S. Gobindganj (portion).

*District Darbhanga.*

- P. S. Darbhanga (portion).
- P. S. Bahera (three villages).
- P. S. Khajauli.
- P. S. Ladania.
- P. S. Jaynagar.
- P. S. Madhubani (portion).
- P. S. Benipatti.
- P. S. Hariakhi.
- P. S. Madhwapur.
- P. S. Jhanjharpur (portion).
- P. S. Laukaha.
- P. S. Phulparas (three villages).
- P. S. Warisnagar (portion).



*District Muzaffarpur.*

P. S. Muzaffarpur (portion) (north of the Railway line).  
 P. S. Minapur.  
 P. S. Shakra (north of the Railway line).  
 P. S. Baruraj (north of the Railway line).  
 P. S. Katra.  
 P. S. Sursand.  
 P. S. Belamooch Pakauni.  
 P. S. Pupri.  
 P. S. Bairagnia.  
 P. S. Majorganj.  
 P. S. Sheohar.  
 P. S. Sonbarsa.  
 P. S. Sitamarhi.  
 P. S. Belsand.

*District Monghyr.*

P. S. Bakhtiarpur (portion).

*District Bhagalpur.*

P. S. Supaul (portion).  
 P. S. Bangaon (portion).

16. The total area under survey came to 2,667,591 acres or 4,137 square miles. Appendix E will show the extent and percentage of damaged area.

17. In his letter no. 3166-XVII, dated the 14th May 1934 from the Assistant Secretary, Board of Revenue, Land Records and Surveys Branch, enclosing a copy of a note of the Hon'ble Member of Board of Revenue, I was directed to prepare a list of villages showing the intensity of damage, village by village and union by union, to enable the Deputy Director of Surveys to prepare maps to give the District Officers a clear indication of the places where owing to great intensity special watchfulness required to be exercised for some time to come. I have appended the note of the Hon'ble Member as Appendix D which will be useful in reading the maps to be prepared by the Deputy Director of Surveys. The areas which suffered most are police-stations Muzaffarpur, Pupri, Sursand, Belsand, Sitamarhi, Sheohar, Majorganj, Bairagnia and Minapur of district Muzaffarpur and Dhaka, Madhubani and Pipra of district Champaran and Benipatti of district Darbhanga.

18. I consulted the Revenue Secretary at Ranchi and he agreed with the provisional proposal of the Hon'ble Member, Board of Revenue, and a list was prepared accordingly and given as

\* Not printed.

Appendices \*B and \*B1.

19. In his letter no. 566-IIS-27-R. B., dated the 5th June 1934, the Revenue Secretary requested the Secretary, Board of Revenue, to direct me to submit a report showing the position of the bad areas, where there is considerable area covered with sand of more than one foot in depth and where the problem of restoration of fertility is likely to be beyond the powers of the people. Such areas were directed to be described by the names of the villages concerned and position of the areas affected was directed to be indicated on a map.

I discussed the matter with the Revenue Secretary at Ranchi and he agreed with me that in view of the fact that when thana maps are being prepared by the Deputy Director of Surveys showing the position of each village, it would be duplicating the work if I am to show the position of the badly affected areas on another map. Accordingly I am enclosing a list of villages badly affected in Appendix C giving the names of thanas, villages and the thana number. In finding the position of the villages reference may be made to the thana maps to be prepared by the Deputy Director of Surveys.

20. It was arranged that the *taccavi* enquiring officers would deposit the Damage *khesras* in the Collectorate record room. These Damage *khesras* should be preserved for at least 12 years so that if the tenants apply for a reduction of rent, the records prepared would enable the court to determine the area damaged. A word of caution is however necessary in using the records prepared. Some designing tenants taking advantage of the absence of raiyats and landlords claimed some plots before the amin though the plots did not belong to them and the amins who had no authority to determine possession recorded the plots in their names honestly believing them to be tenants for the plots claimed. Hence the records prepared should not be taken to be a piece of evidence of possession. The matter was brought to the notice of the district authorities.

21. The original estimate for the survey was Rs. 18,357 for 8 circles but as the number of circle was increased to 11 and the time taken was more than two months against one month and a half and as the expenditure of the experimental survey was not included in the original estimate the actual cost came to Rs. 30,564.

22. The percentage of damage comes to about 15 per cent on the whole area. The percentages of damage class by class are as follows :—

|           |     |     |     |     |             |
|-----------|-----|-----|-----|-----|-------------|
| Class I   | ... | ... | ... | ... | 7 per cent. |
| Class II  | ..  | ... | ... | ... | 52 ,        |
| Class III | ... | ... | ... | ... | 37 „        |
| Class IV  | ... | ... | ... | ... | 4 „         |

Though sand clearing *taccavi* loans were granted on a liberal scale, the tenants did not take any step to clear the sand so far. The popular idea is to wait and see the effects of rains and flood as it is believed by the people that a portion of the sand would be removed by the flood and that the remaining portion of the deposit of sand, when mixed with the silt which will be deposited by flood water, will improve the soil. During my tour I found that the tenants, where the sand deposit was light, were growing crops after mixing the sand with the soil below and I actually found sugarcane growing more luxuriantly on such soil than on soil which was not affected by sand. It is believed that except where there has been deposit of sand up to a depth of more than 2 feet, the tenants would get usual crops after a course of 2 or 3 years when the soil will get full effect of rain and sun. The total area which would thus require special attention would be about 13,123 acres or about 20.5 square miles.

23. I owe an acknowledgment of gratitude to Rai Sahib Samuel Das, Assistant Secretary to the Board of Revenue, Land Records and Surveys Branch and the District Officers for their constant guidance and valuable instruction and help which were given to me in spite of their heavy duties.

24. The surveyors and circle officers worked splendidly in spite of the hot days and but for their willing co-operation, the work could not be finished so smoothly and in time. Babu H. C. Chakravarty after closing his circle took over charge of the circles in Champaran district and did excellent work as charge officer.

25. The following officers deserve special mention in connection with the work :—

Babu P. K. Sen ; Babu I. B. Gupta ; Rai Sahib Lauhar Singh ; Mr. P. Kandulna ; Babu Sukhdeo Singh and Babu Sukhdeo Prasad.

N. L. BHATTACHARJI,  
Special Officer, Land Damage Survey.

The 24th July 1934.

## APPENDIX C.

## LIST OF VILLAGES WITH CONSIDERABLE DEPOSIT OF SAND OVER 1 FOOT.

## POLICE-STATION SONBARSA (MUZAFFARPUR).

| Serial no. | Name of village. | Thana and thana number. |
|------------|------------------|-------------------------|
| 1.         | Sing-bahani ...  | Thana Sitamarhi, 63     |
| 2.         | Prasahá ...      | " 169                   |
| 3.         | Rohua ...        | " 55                    |

## POLICE-STATION BELLA (MUZAFFARPUR).

|    |                              |                      |
|----|------------------------------|----------------------|
| 1. | Parsa <i>urf</i> Parwaha ... | Thana Sitamarhi, 148 |
| 2. | Pipra Khurd ...              | " 134                |
| 3. | Nonahi ...                   | " 147                |
| 4. | Indarwa ...                  | " 102                |
| 5. | Maiseha ...                  | " 123                |
| 6. | Pariharpur ...               | " 124                |

## POLICE-STATION MUZAFFARPUR (MUZAFFARPUR).

|     |                                   |                        |
|-----|-----------------------------------|------------------------|
| 1.  | Chhattarpatti ...                 | Thana Muzaffarpur, 498 |
| 2.  | Mithan Sarai ...                  | " 484                  |
| 3.  | Rampurhari ...                    | " 584                  |
| 4.  | Maksudpur ...                     | " 590                  |
| 5.  | Harkamansahi ...                  | " 553                  |
| 6.  | Dadar Kolhua ...                  | " 481                  |
| 7.  | Chako Chhapra ...                 | " 555                  |
| 8.  | Nandna ...                        | " 567                  |
| 9.  | Mahdaya ...                       | " 537                  |
| 10. | Majlish Madho Chaprá ...          | " 583                  |
| 11. | Turki Khararo ...                 | " 559                  |
| 12. | Dharampur ...                     | " 598                  |
| 13. | Madhopur ...                      | " 614                  |
| 14. | Madaripur Karan ...               | " 588                  |
| 15. | Shankarpur Sakri ...              | " 908                  |
| 16. | Ghosrawan ...                     | " 893                  |
| 17. | Paighambarpur ...                 | " 2                    |
| 18. | Saghari ...                       | " 4                    |
| 19. | Az Rakbe Haraiya Chhapra ...      | " 11                   |
| 20. | Surjanpakri ...                   | " 22                   |
| 21. | Bargawan ...                      | " 878                  |
| 22. | Prannathpur Dumri ...             | " 774                  |
| 23. | Balthi Rasulpur ...               | " 752                  |
| 24. | Balia Indarjit ...                | " 740                  |
| 25. | Bazidpur <i>urf</i> Majhauili ... | " 721                  |
| 26. | Parati ...                        | " 749                  |
| 27. | Turki ...                         | " 741                  |
| 28. | Gurmi ...                         | " 772                  |
| 29. | Unsar ...                         | " 750                  |
| 30. | Konhara Ragho ...                 | " 717                  |
| 31. | Chaumukh ...                      | " 745                  |
| 32. | Konhara Hardas ...                | " 716                  |
| 33. | Doogan ...                        | " 747                  |

## POLICE-STATION BELSAND (MUZAFFARPUR).

| Serial no. | Name of village.                    | Thana and thana number. |
|------------|-------------------------------------|-------------------------|
| 1.         | Mohesha Farrukhpur ...              | Thana, Belsand, 230     |
| 2.         | Korlahi Haranaryan ...              | " " 242                 |
| 3.         | Barheta ...                         | " " 207                 |
| 4.         | Pitaunjia Gobind ...                | " " 232                 |
| 5.         | Bulandpur urf Husainpur ...         | " " 198                 |
| 6.         | Gidha Phulwaria urf Bhagwanpur ...  | " " 193                 |
| 7.         | Seri Khiuria ...                    | " " 209                 |
| 8.         | Hazipur—Basantpur ...               | " " 208                 |
| 9.         | Madhul Sani ...                     | " " 223                 |
|            |                                     | I, II                   |
| 10.        | Dumra ...                           | " " 211                 |
| 11.        | Pota urf Tajpur Phaksia Bharthi ... | " " 213                 |
| 12.        | Rani Shanker ...                    | " " 104                 |
| 13.        | Dilwarpur ...                       | " " 59                  |
| 14.        | Bahilwara urf Garha ...             | " " 65                  |
| 15.        | Sultanpur Madhopur ...              | " " 83                  |
| 16.        | Belahi—Nilkanth ...                 | " " 92                  |
| 17.        | Masumnagar urf Punnagar ...         | " " 64                  |
| 18.        | Mahsaal ...                         | " " 82                  |
| 19.        | Thuma ...                           | " " 91                  |
| 20.        | Kursahar ...                        | " " 1                   |
| 21.        | Surgahi ...                         | " " 4                   |
| 22.        | Salempur ...                        | " " 6                   |
| 23.        | Walipur ...                         | " " 13                  |
| 24.        | Kanahuli Gajpate ...                | " " 25                  |
| 25.        | Parsauni Khiroddhar ...             | " " 26                  |
| 26.        | Sarwarpur ...                       | " " 125                 |
| 27.        | Pachra ...                          | " " 150                 |
| 28.        | Athkauni ...                        | " " 151                 |
| 29.        | Raja Dih ...                        | " " 152                 |
| 30.        | Chhatauni ...                       | " " 157                 |
| 31.        | Aura ...                            | " " 160                 |
| 32.        | Sonbarsa ...                        | " " 164                 |
| 33.        | Narwara Kishunpur ...               | " " 174                 |
| 34.        | Chhapra ...                         | " " 189                 |
| 35.        | Siropatti ...                       | " " 190                 |

## POLICE-STATION PUPRI (MUZAFFARPUR).

|     |                        |                 |
|-----|------------------------|-----------------|
| 1.  | Awapur urf Sherpur ... | Thana Pupri, 87 |
| 2.  | Manikpur ...           | " " 86          |
| 3.  | Rampur Haripur ...     | " " 176         |
| 4.  | Bazidpur Baura ...     | " " 170         |
| 5.  | Gangti ...             | " " 84          |
| 6.  | Narayanpur ...         | " " 74          |
| 7.  | Pharuha Bhawani ...    | " " 82          |
| 8.  | Chainpur ...           | " " 160         |
| 9.  | Bagha Sati ...         | " " 185         |
| 10. | Rusalpur ...           | " " 77          |
| 11. | Jalalpur Bangri ...    | " " 169         |
| 12. | Dumra Dumar Patti ...  | " " 163         |
| 13. | Arazi Nankar ...       | " " 68          |
| 14. | Meghpur ...            | " " 50          |
| 15. | Piprarhi ...           | " " 81          |

## POLICE-STATION PUPRI (MUZAFFARPUR)—concl'd.

| Serial no. | Name of village.     | Thana and thana number. |
|------------|----------------------|-------------------------|
| 16.        | Mahamadpur ...       | Thana Pupri, 90         |
| 17.        | Bhanta Bari ...      | " 70                    |
| 18.        | Basantpur ...        | " 89                    |
| 19.        | Simiahi ...          | " 52                    |
| 20.        | Pachra Nimahi ...    | " 91                    |
| 21.        | Bajapatti Naraha ... | " 92                    |
| 22.        | Dewari Matauna ...   | " 51                    |
| 23.        | Chandarsaina ...     | " 66                    |
| 24.        | Basotra ...          | " 69                    |
| 25.        | Choraut ...          | " 65                    |
| 26.        | Sandhwara ...        | " 96                    |
| 27.        | Madhuban Basaha ...  | " 103                   |
| 28.        | Madhurapur ...       | " 95                    |
| 29.        | Sursand Asli ...     | " 47                    |
| 30.        | Pikdharpur ..        | " 12                    |
| 31.        | Radhau ..            | " 11                    |
| 32.        | Malahi ...           | " 30                    |
| 33.        | Moruki ...           | " 7                     |
| 34.        | Kuari ...            | " 78                    |
| 35.        | Barauli ..           | " 27                    |
| 36.        | Amana ...            | " 40                    |
| 37.        | Majhauria ...        | " 15                    |
| 38.        | Kourna ...           | " 33                    |

## POLICE-STATION SHIUHAR (MUZAFFARPUR).

|     |                            |                   |
|-----|----------------------------|-------------------|
| 1.  | Madhurapur ...             | Thana Shiuhar, 75 |
| 2.  | Akhta ...                  | " 79              |
| 3.  | Harpur Pipra ...           | " 68              |
| 4.  | Sonaul Sube ...            | " 71              |
| 5.  | Bedaul Baz ...             | " 98              |
| 6.  | Barahi Jagdish ...         | " 91              |
| 7.  | Morpa Issar Das ...        | " 74              |
| 8.  | Bira Chhapra ...           | " 190             |
| 9.  | Marpa Tahir ...            | " 86              |
| 10. | Basant patti ...           | " 102             |
| 11. | Mali Pokhar Bhinda ...     | " 131             |
| 12. | Bhatha ...                 | " 193             |
| 13. | Adauri ...                 | " 89              |
| 14. | Parsauni Gop ..            | " 107             |
| 15. | Kataiya ...                | " 120             |
| 16. | Madhopur Anant ...         | " 167             |
| 17. | Naya Gaon ...              | " 188             |
| 18. | Shampur ...                | " 191             |
| 19. | Pardesia urf Maduhbani ... | " 170             |
| 20. | Tajpur ...                 | " 171             |
| 21. | Dosti Mahamadpur ..        | " 122             |
| 22. | Sugia Katasri ...          | " 169             |
| 23. | Amwa Kalan ...             | " 127             |
| 24. | Basant Jagjiwan ..         | " 101             |
| 25. | Hathsar ..                 | " 105             |
| 26. | Piprahi ...                | " 118             |

## POLICE-STATION SHIUHAR (MUZAFFARPUR)—concl'd.

| Serial no. | Name of village.        | Thana and thana number. |                    |
|------------|-------------------------|-------------------------|--------------------|
| 27.        | Sengahi Indarwa         | ...                     | Thana Shiuhar, 123 |
| 28.        | Garahia                 | ...                     | " 129              |
| 29.        | Sanaul Sultan           | ...                     | " 104              |
| 30.        | Bakharchandiha          | ...                     | " 95               |
| 31.        | Bairia                  | ...                     | " 100              |
| 32.        | Minapur Balha           | ...                     | " 143              |
| 33.        | Dhan kaul               | ...                     | " 144              |
| 34.        | Harpur                  | ...                     | " 145              |
| 35.        | Maksudpur Kararia       | ...                     | " 195              |
| 36.        | Gazipur urf Jaisinghpur | ...                     | " 207              |
| 37.        | Rohua                   | ...                     | " 212              |

## POLICE-STATION SITAMARHI (MUZAFFARPUR).

|     |                 |     |                      |
|-----|-----------------|-----|----------------------|
| 1.  | Rampur Ganguli  | ... | Thana Sitamarhi, 268 |
| 2.  | Punura          | ... | " 260                |
| 3.  | Kharsan         | ... | " 276                |
| 4.  | Kusumari        | ... | " 277                |
| 5.  | Parsurampur     | ... | " 283                |
| 6.  | Dewa urf Dewan  | ... | " 285                |
| 7.  | Parmanandpur    | ... | " 295                |
| 8.  | Mirjapur        | ... | " 297                |
| 9.  | Bakhri          | ... | " 298                |
| 10. | Anhari Ujiari   | ... | " 302                |
| 11. | Bharha          | ... | " 303                |
| 12. | Banchauri       | ... | " 307                |
| 13. | Simra           | ... | " 326                |
| 14. | Narayanpur      | ... | " 327                |
| 15. | Muradpur        | ... | " 328                |
| 16. | Paraspatti      | ... | " 352                |
| 17. | Bariarpur       | ... | " 318                |
| 18. | Mahamadpur      | ... | " 319                |
| 19. | Balha Harpur    | ... | " 184                |
| 20. | Bhairo Kothi    | ... | " 321                |
| 21. | Rupauli Ruphara | ... | " 186                |
| 22. | Bhusar Machhaha | ... | " 360                |
| 23. | Kaili           | ... | " 185                |
| 24. | Kamal Dah       | ... | " 182                |
| 25. | Sirauli         | ... | " 191                |
| 26. | Bathnaha        | ... | " 183                |
| 27. | Dostpur Khadubi | ... | " 190                |
| 28. | Saidpur         | ... | " 236                |
| 29. | Mandah          | ... | " 233                |
| 30. | Mahadewa        | ... | " 232                |
| 31. | Bulakipur       | ... | " 246                |
| 32. | Riga            | ... | " 247                |
| 33. | Ramnagar        | ... | " 262                |
| 34. | Khairwa         | ... | " 261                |

## POLICE-STATION KATRA (MUZAFFARPUR).

|    |                  |     |                 |
|----|------------------|-----|-----------------|
| 1. | Madhopur         | ... | Thana Katra, 66 |
| 2. | Bahuara          | ... | " 61            |
| 3. | Barwara Gorib... | ... | " 63            |

POLICE-STATION KATRA (MUZAFFARPUR)—*concl'd.*

| Serial no.      | Name of village.        | Thana and thana number. |                 |
|-----------------|-------------------------|-------------------------|-----------------|
| 4.              | Dih Jiwar               | ...                     | Thana Katra, 31 |
| 5.              | Karhatti                | ...                     | " 55            |
| 6.              | Madhuban Partap         | ...                     | " 57            |
| 7.              | Bharospatti Manopatti   | ...                     | " 47            |
| I, II.          |                         |                         |                 |
| 8.              | Tulsi Anantpur          | ...                     | " 45            |
| I, II, III, IV. |                         |                         |                 |
| 9.              | Sarhanchia              | ...                     | " 54            |
| 10.             | Hasawara                | ...                     | " 62            |
| 11.             | Bhadai                  | ...                     | " 30            |
| 12.             | Asia                    | ...                     | " 164           |
| 13.             | Loma                    | ...                     | " 167           |
| 14.             | Berwa                   | ...                     | " 150           |
| 15.             | Kothia                  | ...                     | " 148           |
| 16.             | Dahila Patsawan         | ...                     | " 138           |
| 17.             | Kamortheb               | ...                     | " 165           |
| 18.             | Jaya                    | ...                     | " 166           |
| 19.             | Dhanaur                 | ...                     | " 173           |
| 20.             | Baghakhal               | ...                     | " 137           |
| 21.             | Nawada                  | ...                     | " 221           |
| 22.             | Shiudaspur              | ...                     | " 131           |
| 23.             | Basua                   | ...                     | " 118           |
| 24.             | Barhad                  | ...                     | " 71            |
| 25.             | Khangura Dih            | ...                     | " 206           |
| 26.             | Manipur Dahila          | ...                     | " 136           |
| 27.             | Katai                   | ...                     | " 190           |
| 28.             | Bishambharpatti         | ...                     | " 75            |
| 29.             | Amma                    | ...                     | " 82            |
| 30.             | Aurai                   | ...                     | " 97            |
| 31.             | Sohijan Dih             | ...                     | " 79            |
| 32.             | Madhaipura              | ...                     | " 81            |
| 33.             | Ratwara Bindwara Deoria | ...                     | " 105           |
| 34.             | Keotas                  | ...                     | " 244           |
| 35.             | Chhitwara               | ...                     | " 266           |
| 36.             | Ladaura                 | ...                     | " 276           |

## POLICE-STATION SHAKRA (MUZAFFARPUR).

|    |         |     |                        |
|----|---------|-----|------------------------|
| 1. | Chhapra | ... | Thana Muzaffarpur, 898 |
|----|---------|-----|------------------------|

## POLICE-STATION KESARIYA (CHAMPARAN).

|     |                  |     |                     |
|-----|------------------|-----|---------------------|
| 1.  | Chak Bara        | ... | Thana Kesariya, 125 |
| 2.  | Baramdia         | ... | " 132               |
| 3.  | Chintamanpur     | ... | " 4                 |
| 4.  | Ballochak        | ... | " 133               |
| 5.  | Jamunia          | ... | " 3                 |
| 6.  | Khairi Mal       | ... | " 1                 |
| 7.  | Madhuban Bodiban | ... | " 103               |
| 8.  | Pakri Dichhit    | ... | " 174               |
| 9.  | Birdaban         | ... | " 163               |
| 10. | Harpur           | ... | " 11                |
| 11. | Sariatpur        | ... | " 70                |
| 12. | Kaleyampur       | ... | " 96                |

## POLICE-STATION MOTIHARI (CHAMPARAN).

| Serial no. | Name of village. | Thana and thana number. |
|------------|------------------|-------------------------|
| 1.         | Tikuliya         | Thana Motihari, 215     |
| 2.         | Dhekaha          | " 214                   |
| 3.         | Phulawar         | " 19                    |
| 4.         | Unwa Birit       | " 27                    |
| 5.         | Mansingha        | " 58                    |
| 6.         | Burhwa           | " 60                    |
| 7.         | Pachrukha        | " 65                    |
| 8.         | Suganw           | " 31                    |
| 9.         | Chapra Bahas     | " 56                    |
| 10.        | Jaisinghpur      | " 85                    |
| 11.        | Belwa Ray        | " 72                    |
| 12.        | Panditpur        | " 185                   |
| 13.        | Basawaria        | " 197                   |
| 14.        | Lakhaura         | " 128                   |
| 15.        | Sapahi           | " 79                    |
| 16.        | Siswa            | " 115                   |

## POLICE-STATION DHAKA (CHAMPARAN).

|     |                      |                  |
|-----|----------------------|------------------|
| 1.  | Chorma               | Thana Dhaka, 142 |
| 2.  | Siraha               | " 141            |
| 3.  | Balwa (Dumri Gobind) | " 204            |
| 4.  | Tharbhitia           | " 143            |
| 5.  | Saraia Gopal         | " 169            |
| 6.  | Baluazulfaqarabad    | " 206            |
| 7.  | Bhabantoli           | " 210            |
| 8.  | Bela Baiju           | " 208            |
| 9.  | Shekhpurwa           | " 209            |
| 10. | Dhananji             | " 156            |
| 11. | Dumri Baiju          | " 167            |
| 12. | Rajepur Nawada       | " 145            |
| 13. | Majhauia             | " 243            |
| 14. | Harnaraina           | " 166            |
| 15. | Mahamada Woli        | " 168            |
| 16. | Patahi Jadu          | " 205            |
| 17. | Parsauni Kapur       | " 212            |
| 18. | Rampur-Manorath      | " 213            |
| 19. | Dalpat-Bishunpur     | " 174            |
| 20. | Barkagaon            | " 134            |
| 21. | Sorpaniya            | " 176            |
| 22. | Koilashi             | " 130            |
| 23. | Harbolwa             | " 116            |
| 24. | Bokane Kalan         | " 211            |
| 25. | Champapur            | " 203            |
| 26. | Raghobpur            | " 117            |
| 27. | Barharwa Lakhansen   | " 172            |
| 28. | Semra                | " 132            |
| 29. | Malkauniya           | " 178            |
| 30. | Jhauwa Ram           | " 111            |
| 31. | Bara Jairam          | " 54             |
| 32. | Khartari             | " 129            |



POLICE-STATION DHAKA (CHAMPARAN)—*concl'd.*

| Serial no. | Name of village. | Thana number.   |
|------------|------------------|-----------------|
| 33.        | Jadipur Bakhari  | Thana Dhaka, 99 |
| 34.        | Narkatiya        | " 102           |
| 35.        | Barharawa Siwan  | " 103           |
| 36.        | Chandmohan       | " 70            |
| 37.        | Turkaulia        | " 112           |
| 38.        | Mirpur           | " 121           |
| 39.        | Gawandari        | " 71            |
| 40.        | Hardiya          | " 72            |
| 41.        | Sisahni          | " 73            |
| 42.        | Kat Kuian        | " 122           |
| 43.        | Bhawanipur       | " 82            |
| 44.        | Bukhri Khajuri   | " 98            |
| 45.        | Masaurha         | " 66            |
| 46.        | Hasanpur         | " 67            |
| 47.        | Jatwaliya        | " 74            |
| 48.        | Gurgawon         | " 75            |
| 49.        | Pach Pakri       | " 180           |
| 50.        | Karsahia         | " 65            |
| 51.        | Goabari          | " 83            |
| 52.        | Telahra Kalan    | " 77            |
| 53.        | Jamua            | " 93            |
| 54.        | Garahia          | " 179           |
| 55.        | Padumker         | " 186           |
| 56.        | Bhandar          | " 187           |
| 57.        | Betauna          | " 201           |
| 58.        | Gonahi           | " 199           |
| 59.        | Jihuli           | " 197           |
| 60.        | Gaibandhi        | " 235           |
| 61.        | Gambhariya       | " 200           |
| 62.        | Khan Pipra       | " 249           |
| 63.        | Phenhara         | " 236           |
| 64.        | Madhopur         | " 51            |

## POLICE-STATION MADHUBAN (CHAMPARAN).

|     |                     |                   |
|-----|---------------------|-------------------|
| 1.  | Jogaulia (Kasba)    | Thana Madhuban, 3 |
| 2.  | Jitaura             | " 1               |
| 3.  | Dulhuma             | " 2               |
| 4.  | Jogaulia (Madhopur) | " 10              |
| 5.  | Punar Murgai Chak   | " 79              |
| 6.  | Madhuban (Koilhara) | " 93              |
| 7.  | Barhampur           | " 37              |
| 8.  | Kishunkara          | " 34              |
| 9.  | Kauria              | " 38              |
| 10. | Kajarhan            | " 39              |
| 11. | Kadwa               | " 57              |
| 12. | Balbhadarapur       | " 58              |
| 13. | Narha Panapur       | " 60              |
| 14. | Meghua              | " 62              |

## POLICE-STATION GOBINDGANJ (CHAMPARAN).

|    |                  |                       |
|----|------------------|-----------------------|
| 1. | Lohiyar Ujain    | Thana Gobindganj, 133 |
| 2. | Matiaria Nizamat | " 138                 |

## POLICE-STATION DARBHANGA (DARBHANGA).

| Serial no. | Name of village. | Thana and thana number. |     |     |                      |
|------------|------------------|-------------------------|-----|-----|----------------------|
| 1.         | Musihama         | ...                     | ... | ... | Thana Darbhanga, 161 |
| 2.         | Rampurdi         | ...                     | ... | ... | " 149                |
| 3.         | Arai             | ...                     | ... | ... | " 137                |
| 4.         | Mani             | ...                     | ... | ... | " 438                |
| 5.         | Misrauli         | ...                     | ... | ... | " 105                |
| 6.         | Ahiari           | ...                     | ... | ... | " 59                 |
| 7.         | Kothia           | ...                     | ... | ... | " 341                |
| 8.         | Kataia           | ...                     | ... | ... | " 58                 |
| 9.         | Bhagawatipur     | ...                     | ... | ... | " 69                 |
| 10.        | Kanigaon         | ...                     | ... | ... | " 65                 |
| 11.        | Asraha           | ...                     | ... | ... | " 380                |
| 12.        | Keoti Ranwe      | ...                     | ... | ... | " 392                |
| 13.        | Singhware        | ...                     | ... | ... | " 98                 |
| 14.        | Siso             | ...                     | ... | ... | " 307                |
| 15.        | Paigambarpur     | ...                     | ... | ... | " 391                |
| 16.        | Ramaul           | ...                     | ... | ... | " 38                 |
| 17.        | Jethiahi         | ...                     | ... | ... | " 381                |
| 18.        | Haripur          | ...                     | ... | ... | " 334                |
| 19.        | Kamtaul          | ...                     | ... | ... | " 40                 |
| 20.        | Darhia           | ...                     | ... | ... | " 39                 |
| 21.        | Massa            | ...                     | ... | ... | " 30                 |
| 22.        | Rarhi            | ...                     | ... | ... | " 44                 |
|            |                  |                         |     |     | 2                    |
|            |                  |                         |     |     | 44                   |
| 23.        | Dighra           | ...                     | ... | ... | " 17                 |
| 24.        | Reorha           | ...                     | ... | ... | " 13                 |
| 25.        | Jogiara          | ...                     | ... | ... | " 6                  |

## POLICE-STATION MADHUBANI (DARBHANGA).

|     |                  |     |     |     |                      |
|-----|------------------|-----|-----|-----|----------------------|
| 1.  | Mahinathpur      | ... | ... | ... | Thana Madhubani, 189 |
| 2.  | Biraue           | ... | ... | ... | " 174                |
| 3.  | Rampatti         | ... | ... | ... | " 186                |
| 4.  | Kaithahi         | ... | ... | ... | " 187                |
| 5.  | Nawhath          | ... | ... | ... | " 134                |
| 6.  | Koilakh          | ... | ... | ... | " 182                |
| 7.  | Bharia Bishunpur | ... | ... | ... | " 191                |
| 8.  | Pariharpur       | ... | ... | ... | " 54                 |
| 9.  | Karahia          | ... | ... | ... | " 53                 |
| 10. | Basauli          | ... | ... | ... | " 17                 |

## POLICE-STATION KHAJALI (DARBHANGA).

|     |            |     |     |     |                   |
|-----|------------|-----|-----|-----|-------------------|
| 1.  | Maheshwara | ... | ... | ... | Thana Khajali, 98 |
| 2.  | Ghongaur   | ... | ... | ... | " 101             |
| 3.  | Madhaipur  | ... | ... | ... | " 59              |
| 4.  | Harpur     | ... | ... | ... | " 52              |
| 5.  | Karmauli   | ... | ... | ... | " 60              |
| 6.  | Dokahar    | ... | ... | ... | " 58              |
| 7.  | Marhia     | ... | ... | ... | " 35              |
| 8.  | Bhaiapatti | ... | ... | ... | " 47              |
| 9.  | Kalikapur  | ... | ... | ... | " 76              |
| 10. | Siriapur   | ... | ... | ... | " 42              |
| 11. | Basopatti  | ... | ... | ... | " 38              |
| 12. | Palimohan  | ... | ... | ... | " 69              |
| 13. | Barhi      | ... | ... | ... | " 26              |

## POLICE-STATION HARLAKHI (DARBHANGA).

| Serial no. | Name of village.   | Thana and thana number. |
|------------|--------------------|-------------------------|
| 1.         | Pahra ... ..       | Thana Benipatti, 30     |
| 2.         | Tisi Narsam ... .. | " 154                   |
| 3.         | Jagban ... ..      | " 149                   |

## POLICE-STATION BENIPATTI (DARBHANGA).

|     |                      |                      |
|-----|----------------------|----------------------|
| 1.  | Dumra ... ..         | Thana Benipatti, 196 |
| 2.  | Ladaut ... ..        | " 36                 |
| 3.  | Nagdah Balain ... .. | " 219                |
| 4.  | Karhi ... ..         | " 199                |
| 5.  | Andhri ... ..        | " 180                |
| 6.  | Ranipur ... ..       | " 136                |
| 7.  | Baingra ... ..       | " 156                |
| 8.  | Marhia ... ..        | " 237                |
| 9.  | Sadullahpur ... ..   | " 162                |
| 10. | Parsauni ... ..      | " 178                |
| 11. | Nurchak ... ..       | " 170                |
| 12. | Bardaha ... ..       | " 147                |
| 13. | Gorhaul ... ..       | " 160                |
| 14. | Ganguli ... ..       | " 143                |
| 15. | Meghban ... ..       | " 138                |
| 16. | Ahpur ... ..         | " 142                |
| 17. | Balia ... ..         | " 144                |
| 18. | Khairibanka ... ..   | " 241                |
| 19. | Bisfi ... ..         | " 171                |
| 20. | Pali ... ..          | " 140                |
| 21. | Singhia ... ..       | " 167                |
| 22. | Rathos ... ..        | " 146                |
| 23. | Damodarpur ... ..    | " 141                |
| 24. | Raghauli ... ..      | " 164                |
| 25. | Pirokhar ... ..      | " 101                |
| 26. | Bishunpur ... ..     | " 116                |
| 27. | Barri ... ..         | " 115                |

## POLICE-STATION BANGAON (BHAGALPUR).

|    |                 |                    |
|----|-----------------|--------------------|
| 1. | Purikh ... ..   | Thana Bangaon, 166 |
| 2. | Nauhatta ... .. | " 19               |
| 3. | Sihaul ... ..   | " 154              |

## POLICE-STATION SUPAUL (BHAGALPUR).

|    |                           |                   |
|----|---------------------------|-------------------|
| 1. | Balha ... ..              | Thana Supaul, 189 |
| 2. | Ekma ... ..               | " 211             |
| 3. | Parsarama Parsauni ... .. | " 198             |
| 4. | Bina ... ..               | " 212             |
| 5. | Bairo ... ..              | " 193             |

## APPENDIX D.

After considering Special Officer, Sand Damage Survey's letter no. 721 of 8th May my provisional view is that the same notation should be used both for the thana maps and for the general map.

2. First of all a complete list of villages must be prepared by the Special Officer by Chaukidari unions in the following form for each Revenue thana :—

| 1             | 2             | 3                        | 4                      | 5              | 6                                  |
|---------------|---------------|--------------------------|------------------------|----------------|------------------------------------|
| Village name. | Thana number. | Chaukidari union number. | Total area of village. | Damage figure. | Product of area and damage figure. |
|               |               |                          |                        |                |                                    |

Columns 1, 2 and 4 are available from the thana lists and column 3 must be filled up from the information in the Collectorate. Column 5 is to be derived from the registers of sand damage survey, the calculation to be made thus:—In a village of 1,000 acres, 6 acres have been put in class I, 52 acres in class II, 38 acres in class III and 4 acres in class IV; the damage figure would be Rs.  $10 \times 6 + Rs. 20 \times 52 + Rs. 30 \times 38 + Rs. 35 \times 4 = Rs. 2,380$  to be divided by the total area (1,000 acres) = Rs. 2.38. Column 6 will be the damage figure before division by the total area, in this particular case Rs. 2,380.

3. For the preparation of the thana 1"=1 mile maps the figures in column 5 will be taken, and the villages coloured as follows :—

Yellow—Less than Rs. 3—Slight damage.

Green—Not less than Rs. 3 but less than Rs. 6—Average damage.

Rs.

Red—  $\left. \begin{array}{l} \text{Not less than 6} \\ \text{but less than 9} \end{array} \right\}$  —Severe damages.

Dark blue—9 or more—Very severe damage.

4. For the preparation of the general map, the totals of columns 4 and 6 will be struck for each chaukidari union, and the total of column 6 divided by the total of column 4.

This will give a damage figure for the chaukidari union which should be entered in column 5 in the line for totals. This figure will be used for colouring up the whole chaukidari union on the general map in exactly the same way as the column 5 figure is used in colouring up the village on the thana maps.

5. The actual meaning of the different colours will be as follows :—

A village with a damage figure of Rs. 3 will have about the average damage (which is roughly Rs. 25 per acre of damaged land, and indicates a deposit averaging  $1\frac{1}{2}$  feet in depth) on 12 per cent of its total area. A village with a damage figure of Rs. 4 will have average damage on 16 per cent of its total area. (This is only a little more than the average damage throughout the surveyed tract seems likely to come out at.) A village with a damage figure of Rs. 9 will have average damage on 36 per cent of its total area. Any damage in excess of this may need the special attention of the local officers. Damage much over the Rs. 9 standard, e.g., Rs. 12, which would mean average damage on nearly 50 per cent of the total area, might be indicated by hatching the villages in red over the dark blue on the thana maps.

6. Since it is unlikely that many chaukidari unions will have damage much exceeding the Rs. 9 standard no hatching will be necessary, but all such tracts will need the special attention of the Collector.

7. I think it would be as well if the results received from the Special Officer were examined in the Director of Land Records and Surveys' office before any work of colouring up the maps is begun, and a note put up showing the number of villages, chaukidari unions that will fall into each class for colouring purposes. Before a final decision is reached Mr. Brett and Mr. Houlton might be consulted at this stage.

8. The responsibility of preparing the list prescribed in paragraph 2 will be on the Special Officer. The preparation of the maps will be entrusted to the Deputy Director of Surveys. The meaning of the colours should be briefly explained on the general map, which will be based on the Road map and will be on the 1"=10 miles scale.

J. A. HUBBACK.

*The 10th May 1934.*

**APPENDIX 'E'.**

|  |     |     |                  |
|--|-----|-----|------------------|
| A.—Total number of villages under survey                     | ... | ... | 4,152            |
| B.—Total area surveyed                                       | ... | ..  | 2,647,591 acres. |
| Total area damaged   | ... | ..  | 393,977 ..       |
| Percentage of damage   | ..  | ... | 15 per cent.     |
| <i>Percentages of different classes of the damaged area.</i> |     |     |                  |
| Class I.—(below 6")  | ..  | ... | 7 per cent.      |
| Class II.—(6" but less than 1')                              | ... | ... | 52 ..            |
| Class III.—(1' but less than 2')                             | ... | ... | 37 ..            |
| Class IV.—(2' and above)                                     | ... | ... | 4 ..             |
| C.—Number of plots surveyed                                  | ... | ... | 6,028,210        |
| Number of plots damaged                                      | ... | ... | 1,810,958        |
| Percentage of damaged plots                                  | ... | ... | 31 per cent.     |

DEPARTMENT OF LAND RECORDS AND SURVEYS,  
BIHAR AND ORISSA.

No. 4944.

FROM

RAI BAHADUR B. SARKAR,  
SECRETARY TO THE BOARD OF REVENUE,  
BIHAR AND ORISSA,

TO

THE SECRETARY TO THE GOVERNMENT OF  
BIHAR AND ORISSA, REVENUE DEPARTMENT.

*Dated Patna, the 19th September 1934.*

SIR,

I AM directed to forward the final report on the survey of lands damaged by earthquake in North Bihar in 1934 written by Babu Nila Lohita Bhattacharji, Sub-Deputy Collector and Special Officer in charge of the survey.

2. The area under survey was 4,137 square miles, which was divided into 11 circles, each under a circle officer with 12 to 15 surveyors. The staff employed consisted of 3 Sub-Deputy Collectors, 4 temporary Assistant Settlement Officers, 5 kanungos and 150 surveyors. The work was carried on under conditions of considerable hardship, owing to the apathy of the villagers who gave no assistance in pointing out their lands and also owing to the operation being conducted during summer when the heat was intense. One surveyor died from heat-stroke and others were affected.

3. The extent of damage found as a result of survey is as follows :—

| Area covered with sand in square miles. | Percentage on total area found damaged. | Depth of sand in feet. |
|---|---|------------------------|
| 44                                      | 7                                       | up to $\frac{1}{2}$    |
| 322                                     | 52                                      | $\frac{1}{2}$ to 1     |
| 228                                     | 37                                      | 1 to 2                 |
| 21                                      | 4                                       | above 2                |

The percentage of damage comes to about 15 per cent of the surveyed area, whereas the percentage of damaged plots comes to about 30 per cent. A feature of the survey was the remarkable uniformity of the results as the work progressed. The percentage of the damaged area to the total area surveyed worked out week after week to 15 to 16 per cent.

4. The operation lasted for two months and 19 days and involved an expenditure of Rs. 30,564, which gives an average of Rs. 7-6-2 per square mile of the total area surveyed. The work has been economically carried out and credit is due to Babu Nila Lohita Bhattacharji, Sub-Deputy Collector for his efficient organization of the work and completion of the survey within a short time.

I have the honour to be,

Sir,

Your most obedient servant,

B. SARKAR,

*Secretary.*

No. 19:64-B.  
III A-46.

GOVERNMENT OF BIHAR AND ORISSA.

REVENUE DEPARTMENT.

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R E S O L U T I O N .

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*Patna, the 22nd December 1934.*

READ—

The Final Report on the survey of lands damaged by the earthquake in North Bihar in 1934.

Also the review of the Board of Revenue, Bihar and Orissa, on the above report contained in Board's letter no. 4944, dated the 19th September 1934.

One of the first essentials after the earthquake of the 15th January 1934 was to ascertain the extent of the damage done to agricultural land in North Bihar by the throwing up of sand from blow-holes and fissures during the earthquake. In order to obtain a general idea of the areas most affected, the local officers were asked to obtain, through the thana officers and chaukidars, reports of the extent of the damage in every village in North Bihar. Preliminary surveys were carried out under the instructions of the Board of Revenue and two inspectors, lent by the Chota Nagpur Settlement, and a gazetted officer from that settlement, in order to arrive at the best method of carrying out the survey. The actual survey work began on the 10th of March and was completed by the 28th of May 1934. An area of 4,137 square miles was covered, and within that about 14 per cent was found to have sand deposits of a depth of six inches or more, while nearly one plot in three had some damage. The work was carried through under conditions of considerable hardship and the formidable task was completed in a creditably short space of time, with results which were of great value to Government.

2. Government agree with the Board in their commendation of the work of Babu Nila Lohita Bhattacharji, Sub-Deputy Collector, who has since been promoted to Deputy Collector.

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ORDER.—Ordered that a copy of the foregoing resolution be published in the *Bihar and Orissa Gazette*.

By order of the Governor in Council,

J. W. HOULTON,

*Offg. Secretary to Government.*