

Congested and Contested Spaces

Introduction: Urban Renewal

The earthquake was, according to the local colonial government, administrators, engineers and segments of the population, an ideal scenario for rebuilding with better standards and for better socio-economic conditions. The devastation was effectively used to implement new town plans by arguing that reduced risk in future earthquakes could be achieved by changes in the plans of the bazaars. Conveniently, planning for earthquake-safe bazaars conflated with improvements of sanitary provisions and roads. In reply to an initial proposal for town planning in the larger towns of Muzaffarpur and Darbhanga, the Commissioner of Tirhut expressed his views regarding suggestions for town planning in Tirhut. The earthquake was an opportunity to transform Darbhanga into 'the model town': "Theoretically the clean-sweep made by the earthquake is the Godsent [*sic*] opportunity to replace dirt, discomfort, and irregularity, by the model town'.¹ In Monghyr and Muzaffarpur, too, the rebuilding phase from 1934 to 1937 was viewed by the government and engineers as an opportunity for making changes in the social and material fabric of society, underlining the positive outcome of the earthquake as a form of creative destruction. The transformative aspect of disasters is a recurrent theme in urban history.² As suggested in the case of North American disasters, to rebuild better after disasters is an integral part of a capitalist system which feeds on disasters and upheavals.³ In its most extreme form, disaster research has compared the phenomenon of reconstruction after disasters to a phoenix rising from the ashes.⁴ The Great Fire of London in 1666 is often taken as an example of changes in architecture and construction types as a result of large-scale destruction.⁵ In a long-term perspective, particularly important since seismic events may have long intervals in between, the question

is to what extent the disaster provides lessons learnt with future events in consideration.⁶ Japan is one such example where construction materials and methods for building earthquake-resistant buildings evolved through experiences with major catastrophes.⁷ But also when there is learning from a disaster, several other variables such as public facilities, transport routes and access to water play a major role in urban reconstruction.

This chapter addresses how the rebuilding phase became a site for transformations that reflected contemporary notions of town planning, guided by sanitation engineering and interests in improving trade conditions.⁸ Even though official rhetoric made a point out of 'learning' from the disastrous consequences of unrestricted constructions and congested areas, planning was generally undertaken with contemporary conceptions of improvements in sanitation and trade in mind, rather than minimising risk in future earthquakes. In this sense, reconstruction plans after the earthquake treated it as a singular event overshadowed by an agenda of improvements of living conditions and commercial infrastructure, as defined by the local colonial government and sections of the urban population. While these improvements guided the reconstruction phase, the government used earthquake safety as an argument for widening roads and lowering population density with the help of the financial aid that followed in the wake of the earthquake.

The principles of 'improvements' underpinning town planning followed a strategy that had been used to implement sanitation and transport facilities in urban South Asia in the late nineteenth and early twentieth centuries. While urban planning in smaller towns like in Bihar was a relatively unchartered territory, town planning in metropolises under colonial rule was carried out under the banner to improve hygiene and trade conditions, and to secure military and disciplinary control from the state's point of view.⁹ As will be further discussed in this chapter, the outcomes of town planning in Bihar displayed a scenario similar to what Nandini Gooptu has argued in the case of urban planning:¹⁰ it had a marginalising effect on settlements of the urban poor by removing them from the centres in order to carry out modernisation and hygienic 'improvements'. Sanitation engineering included rebuilding more spaced and simpler structures, and the widening of roads would facilitate movement: in effect, these changes meant buildings would be less likely to kill people in future earthquakes. In order to achieve these improvements—interchangeably argued to be for the betterment of transport access, sanitary provisions and earthquake safety—population density in the bazaars had to decrease, buildings techniques had to be reviewed, roads had to be widened and

drains constructed. Implementing these changes necessitated a restructuring of space with the result of temporary and in some cases permanent dislocation of residents in a struggle over commercial plots.

Before the earthquake larger towns in Bihar had had their share of town planning in attempts to address public health issues, transport and governance. In Patna, by the end of the nineteenth century, the spread of diseases from the so-called native town to the European settlements motivated municipal committees under the direction of local British administrators to initiate what turned out to be failed attempts at constructing sanitation and water provisions.¹¹ In the railway hub Jamalpur, Nitin Sinha notes several parallel developments in how planning addressed sanitation and security in the town as compared to in larger urban settings. Providing 'civic' amenities was reserved for European settlements, for the sake of their health, comfort and security.¹² A shift can be discerned after 1857 when structuring communications and defence became prominent features of town planning as a means to enhance control over the cities and residents, according to Veena Talwar Oldenburg's research on Lucknow and north Indian cities.¹³ Road widening undertaken for the improvement of Bombay was, according to Prashant Kidambi, motivated by cleaning up a sanitary disorder and to enhance the city's image as a centre of imperial and commercial power where unimpeded circulation and free movement of people and commodities characterised an 'orderly city'.¹⁴ Similar to what secondary sources argue, the district gazetteer for Monghyr from 1960 describes how town planning in select areas of Monghyr after 1857 became an improvement of communications, sanitation and control of the town from the local government's perspective. Reconstruction after the 1934 earthquake featured as an opportunity for the local government to continue what was set in motion during the nineteenth century, a transformation of the town layout in terms of sanitary provisions, transport and security. In 1859 and 1867, private individuals petitioned the government with proposals to 'improve' the fort area and surrounding settlements. Consequently, in the 1860s and 1870s the area, 'densely crowded with native huts and *kutch*a houses surrounded by low jungle and in the most filthy state', transformed as the occupants of the huts were bought out and instead 'good bungalows' were erected, many still in existence in the 1950s.¹⁵ Earthquake reconstruction to a large extent continued these nineteenth-century initiatives in altering transport and hygiene provisions by stressing a need for improved sanitation and better living standards. According to the district gazetteer, the construction of drainages and roads in the town's bazaar after the earthquake were the major improvements undertaken from the

1930s to the 1950s.¹⁶ The earthquake interrupted and ruined a substantial part of the reorganisation of water infrastructure, leaving the town with only 50 per cent of the original water supply for two years after the earthquake. Water supply to the town was, however, an issue since the beginning of the twentieth century as the municipality had bought unfiltered water from the East Indian Railway Company's pumping station at Jamalpur, before organising its own facility, which soon broke down and it again reverted to its old provider. The water scheme was further expanded after the earthquake and again subject to rounds of planning during the next five years.¹⁷ The earthquake had ruined infrastructure across the town, yet it was in retrospect perceived to have facilitated the reconstruction of the Chowk area in particular, which after the earthquake got broader roads, lanes and *pucca* drains.¹⁸ Apart from town planning and water infrastructure, the reconstruction of Monghyr after the earthquake helped the local government become the largest builder in the town. The gazetteer does not mention who was the largest builder before but, as discussed in this chapter, the reconstruction of the Chowk bazaar necessitated reclamation of land in Bekapur, which later would be known as the shopping area of Raja Bazaar (also referred to as the Raja bazaar), where the management of land and semi-permanent buildings was later transferred from the municipality to the local government. The new plan for the bazaar meant a number of new plots in the town, and it may also have been part of the town's lateral growth noted in the district gazetteer. Next to the government, house-owners, described as people of a 'higher income group', benefitted by rebuilding 'better type' *pucca* houses,¹⁹ a process set in motion by the earthquake as will be discussed in this chapter.

The following sections address how the idea of town planning was conceptualised by government officials in the earthquake's aftermath as a project of improvements (An Opportunity for Improvements) and how practical concerns were dealt with by restricting attempts at repairs or reconstruction of houses along roads (Paving the Way for Town Planning). In order to oversee reconstruction, a superintending engineer assisted by a number of engineers was hired to manage practical and technical questions (Engineers: Rebuilding Better). The town planning of bazaars shows how reconstruction 'improved' towns according to 'hygienic' standards and consolidated the interests of large leaseholders and shopkeepers ('Improving Slums': Planning Bazaars). The plan for how to undertake such planning in several ways underestimated the human side of urban renewal as the relocated residents, their financial compensation and tenancy rights appeared more complicated to address than rebuilding houses and restructuring space (Protected Interests, Protected Spaces).

An Opportunity for Improvements

The destruction and death in Monghyr's bazaars figured as an example par excellence of the need for town planning. The bazaar's layout, its crowds, narrow lanes and uncontrolled constructions posed as the cause of death to which the remedy was control through a plan that widened roads and lowered population density. The earthquake turned Monghyr's Chowk bazaar into 'a heap of bricks presenting the appearance of a huge brick Kiln [*sic*] with its bricks scattered all around without any order'.²⁰ The bazaar was a 'gigantic rubble heap, piled 15 feet high' and it was impossible to tell where the roads and lanes had been, as amply illustrated by photographs.²¹ Other bazaars of the town had also toppled down and most of the injuries and deaths had occurred in Topekhana bazaar, Bari bazaar and the Chowk bazaar.²² Congestion and narrow lanes became death traps, while in less congested *mohallas* the number of deaths was much smaller (Images 6.1 and 6.2).²³ In a spacious residential area of the Chowk bazaar, 80 persons had been dug out within one and a half hours, leaving the number of

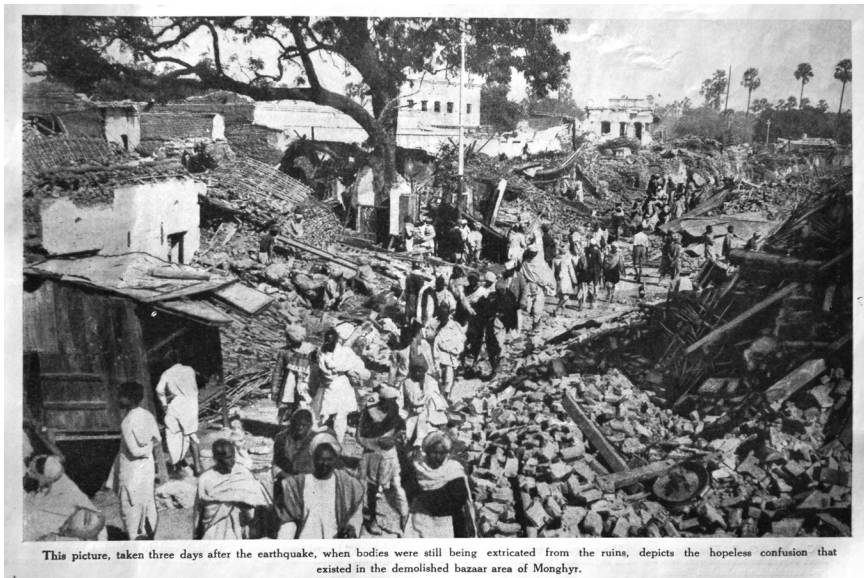
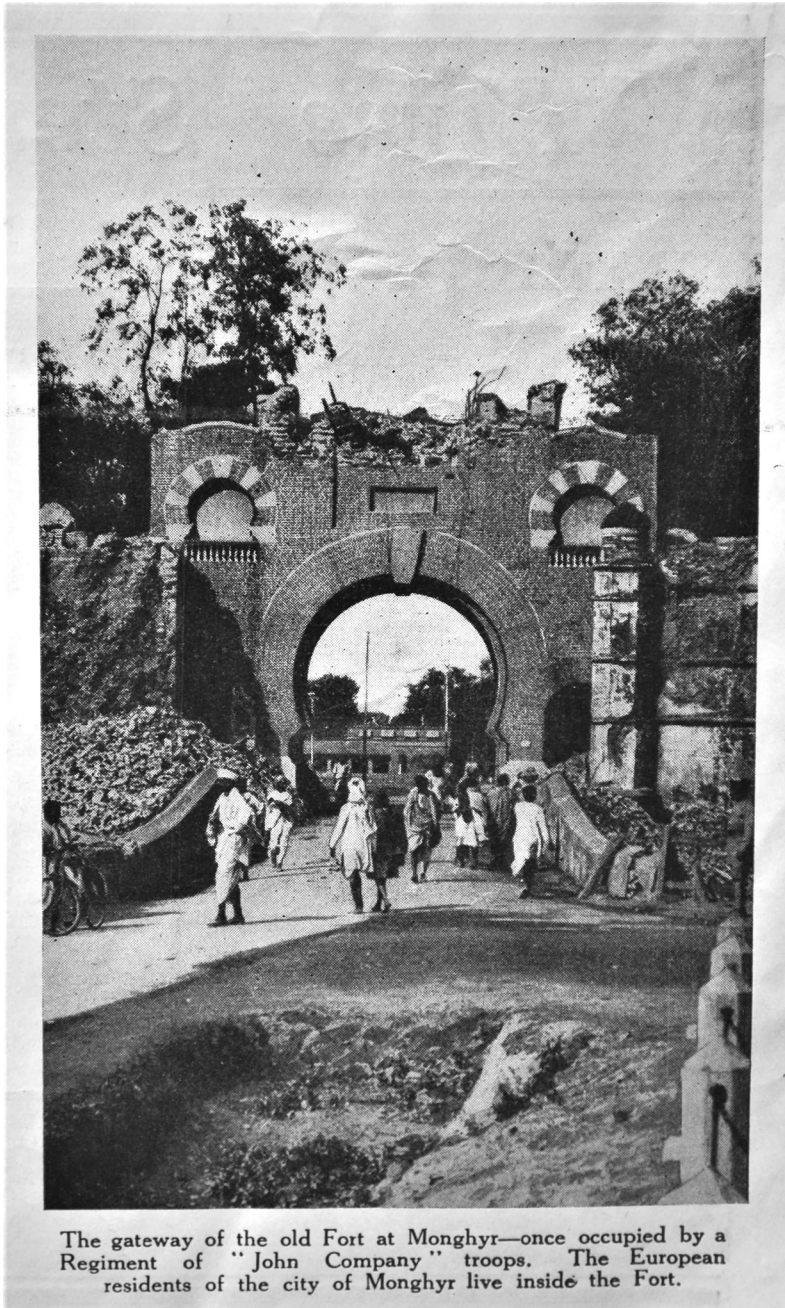


Image 6.1 One of many photos of the vast destruction in Monghyr bazaar published by the newspapers. This one was taken three days after the earthquake, hence before partially ruined constructions were demolished and the rubble cleared.

Source: Moore (ed.), *Record of the Great Indian Earthquake*, 21.



The gateway of the old Fort at Monghyr—once occupied by a Regiment of "John Company" troops. The European residents of the city of Monghyr live inside the Fort.

Image 6.2 The remains of the clock tower-cum-gateway to the fort in Monghyr were like the destroyed bazaars widely published in the newspapers.

Source: Moore (ed.), *Record of the Great Indian Earthquake*, 35.

people buried under the debris to be 'well imagined' in the narrow and congested roads and lanes.²⁴ Those who escaped through the dust and darkness as the houses fell, ran for open space such as the maidan of the fort in Monghyr where eye-witness accounts described thousands to have sought refuge.²⁵

Government officials too told of the dangers of the bazaar. In the announcement of a new town plan for Monghyr, the Chowk bazaar was described as congested: its narrow lanes and high buildings had formed a 'death trap' which the government set out to amend by widening the roads.²⁶ Reconstruction in towns was viewed as an opportunity by the local government 'to take advantage' and make desired changes in terms of facilitating transport and widening 'the principal thoroughfares of these towns'.²⁷ In Bihar, communication was a fundamental part of colonial expansion and access to trade within the province as well as by linking up with larger transport arteries to the city of Calcutta.²⁸ Communication and modes of transport in the region not only affected trade and the physical presence of the colonial powers, but would also come to shape ideas and practices of rule in the earlier colonial period.²⁹ Communication and infrastructure between settlements—towns, trade centres, production centres, districts and nearby cities—were essential features of the state's presence in the province.³⁰

As Relief Commissioner Brett, in charge of coordinating town planning, argued in the Legislative Council when the town plan for Monghyr was finally approved in September 1934: deaths could easily be avoided in future earthquakes by thorough town planning with open spaces and wider roads.³¹ While the plan was being drafted, the government announced that '[t]he new scheme will remove congestion, provide better sanitation, and is likely to be conducive to economic improvement and minimise the risk to life'.³² In particular in bazaar areas, the GSI's recommendation on reconstruction supported the implementation of a minimum standard width for roads and park areas, as larger open areas were 'as desirable for health reasons as for earthquake-escape routes'.³³ As mentioned in Chapter 1, town planning in Motihari and Jamalpur had arguably saved people's lives by making it less densely populated. In Jamalpur, though the material destruction was extensive, the reason for the relatively low number of deaths was thanks to the town being 'not so congested and not so populous as Monghyr is'.³⁴ As the planning process progressed, statements in the press hailed the 'scientific town plan' projected for Monghyr's bazaar in which new wide roads ran through the 'most densely populated quarter'.³⁵ The same arguments applied to Darbhanga's town plan: 'designed to improve and replan the congested areas in Darbhanga town so as to render them safer in terms of another earthquake, and

to provide better sites for the population'.³⁶ Reconstruction was perhaps nowhere as frankly framed as an opportunity for improvements as in the Commissioner of Tirhut's vision of a Darbhanga relieved of 'dirt, discomfort and irregularity'.³⁷ The position reflected a general negative perception of life in the bazaar as unhygienic and disorganised among government officials, not unlike that of his predecessors in the town administration.³⁸ Congestion and overpopulation explained the many deaths in the bazaars and the same factors posed as the major cause of 'unsanitary' conditions, which the chief engineer in charge of Monghyr's town plan would address in his attempts at 'improving' sanitation as discussed in a sub-section of this chapter. Wider roads and lanes, and more sparsely populated areas and lower houses were measures likely to prevent deaths on the same scale in future earthquakes.

As noted in the secondary literature on earthquake engineering in India, 'serious and systematic efforts' at building earthquake-resistant constructions and for developing earthquake codes were made in India after the 1935 Quetta earthquake.³⁹ In 1934, such ideas were discussed and the wholesale reconstruction after the 1923 Kanto earthquake was mentioned as a suitable model but played a marginal role in the actual reconstruction process.⁴⁰ The 1935 Quetta earthquake posed an altogether different set of circumstances that resulted in a more systematic and controlled reconstruction process. The success in developing earthquake-resistant features in Quetta was partly explained by the town's status as a military area, which made it easier to rebuild railways, military and the civil administration.⁴¹ The military's control of Quetta and the ban on residents to return in both the immediate aftermath and during the reconstruction phase solved the problem of having to erect temporary housing and facilitated rebuilding permanent structures—a measure which would have been difficult to justify in Bihar where town inhabitants mostly remained displaced within or on the fringes of the towns.

More importantly, however, the development of new engineering techniques in Quetta emerged from the opportunity to review learning from a recent earthquake nearby. After the 1931 Mach earthquake in Baluchistan, an engineer undertook the rebuilding of railway buildings according to an earthquake-resistant technique developed specifically for the seismic area affected by both earthquakes.⁴² As the 1935 earthquake struck, the earthquake-resistant railway quarters located in the area of maximum intensity were the only houses that escaped undamaged. The experience served as evidence of not only the successful building technique, but also the importance of investing in research and buildings to prevent damages and deaths.⁴³ The earthquake-resistant buildings proved

what secondary sources are soon to point out in the often-tragic aftermaths of earthquakes: buildings kill people, earthquakes do not.⁴⁴

Even though the 1935 Quetta earthquake happened more than a year after the Bihar earthquake, Quetta's rebuilding plan was soon ahead of Bihar's. It was praised as a model example of a building code with rigidly enforced reconstruction. However, an encompassing 'Indian' building code for earthquake-safe constructions was yet to be conceived in 1934, the reason being, according to the GSI, the 'unique' structures of mixed materials, *kuccha-pucca* and *kuccha*. At the same time the destruction in Bihar proved to the GSI the necessity of a code for Indian building standards, in particular in larger towns and villages.⁴⁵ A Punjab government publication on 'earthquake-resisting design' from 1934 gave another explanation for the lack of a general building code, namely financial constraints of private individuals: 'forms of construction within the means of the people are often so restricted that no general Code is practicable'.⁴⁶ Simultaneously, the publication provided several local examples of earthquake-resistant designs from major earthquakes such as the 1905 Kangra earthquake. The GSI, on the contrary, expressed the contradictory view that earthquake-safe houses could be built with the same costs as ordinary buildings, as long as simplicity was maintained.⁴⁷ According to the initial GSI report mainly concerned with reconstruction, the average Indian householder could not afford the necessary high-grade materials, thereby echoing the view of the Punjab government publication mentioned before. The loss of life in Bihar was seen as a combination of faulty constructions and financial constraints: many could only afford to build houses of *kuccha-pucca* material, which had been the most severely damaged type of house.⁴⁸

In addition to the lessons learnt from recent earthquakes, the GSI had recorded several earthquake-resistant building techniques since the 1897 Assam earthquake. An indigenous construction of very old *kuccha-pucca* timber houses had survived the 1934 earthquake remarkably well, and so had earthquake-resistant constructions with a framework of split bamboo on a masonry plinth in the 1930 Dhubri earthquake.⁴⁹ The latter was a technique that let the house structure move as a whole while other buildings of same material with the frames attached to the plinth were 'considerably damaged'.⁵⁰ Similarly in Chapra and Muzaffarpur, brick or mud houses raised on timber frames had collapsed with less frequency compared to the ordinary brick houses, and those which were damaged could be repaired rather than rebuilt,⁵¹ making them both life-saving and cost-efficient constructions. These constructions appeared to have formed the basis for the GSI's recommendation for the government to 'encourage'

reconstruction with timber pillars and frames in both *kuccha* and *kuccha-pucca* buildings.⁵²

Apart from examples of these local construction methods and materials, the GSI thought 'good quality mortar and brick-work' to be the 'best insurance against earthquake damage'.⁵³ While the quality of materials and control over constructions explained the wholesale damages to bazaars and private properties, even official buildings with a controlled construction plan had suffered badly. According to the GSI, the scope for 'the greatest improvements' were in the construction of larger *pucca* houses and government buildings.⁵⁴ Eye-witness accounts and the press confirmed the perception of how 'modern' buildings, such as the Patna Hospital, the English Church at Patna and the buildings of the Imperial Agricultural Research Institute at Pusa could not withstand the earthquake, as compared to Patna's landmark building the Golghar, built in 1786, which was left with 'barely a scratch'.⁵⁵ Although the GSI acknowledged the need to upgrade especially the quality of mortar and bricks, the use of 'high quality materials' had not helped to prevent slumping and cracks in heavier buildings such as the sugar mills in north Bihar. In order to reduce the risks of damages and high mortality, the GSI recommended improving designs by ensuring strong foundations in heavy buildings.⁵⁶ Advertisements for 'cheap earthquake proof *pucca* houses' by contractors in the local newspapers⁵⁷ might have struck a chord with the public since the cost of bricks was prohibitive to many. The concrete and cement companies' attempts at selling their products in the reconstruction phase have been described as a sign of the industry's early interest in 'earthquake engineering'.⁵⁸ A later government publication claimed reinforced concrete, reinforced brick work and Portland cement to have replaced the use of 'mud, mortar and lime'.⁵⁹ Although the Cement Marketing Company of India offered reduced prices of up to 12.5 per cent in Muzaffarpur and 20 per cent in Monghyr,⁶⁰ it targeted factories and houses of the wealthier sections rather than a general town population, judging by the types of large constructions advertised in, for instance, *The Indian Concrete Journal's* special issue, *The Great Indian Earthquake*.⁶¹ Likewise, advertisements by the Concrete Association of India aimed at a select number of people with its examples of 'earthquake proof buildings', illustrated with photographs of sizeable and undamaged concrete houses in Darjeeling.⁶² As a part of the recommendation to rebuild simpler structures, the GSI discouraged buildings of more than one storey in the earthquake area north of the Ganges and, in order to make structures lighter, it recommended the material of the roof to be kept as light as possible and all ornamental work such as cornices and balustrades were to be avoided.⁶³ Interestingly, Katharina Weiler notes the

opposite development in the use of ornamental works in Kathmandu where they became distinctive features of 'New Road' (Juddha Sadak, that is, Juddha Road), which after the earthquake was rebuilt as an elegant boulevard with eclectic neoclassical architecture of plastered façades and aspiring columns.⁶⁴ Though the use of ornamentation may have negatively affected earthquake safety, according to the GSI officers, it is noteworthy that the renewal in Nepal was mostly restricted to the façade while local forms were preserved in building design.⁶⁵

In addition to passing recommendations on materials and construction models, the GSI advised—in the absence of an earthquake code—that 'much could also be done by legislation in controlling the height of buildings and the width of streets'. Rather contradictory—considering the serious damages and number of lives lost—opposition against legislation to control reconstruction had been voiced with the argument that earthquakes were relatively infrequent. The lapse of one hundred years since the 1833 earthquake had given rise to speculations regarding a cyclical pattern, but the GSI refuted the possibility to say anything with regard to 'periodicity' and frequency. Regardless of when and how frequently earthquakes visited the region, the GSI stood by the opinion that controlled reconstruction would benefit earthquake-safety: according to their suggestion reconstruction in villages needed to be supervised by the *thana* staff and in urban areas by the municipalities, while engineers and architects of public buildings and heavier construction should ideally be guided by a building code.⁶⁶ Improved building materials and technical solutions thereby represented but one side of earthquake safety. The GSI's recommendation about taking control over how and where people reconstructed their houses with the help of municipal laws was seen as a way to prevent large-scale urban death and destruction in future earthquakes. Within the town planning schemes drawn up by the provincial government, engineers, municipalities and, to some extent, local representatives, earthquake-safety legitimised a control over reconstruction and urban spaces by legislation. At first sight, town planning may appear to have been a relatively low-cost and easy-to-implement solution compared to a building code, but it entailed a contested period of altering property relations and relocating segments of the urban population.

Paving the Way for Town Planning

The prolonged process of town planning of the important market towns of Darbhanga and Muzaffarpur in Tirhut and of Monghyr south of the Ganges

started in the last week of January 1934 and soon involved the public, engineers, district officers, the municipalities and the local government. Rebuilding the bazaars in the towns offered the government a 'chance' to restructure urban spaces since the earthquake had in a cruel way facilitated town planning by demolishing houses and the dislocated residents had migrated to streets, parks and open spaces within or on the fringes of the towns. It presented a scenario different from town planning in Bombay in 1898, when the acquisition of land and properties as well as arrangements for temporary accommodation had caused delays.⁶⁷ Already by the end of January 1934, the government realised the need to stall individual plans for rebuilding houses in order to implement a reconstruction plan. The decision to impede reconstruction in towns subject to town planning was partly justified by technical concerns raised by officers from the GSI who cautioned against rebuilding based on a fear of aftershocks lasting 'for some months'.⁶⁸ Until after the monsoon, a far bigger issue was the earthquake's impact on land levels and river courses. A measuring of land levels in Tirhut showed a depression of 2 feet and was further investigated by drainage engineers.⁶⁹ These concerns were from the outset voiced at the district level, since according to the local appreciation 'very little' could bring about 'very great changes in these rivers' and consequently affect the drainage system.⁷⁰ The local government was, however, keen to put in print in a communiqué that initially was a verbal advice by the GSI. The recommendation to wait with reconstruction until after the rains when the land had settled gave the local government more time for realigning roads before private individuals started rebuilding.⁷¹ Consequently, the geologists' first appreciation of the situation was published in a government communiqué as an 'expert advice' against reconstruction of *pucca* buildings in north Bihar until after the monsoon.⁷² Later, the first report by the GSI submitted to the local government in May 1934 contained recommendations for reconstruction, which would again be reiterated in the final GSI volume on the earthquake.⁷³ With the reconstruction process in mind, the local government decided, with the consent of the GSI, to publish the report as a 'preliminary report' for public consumption, and later the same year, the GSI published its official version of the report as an 'account'.⁷⁴ For towns subject to planning, the Judicial Department found two paragraphs in the Municipal Act for taking over plots for road widening and planning public lights and drainage. With the act, the government could define new or wider roads and claim more space. According to two other sections of the act, any alteration or re-erection of property had to be on notice with the Commissioner for one month, thereby giving the government time to discuss the outline of the new town plans.⁷⁵ The local government's plans of widening roads

and, in particular, acquisition of roadside space was central to the envisioned town plans. With the support of the acts, the local government efficiently put a temporary halt on all attempts at reconstruction in the town areas under investigation.

However, in towns where large-scale reconstruction was still necessary, but *not* town planning, building regulations were on the contrary relaxed immediately in order to speed up the erection of temporary shelters and urgent repairs.⁷⁶ In this way, the local government controlled reconstruction in areas where it had decided not to undertake town planning; rather than to halt repairs and rebuilding of houses, the government was keen on speeding up the process. An Additional District Magistrate in charge of the Patna City Municipality had already, by end of January, issued an order dispensing with the ordinary notice required for the reconstruction of houses damaged by the earthquake.⁷⁷ The permission to rebuild served its purpose: to hasten reconstruction. Already at the beginning of February 1934, four temporary assistant surveyors were appointed to deal with inspections of damaged private property in Patna.⁷⁸ Their conclusions reflected what eye-witnesses described: while the three-storeyed mud and brick houses in Bankipore bazaar collapsed, similar to in the bazaars of Monghyr, Muzaffarpur and Darbhanga, many residential 'modern' bungalows and brick houses in Patna experienced relatively minor damages, such as cracks and damages to arches.⁷⁹ The local government's approach and the type of damages explain the initial rapid reconstruction in Patna. Contrary to towns subject to planning, little concern was voiced regarding public health, sanitary provisions or undertaking 'improvements'. The District Magistrate noted, after having crossed the town on an initial inspection of damages, that in the case of roadside shops it was 'difficult to improve the sanitation' since they were situated by the side of the road. The decision to hurry reconstruction and repair of damaged houses was reconsidered at the end of May 1934 when the government informed the municipalities to again apply regulations restricting rebuilding. The change of rules was motivated by the need to prevent the erection of dangerous houses, particularly in the case of masonry buildings since only a few towns had qualified engineering staff to oversee the process.⁸⁰

While the local government officials dealt with the paperwork necessary to realise the envisioned plans, the municipalities faced financial and practical problems with housing people rendered homeless by the earthquake and further displaced by town planning. The decision to postpone repairs and reconstruction affected the municipal house tax. In April 1934 an Emergency Act was passed by which the municipalities had the right to reduce or remit house tax of plots with

destroyed or damaged houses.⁸¹ The act was applied with retrospective effect from 1 January 1934 when taxes for the first quarter had been paid. The act was meant to facilitate decisions by the municipalities where the shortage of staff made the inspection of houses for claiming remission impossible.⁸² The tension between the interests of the municipalities on the one hand and the local government on the other was apparent in the towns subject to town planning as the municipalities lost the decision power over urban improvements to the town planners. The schemes for town planning, or in the case of Darbhanga, a trust in the form of a legal act, transferred the power over key urban developments from the municipalities to appointed officials, a common administrative hurdle in the planning of larger cities during the colonial period.⁸³ With regard to Darbhanga's Improvement Bill, Relief Commissioner Brett was concerned about how the scheme, once it became law, would serve to centralise decisions to Patna at a distance from people affected by the planning.⁸⁴ Town planning was, as the period between January and September proved, a lengthy process, which brought uncertainty in terms of municipal finances and decision power in the administration, as well as complicated living conditions for the displaced residents. People were waiting to know both when and where they could rebuild their houses, and on top of it, if they could afford it, while living in provisional or semi-permanent houses. Following the advice by the officers of the GSI, as mentioned earlier, permanent rebuilding was not planned to start until after the monsoon, in September 1934. Meanwhile, in order to set up semi-permanent buildings for the homeless, to control rebuilding and acquire new spaces for expanding bazaar areas, many practical questions such as ensuring at least temporary reconstruction of infrastructure, supply of building materials, finances and new plots needed to be addressed. In order to supervise these steps involved in rebuilding private and government property, as well as roads and bridges, a body of engineers was hired.

Engineers: Rebuilding Better

After the local government urged other provinces to send 'really experienced' Executive Engineers for a year of service,⁸⁵ three engineers arrived for the towns of Darbhanga, Muzaffarpur and Monghyr.⁸⁶ While the recruitment of engineers was in process, the appointment of the chief technical adviser, Relief Engineer and Supply Officer Colonel F. C. Temple⁸⁷ was carefully considered. He joined on 5 March 1934,⁸⁸ almost a month after some of the first engineers had arrived. The extensive damages and the envisioned improvement scheme

in Monghyr's Chowk bazaar motivated the government to prioritise the town, therefore Executive Engineer A. H. Nunn was deputed to Monghyr and H. V. Williams was appointed Town Engineer for Bhagalpur, sent by the government of Bengal.⁸⁹ At least two engineers came from the neighbouring United Provinces: Assistant Engineer Rai Sahib Pandit Ram Chandra and, one of the last and most experienced to be hired, Devi Dayal was appointed District Engineer and worked outside the towns mentioned.⁹⁰ Like in the cases of the engineers Nunn and Williams, Ram Chandra from Lucknow joined on deputation. After a week in Chapra, he arrived in Muzaffarpur where he was supposed to be based under the supervision of the Superintending Engineer and the Commissioner of Tirhut J. E. Scott,⁹¹ who had prepared a detailed programme for a month, including visits to the district headquarters and subdivisions seriously affected. Scott was more than pleased with him, 'quick and definite' at work and 'much appreciated by the public.'⁹² To start with, Ram Chandra advised on public buildings, potentially dangerous houses and a few of the private residences, and in a second round he continued with the row of private houses listed by Scott.⁹³ By the end of March, there was still no news about an engineer for Darbhanga, and Scott deputed Ram Chandra as its Town Engineer until a permanent engineer joined in the middle of April.⁹⁴

Though partly successful, the recruitment of engineers appeared as marked by chance in terms of availability and the willingness of experienced engineers to relocate for the job at short notice or of the respective local government to do without the staff. For instance, the Government of Bengal offered to send three engineers soon to be unemployed. A travelling allowance and other types of compensation were offered in addition to salary. Harold Easton Bruce (1897–s.d.), in his reminiscences from his time with Tirhut's police force in the earthquake aftermath, described the 'miracle' of restoring railways and bridges as achieved by 'blasphemous Scottish engineers, provided with free whiskey for a month by the Company [East Indian Railways]—after the job was done.'⁹⁵ Though no special rewards were mentioned in connection with the engineers hired by the local government, the positions appeared as reluctantly accepted. The tasks were described as unfamiliar even for experienced engineers, and because of damages and the nature of work, they had to bring their own tents.⁹⁶

The engineers reported to Relief Engineer and Supply Officer Colonel F. C. Temple who, according to Brett, was 'anxious for a title which would assist him when he returns to his ordinary work' and therefore was granted the title 'Relief Engineer' in addition to 'Supply Officer'.⁹⁷ He received the maximum pay for a Superintending Engineer and had a good number of staff attached to

him.⁹⁸ Although Temple was privately employed at the time, his background as a sanitation engineer to the Government of Bihar and Orissa and extensive experience from designing the new town plan for Jamshedpur, also known as Tatanagar or 'the town of Tata' in 1919 made him a choice well fitted with the local government's ambition to improve sanitation and roads in the reconstruction process.⁹⁹ The 'Temple Plan' for Jamshedpur had been innovative, influenced by garden-city planning and perhaps by Patrick Geddes' work in India on civic improvement.¹⁰⁰ As a widely acclaimed town planner, Geddes' engagement with 'civics', or 'the good life', gained currency for its sensibilities in designing town and city plans in accordance with ecological local conditions and human well-being in mind.¹⁰¹ The modern industrial cities with slums as a defining feature he called 'Paleotechnic', while the so-called Neotechnic town of the future was achieved by town planning that removed the slums by promoting health, hygiene and order. For Geddes, town planning was a way of transforming life, a 'civilisational transition' where the removal of slums was essential to achieve health, hygiene and order.¹⁰² In the fast-growing industrial town of Jamshedpur, Temple had concentrated on accommodating the increasing number of workers in a town plan with open spaces and an improved water and sanitation system for the upkeep of hygienic facilities, despite overcrowding.¹⁰³ Temple's senior expertise in sanitation engineering carried considerable weight in qualifying him for the appointment in 1934, but at least equally important was his regional contacts with contractors and the local government administration.¹⁰⁴ This was particularly valuable since supply and delivery of construction materials, such as bamboo from Chota Nagpur and steelwork and steel sheets from the Tata Iron and Steel Company in Jamshedpur and Calcutta, were key to rebuilding towns and infrastructure.¹⁰⁵

In addition to his central role in town planning, Temple took part in committees for planning infrastructure and designs of culverts, bridges and embankments. Reconstruction of infrastructure after the earthquake was affected by the changes in the flood landscape for which an engineer was deputed to advise on repairs to embankments and requests for permission to excavate drainage channels.¹⁰⁶ Temple spent considerable time and effort on preparing and planning the reconstruction of infrastructure together with the Embankment Engineer and the Inspector of Local Works. This work had to take into consideration past flood levels, a variety of embankment constructions and roads, settlement patterns and water needs, as well as the unknown future changes of the water bodies which the earthquake was assumed to have set in motion.¹⁰⁷

In the towns, Temple's supervision and expert advice on town planning followed in conjunction with the work of the newly employed engineers. His tasks were numerous: overseeing the demolition of dangerous buildings, securing bricks and building materials, price control, construction of municipal buildings such as hospitals and other public institutions, pass municipal building plans and control ground conditions, grant loans to contractors for supply of building materials and supervise drain and road construction as well as the erection of temporary quarters while reconstruction was undertaken. Although the tasks to a great extent were executed by the town engineers under his supervision, they prioritised to arrange temporary housing and evaluate the safety and prospects for renovating private properties.¹⁰⁸ The condition of standing buildings would also give a clue to the number of temporary houses needed, the amount for house-building loans or grants, materials to order, while the work on repairable buildings could start before the rains that were expected to arrive in June. The multifarious tasks that came with Temple's position entailed extensive touring and coordination, every step carried out in close cooperation with the headquarters in Patna and with the engineers, magistrates and commissioners in the districts and, according to Brett, 'a constant hammering' at the railways and suppliers to send goods.¹⁰⁹ Temple's description of the very busy schedule served to make Brett apply for further staff on his behalf, though several staff were already attached to him. A qualified engineer as 'Technical Assistant' and a second steno-typist based in the office were intended to speed up the paperwork, a major bottleneck in the workflow according to the application.¹¹⁰ The Finance Department declined the request, motivated by the increase in travel expenses it would incur and that the Chief Secretary was the only person with two steno-typists, implying that it was only required by the top administrators of the local government.¹¹¹ Overall, the case was characteristic of the hectic period of initial reconstruction and the slow process of hiring staff, an outcome of administrators being at loggerheads regarding budget and staff requirements in the aftermath. The local administration's and the Reconstruction Department's protests regarding the amount of work and lack of staff were similar to the problems in the distribution of relief, as discussed in the previous chapter. The problems experienced reflected a barely functional administrative flow, and the calls for resources were louder than the ordinary administrative quibbles over insufficient budget allocations and shortage of staff. The extra expertise and staff called on for the relief and reconstruction work were repeatedly pointed out as inadequate for the tasks prescribed. Though the Reconstruction Department was meant to facilitate the government administration, the new department often found

itself entangled in correspondence between departments. The PWD advised on its office and staff requirements such as salaries for the Town Engineers, but it was Brett who controlled the budget even if expenditure was normally under the PWD. In effect, it meant that Brett had to consult both the Finance Department and the PWD for hiring staff.¹¹² Moreover, Brett had to request sanctioning of staff required by the relief engineers who first applied through Temple. In general, staff and professional positions in the reconstruction process were created in order to complete work as the tasks arose, preferably with minimum qualifications in order to keep the salary on a lower scale, a process which caused delays and left tasks pending.¹¹³

However, as the work progressed, Brett and Temple successfully joined forces to hire more staff and again requested a sanction for the post of a Technical Assistant. In the middle of April 1934, the work of investigating house plans, securing building materials and, in addition, cooperation with the local administration in evaluation of house loans was well under way. Temple's office in Patna was a hectic hub where the PWD, District Boards and the Town Engineers obtained supplies. The rains were approaching and the repair of bridges was still under way, material and equipment had in some cases not arrived either because several contractors were involved or ruined infrastructure had blocked the roads. The lack of planning for the reconstruction of several bridges, essential for transport of goods and building material, blocked supplies.¹¹⁴ The District Boards had placed orders for bridge material without any thought of how to approach the reconstruction bridge by bridge. As a result, goods carriers with material were left stranded between rivers, causing a shortage of wagons for transports that further delayed the arrival of other necessary material. Repairs to railways were impeded by engines buried under debris at stations; workshops and blacksmith's shops were damaged; both water and electricity supplies were short after the earthquake; and some of the back-ups such as kerosene, castor and linseed oils in the railway store buildings had been lost in the earthquake.¹¹⁵ Temple wanted to hire a technical assistant for dealing with the increasingly complicated and slow-moving work shared between the PWD, the District Boards and the Town Engineers. Brett supported Temple's renewed attempt at expanding his staff with an assistant, and this time he managed to communicate the anticipated increasing workload to the Finance Department. Temple had requested a person with 'sufficient technical knowledge' and 'sufficient authority', perhaps hinting that the current staff had neither sufficient education, experience nor the seniority required for the tasks. By using a cost-efficiency argument, which sounded almost like a threat, Brett stressed that 'without this [a person to

help in the flow of transport and supplies] rebuilding is quite certain to be delayed for months, a delay which will cost large sums of money'. Reluctantly, the Finance Department granted a post of assistant engineer of junior rank on a temporary basis, several weeks after the initial request in March.¹¹⁶

Logistic problems and the slow repair of infrastructure became a vicious circle. Temple had partly addressed the issue in his complaints to Brett regarding the PWD's inefficiency. In addition, earthquake damages to the landscape had changed natural river courses and broken embankments caused waterlogging that hampered the reconstruction of infrastructure. The problem of waterlogging and high water levels were further aggravated by rain and hindered the Local Works Departments and District Boards in planning and executing the rebuilding of roads and bridges. In June 1934, the Local Works Departments in Muzaffarpur, Darbhanga and Champaran districts reported the monsoon to have further complicated the reconstruction of temporary as well as permanent solutions to bridges and roads. The Madhubani–Rampatti Road No. 56 and Barwara–Serai Road No. 74 in Darbhanga were temporarily closed for motor traffic due to the Kamla flood. A masonry bridge in the Darbhanga–Gangwara Road No. 2 had collapsed due to an 'earth tremor' recorded on 2 June 1934 and the road remained closed until the rains were over. Ferry arrangements in Darbhanga were disturbed by the floods in June 1934. The bridge at Bariarpur after the third mile on the Motihari–Mehsi Road No. 19 in Champaran district would be ready by July if the rain decreased.

In addition to seasonal conditions and geological changes, as well as badly coordinated planning in the rebuilding of infrastructure, the human factor played a role in the delay of supplies. Many suppliers had failed in delivering materials required for rebuilding bridges and culverts, perhaps due to difficulties in communication or because of insufficiently available supplies in response to the sudden demand. The Lakhandaya bridge in Sitamarhi, Muzaffarpur district, had not been supplied with material for draining. When the water started rising, the Local Works Department constructed a temporary solution with bamboo. The same applied to several masonry bridges and culverts along the Sitamarhi road which were rendered unsafe but temporarily fixed with a decking of bamboo while waiting for the supply of iron joists to arrive. For the bridges in Darbhanga, too, temporary arrangements had been made to keep the Madhubani–Benipati Road No. 62 open until girders ordered from Calcutta arrived. In Champaran, contractors had not delivered material to the Local Works Department for the construction of a bridge, and in the same district the construction of a temporary wooden bridge was held up since planks had not arrived from Bettiah as had been promised.¹¹⁷

Altogether, environmental circumstances such as waterlogging as a result of the rain, broken embankments and shifting land levels after the earthquake, in combination with the government's slow organisation of supplies coupled with difficulties in accessing the areas to deliver materials resulted in a slow reconstruction of infrastructure. Temporary bamboo constructions had to be resorted to for repairs of roads, bridges, buildings and temporary housing and relief shelters from the very beginning until after the monsoon was over.¹¹⁸ Just like the planning of repairs and ordering of building materials, a lack of planning and damaged infrastructure hampered the provision of temporary material. Initially, the government planned to order the bulk of bamboo from the Forest Department in Palamau in southern Bihar, but an estimate of the cost and quality of the material as well as difficulties in arranging transport, resulted in the choice of bamboo from Sitamarhi and sal¹¹⁹ poles from the United Provinces, since it turned out more economical and practical to supply to the districts of Muzaffarpur, Darbhanga and Champaran.¹²⁰ Besides, both the price and quality of 'Palamau bamboo' were 'repugnant to the public' according to the District Officer in Chapra.¹²¹ The Forest Department in Palamau in southern Bihar could only with difficulties and after help by the local government find railway carriages available to transport bamboo to the northern parts, as well as to Monghyr south of the Ganges.¹²² Even if all transport for relief purpose was charged half of the normal rate on the East Indian Railways, prices and costs borne by the local government took time to settle and delayed the distribution of bamboo. Compounded, the damage done by the earthquake and the inability of the local government to plan the reconstruction phase complicated and impeded the tasks of the engineers. Although these practical difficulties affected town planning, the displaced inhabitants and redistribution of tenancy rights posed the major difficulties for the administration and the municipalities.

'Improving Slums': Planning Bazaars

When all the civilized world is actively working for slum removal, it is unthinkable that the Chawk [Chowk] should be rebuilt as a slum, especially with Government as its landlord.¹²³

Temple's ideas about town planning to 'improve' urban living conditions and remove what was perceived as insanitary slums would become central to the

reconstruction plans. In words and layout he contributed to argue for designs that put sanitation at the core of the new town plans, yet it should not be overlooked that similar visions of ‘improvements’ were already expressed by administrators in the initial weeks following the earthquake and had partly motivated the recruitment of Temple. His reference to the government as the landlord in the quote earlier was to the *khas mahal* land that the bazaar was built on in Monghyr. In the town-planning documents, Temple and administrators described ‘slums’ as characterised by congestion, lack of sanitary facilities and population density. These conditions could be built and planned away by decreasing the population density, to relieve the area of ‘bad overcrowding’ and turn ‘a bad slum into a not unreasonable over populated [*sic*] quarter’. The widening of roads was also motivated by the incentive it would have on trade, the essential function of the bazaar. Control over road constructions, width and layout, would facilitate traffic ‘in a way that will tend to greater prosperity in the town.’¹²⁴ Town planning aimed to provide more uninhabited space. It would be used for making wider roads and improved transport facilities to benefit trade, increase airflow between housing plots to benefit health, and lower population density to improve sanitary facilities and hygiene. The key to this process was the building of roads, which in effect meant fewer residential and commercial plots on lease.

While Temple was foremost concerned with sanitation and road plans in line with contemporary ideals for urban improvements, the Monghyr’s town-planning scheme took shape in collaboration with Brett and the District Magistrate and Collector of Bhagalpur district, the Town Engineer, and the Special Officer in charge of the municipality.¹²⁵ Among these, the municipal officer was the person most involved in day-to-day communication with the residents as he was responsible for temporary accommodation. In particular, from Brett’s comments on the planning process, the diverse and often conflicting interests of planners, administrators and town residents transpired. His approach to town planning reflected the local government’s relationship with the town residents in the contemporary sociopolitical context and a growing awareness of the bazaar politics surrounding commerce and leases. According to rough estimates of the number of residents in the bazaar, officially approximately 3,000–4,000 persons had resided in 700 holdings in the Chowk bazaar and adjacent Madhupur bazaar.¹²⁶ The municipality estimated that two families had lived in half of its 500 municipal holdings in the Chowk bazaar, giving an approximate number of 750 families.¹²⁷ In Brett’s calculations, the population in the Chowk had to decrease from 750 families to 450 families, therefore 300 families had to resettle

elsewhere. Since Brett suspected that the total number of 750 families was a low estimate, he preferred to count 350 families for which new plots had to be arranged, a number agreed on by Temple.¹²⁸ Hence, approximately half of the 3,000 residents of Monghyr's bazaar had to be permanently relocated according to the planners.¹²⁹

In Temple's plan, the optimum population density was fundamental for improving sanitary conditions in the bazaar. In the town plan proposal for Jamshedpur, he followed the same guidelines in accordance with the prevalent garden city ideals of low density which he would argue for in the planning of Monghyr.¹³⁰ An increased area helped to create 'hygienic conditions' by lowering population density and he, therefore, recommended acquiring as much land as possible in Bekapur. In his estimate, 47.4 families per acre lived in the 'very badly overcrowded slum area' of the Chowk bazaar before the earthquake. It was regarded as far too many since, according to the standards followed by him, 12 families per acre were 'generally accepted throughout the world as best for practical urban conditions'. Temple's initial plan for Monghyr envisioned playgrounds for children and open spaces in order to improve living conditions, though these features appeared marginal in comparison to the importance of roads and controlled construction of houses in providing space. In the new areas for settlements and with the improvements in the Chowk bazaar, Temple calculated a ratio of 17.5 families per acre. It was a figure he reluctantly conceded to, as it was 'rather too thickly populated judged by ideal standards', but even so 'an immense improvement'. Temple presumed some plots in Bekapur would partly house fewer families per acre, since they would rebuild 'larger and better houses' while he expected higher population density in the Chowk bazaar, perhaps as the result of high rents. The maximum number of families per acre would under the circumstances ideally be limited to 25 per acre, and that too only in a smallholding and on the fringes of an area according to Temple. By placing the most densely populated holdings away from the centre of the bazaar, circulation of both transport and air would benefit, and in case of another earthquake the congestion would be less.¹³¹ His estimate, Brett claimed, was incorrect since many plots were meant for shops; therefore, the population density in residential areas was actually higher than the estimate. Although the conditions had improved, the planning had not had the desired effect as 'congestion in the Chauk bazar [Chowk bazaar] will still be at a fairly high figure'.¹³²

A noticeable 'improvement' of the bazaars in town planning, according to the retrospective report of the local government, was the construction of roads. Before the earthquake, the two main roads in the Chowk bazaar, described as 'a

tangled labyrinth', were between 20 and 25 feet wide, the side roads 10 to 12 feet wide, and lanes of an average of 7 feet in some places. In the new plan for Monghyr, the roads of the bazaars had become 40 feet wide.¹³³ Road improvements, such as the new design of Purabsarai, demanded more space at the cost of the plot sizes.¹³⁴ In this main artery of the bazaar, the electric poles were moved from the road to the pavement to free up more space for traffic, a measure that further facilitated access to the bazaar area (Image 6.3).¹³⁵ Similar to in the Chowk bazaar in Monghyr, the Darbhanga Improvement Trust widened main roads to 60 feet and important roads to 40 feet and interspersed them with open spaces in the three bazaars in order to make away with 'the old narrow and filthy service gullies'.¹³⁶ The roads were narrow since before the arrival of the railways most goods had been transported on the river and carried by men, pack animals or pulled carts from or to the river bank. When considering the new plan, building away congestion was a priority in the name of, first of all, safety since according to official numbers 311 people had died from falling debris in the streets and alleys. Yet, bringing down the size of the population and widening roads held importance in two other areas: to improve health and hygiene as well as the convenience of commerce and trade. Another two considerations of the planners were aesthetics, or 'beauty', of the bazaar, and the preservation of sound property, which in effect meant houses of wealthy residents and temples, as these were the buildings still standing. One particular contribution towards the beauty of the bazaar was the design of the Oval Market, an oval-shaped bazaar area, on which Temple gave advice.¹³⁷ In order to expand the roads

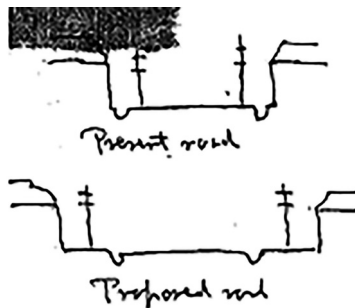


Image 6.3 Drawing of existing and proposed road design for Purabsarai road in Monghyr. The electric poles were moved from the road to the pavement in the proposal. For the Purabsarai road, 0.682 acres had been set aside.

Source: Memo: 'Monghyr Town Planning Scheme', W. B. Brett, 15 April 1934, BSA RE 45/1934.

and decrease congestion, the Oval Market was built on land next to the old bazaar areas that contained mostly houses of mud and thatch, a few gardens, wasteland, patches of palm trees, a lowland where people would excavate earth for construction purposes. This area would become the new 'civic centre', 'a new modern market' for 'better class' shops.¹³⁸ The traders and shopkeepers, who in the new plans for the two old bazaar areas, Katki bazaar and Bara bazaar, would lose their plots or get smaller holdings, could lease holdings here, under the Lalbagh New Area Scheme that housed the Oval Market. The fourth scheme in the town plan for Darbhanga concerned resettling people who had lived in the area that was transformed into the new civic centre, a process set in motion by town planning also in Monghyr.

In the new plan for Monghyr, the 12–15 acres of plots in the Chowk bazaar was cut down to 10 acres of plots because of expanded roads and drains. At the same time, each plot contained fewer residents and therefore the town plan extended the bazaar area with 27 acres of arable and wasteland to the south and southeast of the Chowk bazaar.¹³⁹ In the two new areas Bekapur and Guhiapokhar, adjacent to the Chowk,¹⁴⁰ 7 acres were set aside for roads and infrastructure and 20 acres were developed as holdings, and later sold to, before everyone else, Chowk bazaar tenants at 200 rupees per acre. Bekapur was mainly laid out on agricultural land, except for a few acres of wasteland, and partly waterlogged and low. This perhaps did not sound like the best preconditions but with three feet of debris as landfill the area stood the test during the first monsoon.¹⁴¹ The solution of dumping debris in a wetland may, however, have repercussions in a long-term perspective. Land expansion by using debris in the bay area after the 1906 San Francisco earthquake created an unstable soil that resulted in severe ground-shaking and damages to houses in the 1989 Loma Prieta earthquake. Like Yokohama, which to a large extent was rebuilt on debris from the 1923 Kanto earthquake,¹⁴² the new development in Monghyr may be expected to suffer more severely in the next major earthquake. Sanitation engineering and town planning, rather than vulnerability in future earthquakes, was, however, the main concern of the planners in 1934. According to Temple's proposal, Bekapur 'tended to become insanitary rubbish dumps' but the new settlement of 'a well laid out shopping area' would help to 'improve the health and amenities of the town'. In effect, the extended and planned bazaar area became a means to relieve the town from two insanitary areas created by 'rubbish dumps' and cramped infrastructure in terms of drains and roads as well as a site for dumping the debris from the Chowk bazaar.¹⁴³ By early April, 150 bullock carts, 15 motor trucks and more than a thousand coolies were emptying the Chowk of debris.¹⁴⁴ Compared to, for instance, the town planning in Darbhanga, available wasteland and debris

as landfill levelling and road constructions were circumstances that made the realisation of the plan for Monghyr's bazaars relatively cheap.¹⁴⁵

Earthquake reconstruction also posed as an opportunity for the local government to access large funds which otherwise sorely lacked for providing public goods such as drains and roads. Monghyr and Muzaffarpur were considered important towns because of their administrative role, population size and positioned as communication and trade hubs. In Darbhanga, the local government had an advisory role in the Darbhanga Improvement Trust, financed with a donation of 500,000 rupees by the Maharajahdiraja, who also lent the remaining amount of 900,000 rupees needed for the scheme.¹⁴⁶ The trust, described by the Governor of Bihar as 'a programme of progressive improvement',¹⁴⁷ was first discussed in February 1934 and passed as an act in the September session of the Legislative Assembly. The mix of two-storeyed *kuccha-pucca* and *pucca* buildings in Darbhanga's Katki bazaar and Bari bazaar suffered severely (Image 6.4), and the areas were rebuilt and expanded as part of the new town plan, as were larger structures such as educational institutions, the hospital and official buildings of the Raj.¹⁴⁸ Earthquake reconstruction of private property, as well as property of the Raj, indeed contributed to the increased and heavy workload of the Darbhanga Raj administration until at least 1936.¹⁴⁹ In the end, however, only a few of the large number of schemes drawn up were realised when the trust came to an end in 1948 due to a lack of finances. In fact, the local government's district gazetteer from 1964 claimed that apart from the Oval Market, none of the bazaar schemes was realised as planned, while more than half of the initial donation made by the Maharajahdiraja was spent on acquisition of land, houses and administration.¹⁵⁰

In Monghyr, the initial budget for town planning of the Chowk bazaar and Bekapur, the area developed as an extension of the bazaar, was considerably less and to a large extent financed by the VERF. The fund made the initiation of the scheme possible with a grant of 50,000 rupees, while the local government's cost was about 11,000 rupees and the municipality was expected to profit from increased revenue from house tax.¹⁵¹ According to a district gazetteer, however, government grants paid the total cost of 328,564 rupees for constructing roads, drains and buildings in Monghyr's Chowk bazaar.¹⁵² The first budget for Monghyr's town planning stated 65,000 rupees for roads, lighting, water supply and latrines, including the cost of cancelling the *khas mahal* tenancies.¹⁵³ In the final moderately expanded budget presented by the Bihar Legislative Council, the municipality started the work with the help of a loan of 25,000 rupees from the government, and a grant of 50,000 rupees from the VERF.¹⁵⁴



Image 6.4 Katki bazaar in Darbhanga town after the earthquake.

Source: Album reg no 6, titled '1934 Earthquake'. Photographs by Bourne and Shepherd studio, Calcutta, Maharajadhiraj Kameshwar Singh Kalyani Foundation, Darbhanga, Bihar.

Almost two years after the earthquake, the government decided to buy the new settlement Bekapur from the municipality.¹⁵⁵ The acquisition of the land by the municipality was called 'a mistake': the ownership should have rested with the local government since it was responsible for the *khas mahal* tenancies. Second, the municipality had failed in 'obtaining considerable sums by settlement of the acquired land', and therefore the government's decision to 're-purchase' the area was 'help towards the scheme'. The government offered the municipality 150,000 rupees for the land, including certain rights in connection with the temporary huts. The 'generous' price was according to the council's decision fixed after having taken into consideration the purchase price of the land, the development of the area, and the loss of profit that the municipality might have expected from the settlement of the land.¹⁵⁶ With the provision of the VERF and exceptional government measures for earthquake reconstruction, 'improvements' in the form of town planning could be realised in Monghyr.

Protected Interests, Protected Spaces

In *A Great Estate and Its Landlords in Colonial India*, Stephen Henningham addresses the opposition to the Darbhanga Improvement Trust. Although divided along communal lines in voicing concerns against the trust, the poorer Muslims, who comprised almost a third of the population in the bazaar areas, and the Marwaris and other well-to-do Hindu segments were all critical of foremost the scheme's financial burden on the rent-payers. According to Henningham, the Muslims' and Marwaris' open critique of the new plan signalled other sources of support that were relatively independent of the Maharajadhiraja, while his influence was perhaps the greatest among Hindus in the countryside where he could wield his power as the owner of vast lands and in his position as the head of the Maithil community.¹⁵⁷ Although Marwaris, lawyers, businessmen and other professionals often benefitted from interactions and deals with the Darbhanga estate, they had other sources of incomes and were part of networks that linked them with urban centres.¹⁵⁸

Despite the planning of the new bazaar areas in Darbhanga receiving criticism in public for giving preference along communal lines, and thereby creating tensions foremost between Hindus and Muslims,¹⁵⁹ economic disparities, and thereby wide gaps in building qualities, motivated the dislocation of a 'mostly poorer class [of] Mohammedans', according to the town planners.¹⁶⁰ Town planning was in this sense, like Nandini Gooptu writes, mainly concerned with reclaiming the town for the middle classes and if the urban poor were left without housing and if financial constraints prevented the provision of alternatives, then that outcome had to be endured.¹⁶¹ In a 'manifesto' published in *The Searchlight* before the bill of Darbhanga Improvement Trust was about to be discussed in the Legislative Council, the plan was described as an attempt to push the poor, and especially Muslims, out of the bazaar since the improvements meant additional taxation. Seventy-four individuals, representatives of associations and proprietors of businesses, many of them pleaders, supported the manifesto, among them were a number of Muslims and mostly Hindus.¹⁶² Arguably, according to the planners, the poor Muslims' old houses of bricks, mud and timber beams had been razed to the ground, while the large and well-built or big modern houses of wealthy Marwaris along the main road of the bazaar had withstood the shaking. The despatchers of the manifesto questioned the priorities made by planners; why make wider lanes and roads when the town was in need of waterworks? The manifesto repeatedly stated the scheme to be contrary to public opinion and against the general wishes of the town citizens.¹⁶³ The same opposition was raised

in the Legislative Council where the 'improvements' were accused of effectively forcing the poorer segments to relocate, for there were, as one member of the Council¹⁶⁴ dryly noted in a sarcastic comment, 'not many Maharajas of Darbhanga to contribute towards such an improvement scheme'. If town planning was such a 'vast problem', why was it privately financed rather than drawn from the general revenue of the province? Brett answered that if the people of Darbhanga would turn down such a 'generous and public spirited offer' by the Maharajadhiraja, 'they would lose the sympathy of India for large financial aid for which they might apply'.¹⁶⁵ Brett's position echoed the view of the Commissioner of Tirhut, who early suggested that the reconstruction of private property was costly and town planning was a way of providing financial assistance to individuals.¹⁶⁶ At the same time, Brett argued that Darbhanga's town planning was far from catering to the 'rich men' as it was foremost a scheme to resettle people who had to leave the congested area of the bazaar.¹⁶⁷ The Darbhanga Improvement Act did address the apparent power relations and economic interests by having 'a representative of the poorer classes inhabiting the area likely to be effected', as a member of the trust, and the municipality, the state government and the Maharajadhiraja were also ensured representatives.¹⁶⁸ While objections against the planning of a cinema in the proximity of the Katki Bazaar Mosque resulted in moving it to a site at a distance from the mosque, the complaint against the Oval Market for dislocating 'a large number of poorer class Muhammadans' was disallowed since it could not come up with an alternative solution. The conflict of interests in Darbhanga reflected, unlike in Monghyr, the position of people living on land 'developed' into commercial plots for an extended bazaar area. Persons who had lived in the old bazaar areas, benefitted from the expansion of land as they were promised the old rate per acre in the newly developed areas, and if required to relocate they were granted a price reduction of 25 per cent on plots.¹⁶⁹ The persons displaced by town planning in Darbhanga were resettled on a 'very untidily area with a high proportion of waste land' to be developed with roads and plots. The land they had resided on was valuable for extending the bazaar area. In addition, the reconstruction of private property depended on loans and grants and, as discussed in the previous chapter, the latter was a provision that first of all catered to the 'middle classes'. The resettled Muslim community, described as being predominantly of a poorer class, did not fall into this category and were expected to rebuild houses of 'mostly mud' or 'brick[s] in mud' with tiled roof.¹⁷⁰

Since the whole population of about 3,000 residents of almost the entire Chowk bazaar in Monghyr had to be relocated while the area was cleared of debris and re-planned, the construction of safe and sufficient temporary houses

posed a major issue. Many residents were still in need of temporary housing after several relief societies and the local government had erected structures and sold building materials at reduced prices. The VERF funded the material and labour costs for constructing temporary colonies in towns, in most cases 200,000–300,000 rupees, and in return ‘small sums’ in the form of rents from the huts could be collected.¹⁷¹ In comparison with the towns of Muzaffarpur and Darbhanga, Monghyr received only a fraction, that is, 10,000 rupees, from the VERF for semi-permanent houses and building material: Darbhanga received more than 200,000 for the purpose. On the other hand, a substantially larger sum of 250,000 rupees in house-building grants was generously allocated in Monghyr in the month of May since rebuilding south of the Ganges could begin before the monsoon was expected to set in and new constructions in, for instance, Bekapur would partly take care of displaced residents.¹⁷²

Many of the temporary accommodations were meant for the middle classes and were made of bricks and asbestos or iron sheets, and sometimes partially grass and thatch. The colony of huts built by the Mayor of Calcutta at Purabsarai in Monghyr was regarded to be of better standards and were partly built with corrugated iron sheets. The 98 huts housed 1,500 people under the supervision of the local housing committee and the local board.¹⁷³ The BCRC set up a small group of semi-permanent structures for the middle classes and the Municipality had constructed 50 temporary houses, while 75 more were under way. Like temporary colonies in other towns, fires had been a problem, but water buckets at most of the larger colonies and a water lorry used as a fire engine were provided in order to prevent further dangers.¹⁷⁴ Towards the end of March the huts on the Purabsarai site were nearly all occupied and steps were being taken to fireguard them and render them cooler in preparation for the hot weather.¹⁷⁵

In many villages in north Bihar, a sub-district officer noticed how houses of bamboos thatch and reeds ‘naturally rode out the earthquake without any damage as their materials were both light and resilient’.¹⁷⁶ However suitable these materials were in villages with space between the houses, the experience of huge fires had shown how such constructions posed major hazards in the often congested temporary urban colonies. Mud walls, bricks, tiles and corrugated iron in townhouses controlled the spread of fire, while bamboo and thatched constructions aggravated the problem of fire according to the account by the sub-divisional officer.¹⁷⁷ Even though the dangers of fires in the temporary huts made of grass was commonly known, they still remained the most common type of construction. The frequency of fires in the temporary grass huts was one probable

reason for people's reluctance to move into the organised colonies. Notably, when the thatched roofs had been substituted with corrugated iron sheets, applications were in abundance according to the government officials in charge in Tirhut.¹⁷⁸ In the towns, large numbers of grass huts had been constructed as temporary housing¹⁷⁹ and these congested settlements suffered from recurrent fires. Although the corrugated iron sheets may have increased fire safety, they were highly unsuitable in the hot weather. The Marwari Relief Society reported the prevalence of fires among the re-erected huts made of straw and bamboo in villages as well, indicating that the ruined huts had been made of less fire-prone materials such as mud and bricks or with more space in between.¹⁸⁰ While straw and bamboo were to some extent used by the society in erecting huts, corrugated iron sheets became the solution to the frequent fires in the temporary colonies. The Marwari Relief Society remedied several fires in temporary sheds made out of straw and tarpaulin in Muzaffarpur by supplying fire extinguishers and water supplies,¹⁸¹ and temporary houses had corrugated iron sheets rather than the fire-prone thatched roofs (Images 6.5, 6.6, 6.7 and 6.8).¹⁸²

In Monghyr, the local government soon had to answer to growing discontent among the shop-owners from the Chowk bazaar over the lack of temporary solutions. The organised colonies with temporary huts had been filled up by end of March and a large number of people—most of them came from the Chowk bazaar but also 'all sorts of people' from other parts of the town—had built temporary houses or huts in the Ramlila maidan.¹⁸³ By the end of March some moved from the maidan to the colony built by the Mayor of Calcutta, but a survey of the Ramlila maidan's remaining occupants recorded 384 huts yet to be vacated.¹⁸⁴ Subsequently, in June 1934, the Monghyr municipality decided to evacuate and close down the area, as the municipality found it insanitary and cholera had broken out in June. By the end of the month, most of the residents were transferred to Bekapur, and by the end of the first week of July, 250 huts had been vacated and the residents settled in organised temporary huts in Bekapur, Belan bazaar and Purabsarai.¹⁸⁵ In a week's time only 100 temporary huts remained to be evacuated but without alternative accommodation for the residents.¹⁸⁶ According to an intercepted telegram signed by a Sita Ram Khemka, 'the self-styled "Assistant Secretary Town Reconstruction Committee"', addressed to the Viceroy, the Governor of Bihar and Orissa, M. K. Gandhi and the press, the residents were forced away from the Ramlila maidan.¹⁸⁷ The telegram outlined how the property of the temporary settlers had been 'thrown in the dust', and the following day a second telegram expanded on the maltreatment of the 'earthquake strikers'. The event described in the first telegram was also reiterated from the perspective



Image 6.5 Inside temporary quarters in Monghyr.

Source: Turnbull and Ormerod, *The Great Indian Earthquake*, 284. The photographer was most likely Ormerod, who visited the area in February–March 1934.

of the municipal officer, who with the District Magistrate, the Special Officer, the Town Engineer and the *khas mahal* officer accompanied by the police, had paid a visit to shopkeepers and given notice to move to shops allotted in Bekapur. The personal visit by the government officers was motivated by the shopkeepers showing ‘great reluctance to move’ though they had in the end left ‘peaceably and of their own accord’.¹⁸⁸ The alarm expressed in the telegrams and the visit paid by the local government officials indicated that far from everyone was happy with the arrangements. A few days later, when 500 people met to discuss relief to the earthquake ‘sufferers’, the police reported the local government to be the recipient of the harshest criticism.¹⁸⁹ The public meeting was the result of the ‘agitation’ in the Ramlila maidan, with the aim quoted as ‘to ventilate the “grievances of the people” against the Municipality’ and presumably organised by the dispatchers of

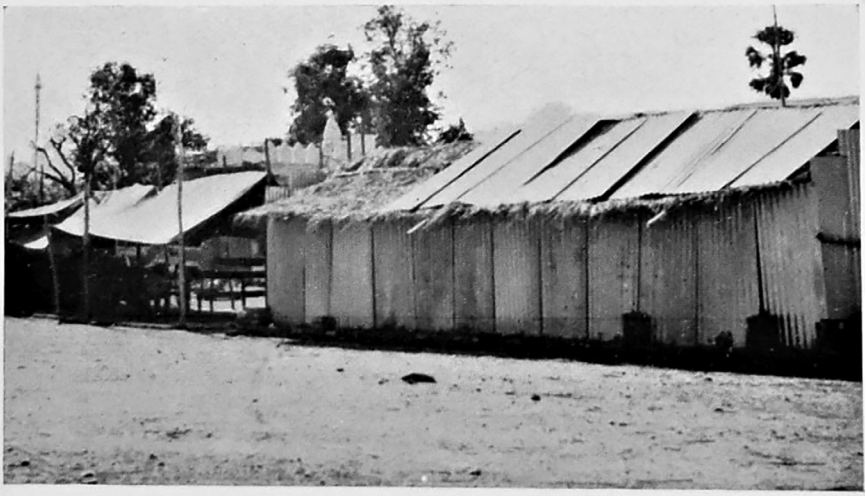


Image 6.6 Temporary quarters made of grass and metal or asbestos sheets in Monghyr.
Source: Turnbull and Ormerod, *The Great Indian Earthquake*, 284. The photographer was most likely Ormerod, who visited the area in February–March 1934.



Image 6.7 A demonstration building made of asbestos cement sheets erected by Asbestos Cement Ltd in Monghyr.
Source: Turnbull and Ormerod, *The Great Indian Earthquake*, 284. The photographer was most likely Ormerod, who visited the area in February–March 1934.

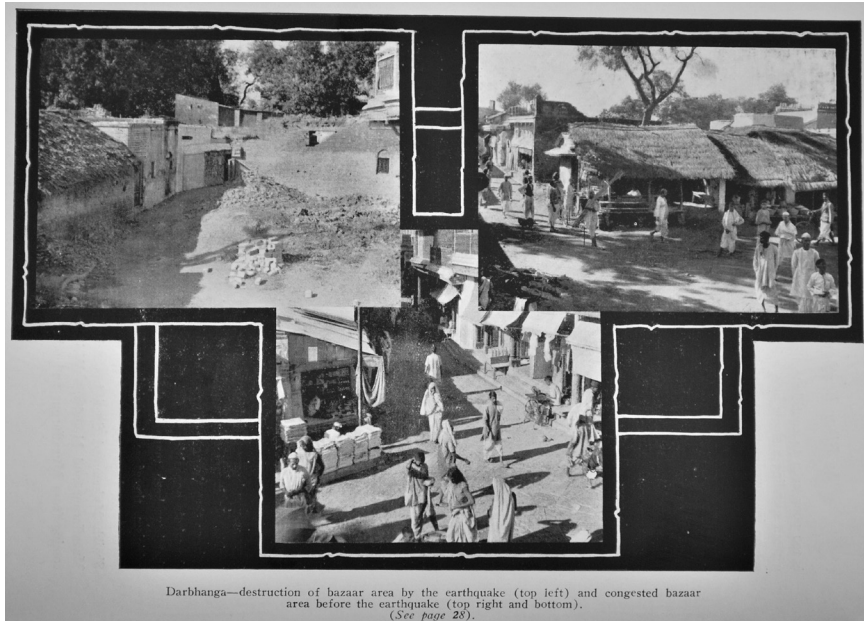


Image 6.8 Collage of images depicting earthquake destruction and ‘congested’ bazaar area in Darbhanga before and after the earthquake.

Source: Sinha, *The Bihar Earthquake and the Darbhanga Raj*, 66.

the telegrams and local politicians.¹⁹⁰ At the heart of discontent was the eviction of shopkeepers from the Ramlila maidan where they allegedly were doing ‘good business’ from temporary shops along the roads.¹⁹¹ Nripado Mukherjee, the president of the BCRC’s Monghyr branch who already by April had pleaded for 200 temporary sheds to accommodate specifically ‘middle class’ people, was one of the many displeased by the way the government had handled the case.¹⁹² Two articles in *The Searchlight* and the *Indian Nation* dwelt on the discussion in the meeting and accused the municipality and the local administration for ‘High-handedness in Excelsis’, ‘Victimization and discrimination’ and ‘nepotism’ in allocating shops.¹⁹³ The District Magistrate admitted a shortage of shops to the government administration in Patna¹⁹⁴ but denied that people were being forcefully evicted.¹⁹⁵ The municipality identified the shop-owners as the source of disgruntlement,¹⁹⁶ and the government singled out in particular ‘a small group of well-to-do Marwaris’ as opposed to the scheme and described them as ‘squealing because they cannot obtain more than their fair share of temporary

accommodation at Bekapur'.¹⁹⁷ According to the municipality, it had become the main shopping area, so 'immensely popular that about the entire business town including the new comers [*sic*] want to get into it', making the Special Officer in charge fear breakouts of 'riot and bloodshed' if the allocation of shops was not strictly controlled. The complaints by the remaining shopkeepers in Ramlila maidan were heard and responded to by the government with an additional arrangement of 100 extra sheds for shops in Bekapur, an insufficient number according to the Special Officer in charge of the municipality who suggested the double amount in order to cover the demand for both commercial and residential plots.¹⁹⁸

The numerous and multifarious claims on new plots, as outlined by the municipality, reflected the business communities' interest in the expanded bazaar area which would be the temporary main shopping area until the Chowk was rebuilt. The shop-owners lacked neither resources nor voice. According to the Special Officer, some still had houses but had lost their shops and even if their houses were in a part of the Chowk bazaar still standing, these people keenly requested allotments in Bekapur since that was where the bazaar had moved. In one such case, a merchant who held a *khas mahal* lease and occupied two restored houses in the bazaar had been allocated 'a good shop at the crossing at Bekapur so that he might not be a loser' even though his need was not regarded as great as that of those who were homeless. Apparently, his ability to loudly make such claims had paid off, being 'an agitator of the worst type [had] not stood in his way in the least'. The municipality listened to the complaints and calls for an expansion of business opportunities by the commercial and propertied residents of plots in the Chowk bazaar. Only a few shopkeepers presumably lost business opportunities, as in the case of the kerosene depot owner whose shop in Bekapur was denied permit considering safety measures, though he was allotted a plot at a 'safe place' elsewhere. Others were given favoured treatment: all the cloth shops were settled on the main roads, the reason perhaps being to keep guilds together or to grant them preference since cloth was an important trade commodity in the area. The Special Officer and the local administration claimed to have distributed shops according to 'general convenience of the shop keepers' and encouraged 'harmonious arrangements', but they had made exceptions for businesses of higher standards and with a prominent location in the Chowk bazaar. One shop-owner of substantial means, with two shops and a residential house in the Chowk bazaar, had lost 11 family members out of 15 and was described as 'the worst victim' of the earthquake. He was allotted a shop of the same size as others, indicating the inadequacy of compensation as well as the decimated population

not merely being an outcome of the reduced number of plots. Only one person from outside the Chowk bazaar, 'also an earthquake-sufferer', had been granted a space in Bekapur based on having obtained an agency from the Bata Shoe Co. Pvt Ltd,¹⁹⁹ hence opening a shop that was considered of a better standard and would add reputation to the new area.²⁰⁰

A number of applications for shops in Bekapur had been declined based on either false claims or exaggerated property claims in the Chowk bazaar. In view of the popularity of plots, the 'need' for new shops in the temporary settlement was based on a demand by the established or aspiring business communities. This demand could have been motivated by the pending 'earthquake-boom' in which the demand for goods was likely to increase as the reconstruction progressed. The newly planned areas were seen as an opportunity for expanding business, like for instance in the case of the owner of a 'prominent' *halwai* shop (sweet shop), who requested an extra shop space by arguing that supplies did not satisfy the demand for sweets. The keen interest shown in the new plots was apparent from attempts at applying for shops in the name of family members or a business partner in order to get additional space.²⁰¹ If the post-disaster scenario was seen as an opportunity for improving the urban environment according to the government and business interests, financial assistance and restructuring of space indirectly caused conflicts over new land and old rights. In the struggle over claims on old and new spaces, the propertied classes benefitted from the local government's willingness to consider their interests of commercial nature.

At the initial stage of town planning, Brett took notice of the rental conditions for sub-tenants from whom the *khas mahal* holders derived 'a very large income from subletting shops and houses in what was essentially a slum area'. Three of the 'principal' *khas mahal* tenants used to get about 380 rupees per month in rental income for holdings of 'about a third of an acre'.²⁰² Later in the year, Brett emphasised the eschewed property market by pointing to the fact that 5 persons held 75 *khas mahal* holdings in the resumed areas of 460 *khas mahal* holdings. For 2 acres, these persons had paid about 400–500 rupees per year to the local government while rental incomes had been as much as 1,500 rupees per month or 18,000 rupees per year in total.²⁰³ From the outset, these large rental profits of the *khas mahal* holders were a primary concern of the government in the resettlement of land and residents from the Chowk bazaar. Former *khas mahal* holders were, as Temple had predicted, upset for not only being temporarily displaced by the town planning, but also losing rental income from sub-tenants. According to Brett, the group of former *khas mahal* holders whose land had been resumed 'now suffer in two ways'. First, they were not allowed to rebuild in order

to house as many subtenants as previously. Second, the government extended 'the opportunity' to former subtenants to obtain land in the new settlements and as the demand on sub-lets in the Chowk bazaar declined, the rents were expected to follow suit. Hence, the profit that the *khas mahal* holders had managed to extract from sub-tenants was expected to decrease too. In this market transaction, the government intended to intervene by compensating the *khas mahal* holders who lost their leases in the Chowk bazaar by offering additional land in Bekapur in order to sustain their rental profits, that is '50 per cent more land, so that they can accommodate the same number of sub-tenants as they did formerly'. In Brett's calculation, the ejected *khas mahal* tenants would receive in all 3 acres to compensate for the 2 acres which they lost in the old area.²⁰⁴

Although *khas mahal* leases in the hands of a few had resulted in high rents and indirectly to overcrowding which had made the bazaars the most vulnerable areas in the earthquake, the planners initially supported the privileged group of *khas mahal* leaseholders by expanding their hold over property. Planning had undoubtedly changed living conditions and safety in the bazaar for the better, but the planners showed less concern for the relocation of sub-tenants, as Brett's support in favour of a few *khas mahal* holders illustrated. Brett advised against letting 'families who were merely sub-tenants' in the Chowk bazaar and people from other parts of town settle in Bekapur, in defence of the old *khas mahal* holders' interests: 'to do so might be harmful to the interests of our old tenants, because it will reduce the pitch of the rents which they can obtain in the future'. The new areas under acquisition were thereby primarily meant as compensation to former *khas mahal* holders, 'whose interests Government is bound to consider'.²⁰⁵ In addition to showing consideration for the relocated population, the *khas mahal* holders who could stay on in the bazaar were offered to rent the re-drawn and improved plots at the same rate per areal as before the earthquake.²⁰⁶ According to Brett, the government would have to face a loss in *khas mahal* income as a corollary of the widened roads. The government had, according to Brett, nothing to win by increasing the lease amount in order to cover for the land lost to roads. Brett cautioned against upsetting the leaseholders further: 'the government would not be in a strong position if they insisted on avoiding a loss by taking the same amount of rent for reduced areas', which the widening of roads and construction of drainages would entail.²⁰⁷

By the end of the year, in *A Report on the Bihar Earthquake*, Brett claimed that 'the scheme was backed by the more responsible inhabitants of the town, including the majority of the house-owners who stood to lose heavily by the abolition of the old congested conditions and of the high rates which they

involved', thereby referring to *khas mahal* holders.²⁰⁸ Their support was, however, only achieved partially, and by generous compensation in the form of land that guaranteed their profit from the new plan of the bazaar. From the planning process in April to June, until in September 1934, Brett's position regarding the *khas mahal* holders changed. In September 1934, Brett in the Legislative Council described them as the main opponents to the town-planning scheme—since among them were 'certain persons who in the past have derived a large income from subletting shops in the Chauk Bazar [Chowk bazaar]'. As Brett spoke of the benefits of the scheme for shopkeepers and sub-tenants, he showed no consideration for the *khas mahal* holders whose interests he had advocated at the very outset of the planning process. On the contrary, he referred to the persons making money from sub-letting as 'a few malcontents' who were unwilling to give up their incomes for the safe surroundings that the planning entailed for the shopkeepers.²⁰⁹ In the new expanded bazaar area, double the size of the Chowk bazaar, the government had changed their position and now offered former sub-tenants their own shops. Already in April, the high rents of sub-tenants in the Chowk bazaar indicated that there was an interest in paying a higher rate than the 200 rupees per acre which the new plots in Bekapur would be sold for. Brett saw the opportunity for the government to get higher rates on the *khas mahal* land from subtenants and residents from other parts of Monghyr, who were in April described as a 'non entitled class'.²¹⁰ From initially having focused on the *khas mahal* holders' interests in the commercial land, the scheme was now described as benefiting shopkeepers and former sub-tenants, and thereby also beneficial for the local government which could secure a higher price for the plots.

Even so, a consolidation of the financial interests of the *khas mahal* holders remained a priority in the reconstruction phase and the promise of 50 per cent more land to them, as a form of compensation, was held firm throughout the planning process. Even after Brett in September publicly underlined the large profits made by *khas mahal* holders, the promise of more land to the group was kept. In the end, an unidentified number of former tenants, as well as sub-tenants from the Chowk, remained without compensation at least until 1939 when financial compensation from the government was suggested as an alternative option. The government had granted double the amount of land to those who had given up their *khas mahal* in the Chowk bazaar but Bekapur was, as Brett had anticipated at the outset, insufficient for the promise of 50 per cent extra land to the tenants. They declined the local government's offer of land in other areas and financial compensation appeared as the only way out.²¹¹

Temple's plan contained ideals benefitting the residents of the Chowk bazaar, but in order to fully adopt his plan of a less populated bazaar interspersed with green areas, the government would have had to settle with even fewer holdings and locate more land for relocated or displaced residents. As Gooptu points out, implementation of town planning was more pragmatic than the visions expressed at the planning stage since the government's first priority was to treat 'congested areas' to which all other goals were secondary. Another explanation provided by Gooptu, which may hold equal truth in the earthquake's aftermath: town planners and the Indian middle classes preferred fast renewal which modernised and cleaned up the towns, a process which often entailed removal of the poor.²¹² The earthquake had partly facilitated steps towards transforming 'congested' areas at the centre of the bazaars, and in the planning process sub-tenants were the first to be removed from the central points to the temporary and new extended bazaar area. By September, the visionary outlook had somewhat soured, and the government claimed the envisioned town plans to be limited by financial constraints.²¹³ The removal of the poor appeared as the least costly alternative and partially solved the problem of overcrowding which was considered constitutive of a 'slum'. Likewise in Muzaffarpur, the same method to target the cheapest means for freeing up space was applied. Widening roads in the bazaar turned 'prohibitive in cost' and therefore the focus shifted towards 'cheaper houses' and a smaller area than in the initial plan. As a consequence, road widening was only partially implemented with space to form 'refuges' for the residents in future earthquakes.²¹⁴ In the case of Monghyr, improvements after the earthquake followed patterns of urban transformation which served to meet the interests of the propertied classes as it furthered their aspirations, not unlike the general patterns of urban planning illustrated by Gooptu.²¹⁵

Conclusion: Redistribution and Renewal

Urban reconstruction in the aftermath was planned with sanitary conditions and trade in mind rather than earthquake safety. The many deaths due to congestion in the bazaar areas served as an argument to push for changes that resulted in 'improvements' of hygiene and trade according to the planners. This chapter has, in uncovering some of the logic that went into the planning of bazaars, highlighted how engineers and government officials conceptualised reconstruction based on established ideas of planning and the financial relations of the bazaar population.

The argument by the GSI that insufficient private assets of residents was a reason for the lack of a building code for earthquake safety served to strengthen the local government's resolve to enforce planning as a solution to earthquake safety. The government and the engineer in-charge from the outset shared the idea that insanitary conditions and congestion in the towns were of greater concern than earthquake safety. In planning the bazaars, 'improvements' of sanitary conditions—which encompassed widening roads, regulating reconstruction of houses and controlling population density—and at the same time measures for an 'improvement' of commercial interests by providing better access to the bazaars and conveniently structured spaces for trade overshadowed the concerns regarding safety and risk in future earthquakes. The government administration quickly seized the opportunity to undertake planning by either restricting or encouraging reconstruction with the help of municipal acts even before a rough sketch of what planning encompassed had been settled. The opportunity to undertake changes made the government interfere in private persons' attempts to rebuild, and by restructuring the bazaars, it disrupted or altered trade conditions.

The broader point is to note the concern of the government and the planners in adopting a pragmatic stance to accommodate improvements with financial interests. Although town planning was perceived as a project in the hands of the government, a process that provided an opportunity for reordering bazaars and facilitating communication, commercial interests of the financially strong traders and the *khas mahal* holders played a significant role in shaping the conservation of landed interests in the replanned areas. The new plan for the Chowk bazaar in Monghyr illustrated how town planning was primarily an instrument to remove a 'slum' and improve trade conditions according to the interests of the local government and its tenants. While the new bazaars were planned with lower population density, controlled constructions and widened roads that foremost sought to create hygienic living conditions and improve trade conditions, the new layout and restructuring of space also impacted tenancy relations and occupancy rights in the bazaars. Land availability and tenancy relations thereby became the major issues for the government to address as an outcome of town planning in bazaars. The arrangement of temporary housing at convenient locations and the construction of semi-permanent houses for approximately 3,000 residents in Monghyr who were displaced by town planning demanded resources and additional land. The earthquake aftermath was, given the damages to infrastructure that impeded the delivery of material, was not really an ideal opportunity to intervene by undertaking town planning. The problem of transport complicated the organisation of temporary and semi-

permanent housing, and these very practical obstacles were furthered aggravated by a lack of foresight in planning and coordination, as well as an ad-hoc approach towards considering the opinion of the population, resulting in a reconstruction process slowed down and marked by disagreements. Except for those tenants who lost significant *khas mahal* holdings in the bazaar, shopkeepers appeared to have favoured town planning since it improved the standard of the area, but at the same time, they were hesitant towards the uncertainties it entailed regarding temporary displacement and relocation of shops. Even though the government to begin with protected the interests of leaseholders, its offer of leases in the newly developed bazaar areas to former sub-tenants reflected a more ambiguous position where town planning enabled redistribution. While the process of turning the disaster into an opportunity for change was early conceived and acted upon by the government, the resulting outcome with the problems encountered in implementation proved the practical solutions considerably more difficult to realise.

Notes

1. D.O. 930-J, J. E. Scott, Commissioner of Tirhut, to P. C. Tallents, Muzaffarpur, 9 February 1934, File: 'Town Planning in the Tirhut Division', BSA RE 8/1934.
2. For historical examples of reconstruction and coping with disasters in European urban history, see Ranft and Selzer, 'Städte aus Trümmern: Einleitende Überlegungen', 19–24.
3. Naomi Klein, *The Shock Doctrine: The Rise of Disaster Capitalism* (New York: Metropolitan Books, 2007). Rozario argues that disasters are part of American capitalism, see Rozario, 'What Comes Down Must Go Up: Why Disasters Have Been Good for American Capitalism', 75–77. Rozario, *The Culture of Calamity: Disaster and the Making of Modern America* (Chicago and London: University of Chicago Press, 2007). In economic theory, Joseph A. Schumpeter coined 'creative destruction' to refer to 'revolutions' in production and innovations which he argues have sustained capitalism. See ch. 7, 'The Process of Creative Destruction', in Joseph A. Schumpeter, *Capitalism, Socialism and Democracy* (London and New York: Routledge, 1994), 81–86.
4. Dyer, 'The Phoenix Effect in Post-Disaster Recovery', 279. 'Phoenix' cultures are also discussed in Rebecca Solnit, *A Paradise Built in Hell: The Extraordinary Communities That Arise in Disaster* (New York, NY: Viking, 2009); Christof Mauch, 'Phönix und Mnemosyne. Katastrophenoptimismus und Katastrophenerinnerung

- in den USA: Von der Johnstown Flood bis Hurricane Katrina' (Pheonix and Mnemosyne. Disaster Optimism and Disaster Memorialization in the United States: From the Johnstown Flood to Hurricane Katrina), in *Katastrophen machen Geschichte. Umweltgeschichtliche Prozesse im Spannungsfeld von Ressourcennutzung und Extremereignis* (Disasters Make History: Environmental Historical Processes in the Context of Resource Use and Extreme Events), ed. Patrick Masius, Jana Sprenger and Eva Mackowiak, 133–51 (Göttingen: Universitätsverlag Göttingen, 2010).
5. Elizabeth McKellar, *The Birth of Modern London: the Development and Design of the City 1660–1720* (Manchester: Manchester University Press, 1999).
 6. Gerrit Jasper Schenk, "'Learning from History"? Chances, Problems and Limits of Learning from Historical Natural Disasters', in *Cultures and Disasters: Understanding Cultural Framings in Disaster Risk Reduction*, ed. Fred Krüger et al., 72–87 (London and New York: Routledge, 2015).
 7. Clancey, 'The Meiji Earthquake', 918–21.
 8. Some of this research has previously been discussed in Eleonor Marcussen, 'Town Planning after the 1934 Bihar–Nepal Earthquake: Earthquake-Safety, Colonial Improvements and the Restructuring of Urban Space in Bihar', *Studies in Nepal History and Society* 22, no. 2 (2017): 321–54.
 9. Howard Spodek, 'City Planning in India under British Colonial Rule', *Economic and Political Weekly* 48, no. 4 (2013): 53–61.
 10. Nandini Gooptu, *The Politics of the Urban Poor in Early Twentieth-Century India* (Cambridge: Cambridge University Press, 2001), 78.
 11. Yang, *Bazaar India*, 104–5.
 12. Sinha, 'Entering the Black Hole', 325–26.
 13. Veena Talwar Oldenburg, *The Making of Colonial Lucknow, 1856–77* (Princeton: Princeton University Press, 1984), 52–60.
 14. Kidambi, *The Making of an Indian Metropolis*, 71.
 15. Roy Chaudhury, *Monghyr*, 540.
 16. *Ibid.*, 549.
 17. The reorganisation was completed by 1936–37 and an expanded scheme was completed in 1938–39 by the Public Health Engineering Department. *Ibid.*, 333–34.
 18. The total length of the *pucca* drains was 30 miles, *kuccha* drains 28 miles; *pucca* roads 47 miles, and *kuccha* roads 53 miles. *Ibid.*, 338.
 19. *Ibid.*, 549.
 20. 'Monghyr' (8 pp.), report by BCRC's Monghyr branch until end of June [July–August] 1934, BCUL PC 1028.

21. Brett, *A Report on the Bihar Earthquake*, 72.
22. Speaker K. B. Abdul Wahab Khan, from Monghyr District, 15 February 1934, *BOLCP* 30, no. 2, 158.
23. Tallents, 'No. 2628-P. R.', 17 August 1934, NAI HP 34/1/1934.
24. Speaker K. B. Abdul Wahab Khan, from Monghyr District, 15 February 1934, *BOLCP* 30, no. 2, 158.
25. Eyewitness account of the earthquake narrated by Kedarnath Goenka, 'Paramātmā kī līlā' (The Play [or 'Way of'] of the Supreme Spirit), in Varma, *Bhūkamp pīditom kī karuna-kahānīyām*, 117–20.
26. Speech by J. D. Sifton quoted in Roy Chaudhury, *Monghyr*, 548.
27. D.O. 930-J, J. E. Scott to P. C. Tallents, Muzaffarpur, 9 February 1934, BSA RE 8/1934.
28. Yang, *Bazaar India*.
29. See 'Introduction' in Sinha, *Communication and Colonialism in Eastern India: Bihar, 1760s–1880s*.
30. About Patna's urban history and colonial governance, see Rebecca M. Brown, 'The Cemeteries and the Suburbs: Patna's Challenges to the Colonial City in South Asia', *Journal of Urban History* 29, no. 151 (2003): 151–72; Rebecca M. Brown, 'Inscribing Colonial Monumentality: A Case Study of the 1763 Patna Massacre Memorial', *The Journal of Asian Studies* 65, no. 1 (2006): 91–113; Rebecca M. Brown, 'Paṭnā's Golghar and the Transformations of Colonial Discourse', *Archives of Asian Art* 55 (2005): 53–63.
31. 'Monghyr Town Planning: Scheme Approved', *Behar Herald*, 12 September 1934.
32. 'Earthquake Relief: Government Communiqué', *Indian Nation*, 7 April 1934.
33. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 173.
34. Rai Bahadur Harendra Nath Banarji, Jamalpur, 14 February 1934, *BOLCP* 30, no. 1, 167. As discussed in Chapters 2 and 5 respectively, it is difficult to appreciate the actual death toll as well as the number of ruined houses in Monghyr since the sources either include different areas or provide starkly disparate figures.
35. 'Monghyr May Benefit from Earthquake Disaster: Scientific Town Planning', *The Englishman*, 26 March 1934.
36. 'Darbhanga Town Improvement; Grant of Sites; Ranchi Session of the Bihar Council Concluded', *Behar Herald*, 12 September 1934.
37. D.O. 930-J, J. E. Scott, Commissioner of Tirhut, to P. C. Tallents, Muzaffarpur, 9 February 1934, BSA RE 8/1934.
38. Tania Sengupta, 'Between the Garden and the Bazaar: The Visions, Spaces and Structures of Colonial Towns in Nineteenth-Century Provincial Bengal', *Visual Culture in Britain* 12, no. 3 (2011): 333–48.

39. Jain and Nigam, 'Historical Developments and Current Status', 2–3.
40. K. F. Nariman, 'The Great Earthquake of Japan: How It Was Fought and Won', *Hindustan Review* LVX [sic 60], nos. 350–52 (January, 1934): 191–94.
41. Jain and Nigam, 'Historical Developments and Current Status', 3.
42. The 1931 Mach earthquake recorded Mw 7.4; intensity VII on Rossi-Forel Intensity Scale of I to X, and was located about 60 kilometres from Quetta in Baluchistan. Sudhir K. Jain, 'Codes, Licensing, and Education', *Earthquake Spectra* 18, no. S1 (July, 2002): 319–39. S. L. Kumar, 'Theory of Earthquake Resisting Design with a Note on Earthquake Resisting Construction in Baluchistan', Paper No. 165, *Punjab Engineering Congress*, 1933: 154–89.
43. Jain, 'Codes, Licensing, and Education', 319.
44. Ben Wisner, 'Disaster: What United Nations and Its World Can Do' (Short Communications), *Global Environmental Change Part B: Environmental Hazards* 3, no. 3 (2001): 125–27.
45. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 174–75.
46. Although published after the Bihar earthquake, it only makes a brief note of it. A. R. Astbury, 'Earthquake-Resisting Design', Punjab P.W.D., Paper no. 84, Superintendent of Government Printing, 1934, Lahore, Punjab, 1.
47. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 166–67, 170–71, 174.
48. Dunn et al., *Preliminary Report* on the North Bihar Earthquake of the 15th January 1934*, 40.
49. The earthquake took place on 3 July 1930, not 1933 as claimed in Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 168; E. R. Gee, 'Dhubri Earthquake of 3rd July 1930', *Memoirs of the Geological Survey of India* 65, Pt. 1 (pp. 1–106), 1934, 3, 8, 9, 88.
50. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 168.
51. *Ibid.*, 252.
52. Dunn et al., *Preliminary Report* on the North Bihar Earthquake of the 15th January 1934*, 45.
53. *Ibid.*, 40.
54. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 168.
55. Quote by 'eye-witness' in 'The Earthquake's Toll', *The Statesman*, 20 January 1934. The English Church documented in photo and text on the cover of *The Statesman*, 21 January 1934. Pusa, see Chapter 1. About the Golghar, see Brown, 'Paṭnā's Golghar and the Transformations of Colonial Discourse', 53.
56. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 171–72.
57. 'For Cheap—Earthquake Proof—Pucca Houses; Please contact Saroda Sunder Paul, Retired Superintending Engineer' (advertisement), *Behar Herald*, 7 April 1934.

58. Jain and Nigam, 'Historical Developments and Current Status', 3.
59. P. C. Roy Chaudhury, *Inside Bihar* (Calcutta; Patna; Allahabad: Bookland Private Limited, 1962), 122.
60. Brett, *A Report on the Bihar Earthquake*, 78.
61. Turnbull and Ormerod (eds.), *The Great Indian Earthquake*.
62. Advertisement for 'Earthquake Proof Buildings' by The Concrete Association of India, on the back cover of Moore (ed.), *Record of the Great Indian Earthquake*.
63. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 168.
64. See '10.1 Building Modern Cities after the Earthquake', 143–44, in Katharina Weiler, *The Neoclassical Residences of the Newars in Nepal: Transcultural Flows in the Early 20th Century Architecture of the Kathmandu Valley*, doctoral dissertation, Heidelberg University, 2009 (published 2010), available at <http://archiv.ub.uni-heidelberg.de/volltextserver/10691/> (accessed 20 February 2021).
65. *Ibid.*, 144.
66. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 166–67, 174.
67. Kidambi, *The Making of an Indian Metropolis*, 78–81.
68. Dunn et al., *Preliminary Report* on the North Bihar Earthquake of the 15th January 1934*, 48.
69. '32nd Communiqué, Patna, 5th June, 1934', R.D., Govt of B&O, NAI HP 34/1B/1934.
70. 'Extract from D.O. letter no 690 dated 1st February 1934', the Commissioner, Bhagalpur Division, to Chief Sec. to Government, B&O, BSA RE 495/1934.
71. 'Note of conversation with Dr. Dunn', James Whitty, 28 January 1934, BSA RE 495/1934.
72. The first recommendations were given in correspondence. J. A. Dunn, Assistant Superintendent, GSI, to the Chief Sec., Govt of B&O, Patna 29 January 1934, BSA RE 495/1934. (Also mentioned later in Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 161) P. C. Tallents, Chief Sec., to the Director, Geological Survey of India, Calcutta, No. 104, Govt of B&O, Political Dept, Patna, 2 February 1934, BSA RE 495/1934.
73. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 5, 35.
74. The two publications are Dunn et al., *Preliminary Report* on the North Bihar Earthquake of the 15th January 1934*; Auden and Ghosh, 'Preliminary Account of the Earthquake of the 15th January, 1934, in Bihar and Nepal'.
75. Section 173, and sections 186 and 188, respectively. Notes by P. C. Tallents, Sec. to the Govt of B&O, W. G. Lacey, Sec., LSG, and Davies, Sec., Judicial Dept, Patna, 26–30 January 1934, BSA RE 45/1934.
76. Brett, *A Report on the Bihar Earthquake*, 55.

77. Notes by P. C. Tallents, Sec. to the Govt of B&O, W. G. Lacey, Sec., LSG, and Davies, Sec., Judicial Dept, Patna, 26–30 January 1934, BSA RE 45/1934.
78. Mr Gaur Shankar Prasad, 3 February 1934 to 2 March 1934; Mr Vishwanath, 7 February 1934 to 6 March 1934; Mr Shedi Narayan, 12 February 1934 to 11 March 1934; Mr M. Salimullah, 17 February 1934 to 12 March 1934. Office order by J. G. Powell, Chief Engineer, LSG, B&O, to PWD, 12 March 1934, BSA RE 76/1934.
79. Mrs P. Lacey, wife of W. G. Lacey, Secretary, LSG Department, experienced the earthquake in Patna. Her memories of the aftermath were recorded as a part of an oral history project in 1981. Interviewer: Mary Thatcher. Centre for South Asian Studies, Cambridge University, Cambridge, Oral History Archive: Interview number: 088, 'Mrs. P. Lacey (2 July, 1981)', 2 parts, <http://www.s-asian.cam.ac.uk/archive/audio/collection/p-lacey/> (accessed 10 June 2011).
80. Copied Memo, signed W. G. Lacey, Sec., LSG Dept, 25 January 1934, BSA RE 45/1934.
81. 'Municipal Taxes Remission; Bihar Legislation', *Behar Herald*, 21 April 1934.
82. *Ibid.*
83. Spodek, 'City Planning in India under British Colonial Rule', 58.
84. 'B&O Council: Darbhanga Improvement Trust: Bill Referred to Select Committee', *The Searchlight*, 9 September 1934.
85. J. G. Powell, Chief Engineer, PWD, B&O, to the Sec., LSG, 2 February 1934, File: 'Loan of Officers for Appointment as Town Engineers', BSA RE 74/1934.
86. No. 2189E, VI A-5 of 1934, Subject: 'Loan of an Assistant Engineer in Connection with Earthquake Works', J. G. Powell, PWD, B&O, to the Sec. to the Govt of U.P., PWD (Lucknow), Patna, 14 February 1934, BSA RE 65/1934.
87. Frederick Charles Temple (1879–1957), engineer, graduated from Oxford and continued his training as assistant to Indian Military Service 1905–07, after which he joined the Public Works Dept of India, 1907–19. He was Chief Town Engineer in Jamshedpur 1919, and Administrator 1924–32. He had previously been District Engineer in Muzaffarpur District and Superintending Engineer, Public Health Dept, PWD, Bihar and Orissa. 'Builders of the New Bihar' in Moore (ed.), *Record of the Great Indian Earthquake*, 37. After one year as Relief Engineer and Supply Officer, he returned to London where he spent the remainder of his career in leading positions at various ministries. Antonia Brodie et al. (eds.), *Directory of British Architects 1834–1914*, Vol. 2: L–Z. British Architectural Library, Royal Institute of British Architects (London: Continuum, 2001): 777–78.
88. Notification, W. B. Brett to J. T. Whitty, Patna, 23 February 1934, BSA RE 19/1934.

89. J. G. Powell to Chief Secretary, 3 February 1934, BSA RE 65/1934. Harold Vinith Williams (born 9 June 1898; joined PWD 1 October 1921), D.O. 279: 'Retrenchment under the 1932 Compulsory Retirement Rules', Mr Curry, Chief Engineer, Bengal Secretariat, Irrigation Dept to J. G. Powell, PWD, B&O, Calcutta, 5 February 1934, BSA RE 74/1934. Williams served from 10 February to 10 May 1934, and Nunn from 30 January to 19 April 1934; D.O. 9554, Accountant General, B&O, to the Sec. to the Govt of B&O, PWD, Patna, 6 July 1934, BSA RE 65/1934.
90. No. 2189E, VI A-5 of 1934, Subject: 'Loan of an Assistant Engineer in Connection with Earthquake Works', J. G. Powell, PWD, Establishment Branch, B&O, to the Sec. to the Govt of U.P., PWD (Lucknow), Patna, 14 February 1934, BSA RE 65/1934. 'Statement of Expenditure on Account of Pay, Travelling Allowance and Contingencies on Account of Rai Sahib Pandit Ram Chandra (alt., Ramchandra) for the period 1 March to 1 June 1934', enclosed with 2729 R. D., W. B. Brett to Finance Dept, B&O, Patna, 26 July 1934, BSA RE 65/1934. 613 R.D". 'Appointment of Special Engineer for Advising on Damaged Buildings', W. B. Brett to Commissioner of Tirhut, Patna, 12 March 1934, BSA RE 76/1934. Devi Dayal, senior Executive Engineer with more than 19 years of service, as Under Secretary and Assistant Chief Engineer for nearly two years. In the U.P. he had served both as district officer and in the Secretariat; also Honorary Sec. of the Assam Branch of the Red Cross Society. Notes by W. B. Brett, 7 April 1934, BSA RE 65/1934.
91. No. 613 R.D. 'Appointment of Special Engineer for Advising on Damaged Buildings', W. B. Brett to Commissioner of Tirhut, Patna, 12 March 1934, BSA RE 76/1934.
92. Letter No. F. 1338, J. E. Scott to Sec. to the Govt of B&O, PWD Dept, Patna, Muzaffarpur 21 February 1934, BSA RE 65/1934.
93. 'Detailed Programme of the Assistant Engineer', enclosed with No. F. 1338, J. E. Scott to Sec. to the Govt of B&O, PWD Dept, Patna, Muzaffarpur, 21 February 1934, BSA RE 65/1934.
94. D.O. J 2244, J. E. Scott to W. B. Brett, Muzaffarpur, 25 March 1934; D.O. J 2248, J. E. Scott to W. B. Brett, Muzaffarpur, 4 April 1934, BSA RE 65/1934.
95. Harold Easton Bruce, 'Tirhut Trivialities' (14 pp., s.d.), Mss Eur C282.
96. Notes by W. B. Brett, 8 February 1934, BSA RE 65/1934.
97. Notification, W. B. Brett to H. E. (J. T. Whitty), Patna, 23 February 1934, BSA RE 19/1934.
98. Temple received a salary of 2,150 rupees per month, and overseas pay at 13-6-8 pounds. Notification, W. B. Brett to H. E. (J. T. Whitty), Patna, 23 February

- 1934, BSA RE 19/1934. His office had nine staff according to 'Note' by Finance Dept S.D./25 March 1934, attached with reply by W. B. Brett to Finance Dept, 27 March 1934, BSA RE 76/1934.
99. F. C. Temple, *Report on Town Planning*. Jamshedpur Social Welfare Series (Bombay: Commercial Press, 1919).
 100. Amita Sinha and Jatinder Singh, 'Jamshedpur: Planning an Ideal Steel City in India', *Journal of Planning History* 10, no. 4 (2011): 263–81, 268.
 101. Volker M. Welter, *Biopolis: Patrick Geddes and the City of Life* (Cambridge, MA; London: The MIT Press, 2002), 49–50.
 102. Gooptu, *The Politics of the Urban Poor*, 77–78.
 103. Temple's understanding of the local context in Jamshedpur town plan is shown in his design of *adivasi* worker quarters modelled on their huts in a traditional village structure and with a well in the centre of the habitat. Sinha and Singh, 'Jamshedpur: Planning an Ideal Steel City in India', 270.
 104. Temple published a number of reports and notes on drainage schemes in Patna and Muzaffarpur, 1917–20. Reports and publications in Mss Eur D926/1–3 Temple; see also reference to Temple, *Report on Town Planning*.
 105. Enclosure 'Town Reconstruction Work', in 'Order no. 3162 E/VI A – 15 of 34', J. G. Powell, PWD, B&O, Patna, 30 March 1934, BSA RE 19/1934.
 106. Singh, 'The Colonial State, Zamindars and the Politics of Flood Control', 248. Brett, *A Report on the Bihar Earthquake*, 34.
 107. 'Waterways in North Bihar, Their Present Condition after the Earthquake and Their Possibilities for the Future', F. C. Temple to W. B. Brett, 17 July 1934; 'Sitamarhi and Darbhanga Roads Committee', Temple to Brett, Muzaffarpur, 15 January 1935, Mss Eur 926D/3.
 108. The engineers' work in Motihari, Monghyr, Muzaffarpur and Darbhanga was monitored in bi-weekly reports with abstracts of figures and details of the number of applications for loans and consultations. 'Govt of B&O. Reconstruction Dept, Periodical Report from 'Town Engineer' (template), BSA RE 256/1934.
 109. W. B. Brett to Finance Dept, 27 March 1934, BSA RE 76/1934.
 110. *Ibid.*
 111. 'Note' by Finance Dept, 30 March 1934, BSA RE 76/1934.
 112. 'Organisation of the Town Engineers' (Memo, 2), W. B. Brett, 19 March 1934, BSA RE 76/1934.
 113. 'Routine Notes', Temple to Brett, 2 April 1934; 'Routine Notes', Temple to Brett, Patna, 24 April 1934; 'Notes', Temple to Brett, Patna, 20 June 1934, BSA RE 76/1934.
 114. Correspondence, F. C. Temple to W. B. Brett, 15 May 1934, BSA RE 76/1934.

115. Mr J. Williamson, Agent to the Bengal and North-Western Railway, in Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 195.
116. Correspondence, F. C. Temple to W. B. Brett, 15 May 1934; Correspondence, W. B. Brett to H. C. Prior, Finance Secretary, 16 May 1934, and notes by H. C. Prior, 18 May 1934, BSA RE 76/1934.
117. 'Fortnightly Progress Report on District Board Bridges on Main Roads for the Fortnight Ending the 15th June, 1934', Memo. no. 488, Inspector of Local Works, Tirhut Division, Muzaffarpur, 21 June 1934, Patna, File: 'Fortnightly Progress Report of the Inspection of Local Works', BSA RE 245/1934.
118. Anon. to J. W. Houlton, Revenue Secretary B&O, 25 January 1934; D.O. 482, J. W. Houlton to J. W. Nicholson, Divisional Forest Officer, Palamau Division, Patna, 25 January 1934, BSA RE 56/1934.
119. *Shorea robusta* (Lat.), a common tree in eastern and northern India. K. Sivaramkrishnan, 'The Politics of Fire and Forest Regeneration in Colonial Bengal', *Environment and History* 2, no. 2 (1996): 145–94.
120. D.O. 1176 R.D., W. B. Brett to J. W. Nicholson, Divisional Forest Officer, Daltonganj, 20 April 1934, BSA RE 56/1934.
121. Comments on Bamboo in D.O. 775, District Officer V. K. B. Pillai to the Relief Commissioner, B&O, Patna, Chapra, 5 June 1934; D.O. 2242 R.D., W. B. Brett to the Collector of Saran, Patna, 27 June 1934; D.O. 55, Collector of Saran to Relief Commissioner, Chapra, 21 July 1934, BSA RE 56/1934.
122. D.O. 7130/12-E (23), J. W. Nicholson, Palamau Forest Division, to H. C. Prior, Finance Dept, Govt of B&O, Daltonganj, 10 March 1934; D.O. 478 VR, R.D., Relief Commissioner, Govt of B&O, to the Agent, East India Railways, Calcutta, Patna, 24 March 1934, BSA RE 56/1934.
123. Memo: 'Monghyr: Reconstruction Proposals', F. C. Temple, 14 April 1934, BSA RE 45/1934.
124. *Ibid.*
125. Memo: 'Monghyr Town Planning Scheme', W. B. Brett, 15 April 1934, submitted to the local government. Brett's memo was written after having consulted F. C. Temple's Memo: 'Monghyr: Reconstruction Proposals' (4 pp.), 14 April 1934, BSA RE 45/1934.
126. Brett, *A Report on the Bihar Earthquake*, 7–9, 72; 'Table II', BCRC, *Devastated Bihar*, 66.
127. Temple counted 461 plots. Memo: 'Monghyr Town Planning Scheme', W. B. Brett, 15 April 1934, BSA RE 45/1934. The reconstruction of the area was further facilitated by the land being under the control of the Deputy Collector. 'Some Political and Other Aspects of Earthquake Relief in Bihar', M. G. Hallett,

- 31 March 1934 (Unofficial report of a 'short visit' to Bihar of two days in Patna, two days in Monghyr and two days in Muzaffarpur, 18 unnumbered pages out of which one appear to be missing), NAI HP 34/1/1934.
128. Memo: 'Monghyr Town Planning Scheme', W. B. Brett, 15 April 1934, BSA RE 45/1934. According to Temple, 395 families would be 'allowed' to stay and 355 families had to be accommodated elsewhere. Memo: 'Monghyr: Reconstruction Proposals', F. C. Temple, 14 April 1934, BSA RE 45/1934.
 129. 'Monghyr Town Planning; Government's Statement on Subject; Full Text of Mr Brett's Speech in Council', *The Searchlight*, 12 September 1934.
 130. Sinha and Singh, 'Jamshedpur: Planning an Ideal Steel City', 269–70.
 131. Memo: 'Monghyr: Reconstruction Proposals', F. C. Temple, 14 April 1934, BSA RE 45/1934.
 132. Memo: 'Monghyr Town Planning Scheme', W. B. Brett, 15 April 1934, BSA RE 45/1934.
 133. Brett, *A Report on the Bihar Earthquake*, 72.
 134. For the Purabsarai road, 0.682 acres had been set aside. Memo: 'Monghyr Town Planning Scheme', W. B. Brett, 15 April 1934, BSA RE 45/1934.
 135. 'Untitled note' (3), W. B. Brett, 10 June 1934, BSA RE 45/1934.
 136. 'Application for Sanction (Under Section 30 of the Darbhanga Improvement Act)' (printed, 41 pp.) T. A. Freston, Chairman, 8 May 1935, 7–9. Darbhanga, MKSKF.
 137. *Ibid.*, 4–5, 10–11.
 138. T. A. Freston, 'Explanatory Note. Scheme No III' [that is, to 'III: Lalbagh New Area Scheme', Darbhanga Improvement Trust] [May 1935]. Darbhanga, MKSKF.
 139. '30th Communiqué, Patna, 16 May, 1934: Monghyr Town-planning Scheme', NAI HP 34/1B/1934. Brett, *A Report on the Bihar Earthquake*, 72. Memo: 'Monghyr: Reconstruction Proposals', F. C. Temple, 14 April 1934, BSA RE 45/1934.
 140. A map of the new areas published by the district officer is unavailable in the archival records consulted. Memo [by Brett], 27 May 1934, BSA RE 45/1934.
 141. 'Monghyr Town Planning; Government's Statement on Subject; Full Text of Mr Brett's Speech in Council', *The Searchlight*, 12 September 1934.
 142. Wisner et al., *At Risk*, 254.
 143. Memo: 'Monghyr: Reconstruction Proposals', F. C. Temple, 14 April 1934, BSA RE 45/1934.
 144. 'Earthquake Relief: Government Communiqué', *Indian Nation*, 7 April 1934.
 145. Brett, *A Report on the Bihar Earthquake*, 73.
 146. Sinha, *The Bihar Earthquake and the Darbhanga Raj*, 44.
 147. Published letter, J. D. Sifton, Governor of Bihar and Orissa, to Maharajadhiraja Kameshwar Singh of Darbhanga, Government House, Ranchi, 31 May 1934, in

- Hetukar Jha (ed.), *Courage and Benevolence: Correspondence and Speeches of India's Prime-Estate Holder; Maharajadhiraja Kameshwar Singh of Darbhanga (1907–1962)* (Darbhanga, Bihar: Maharajadhiraja Kameshwar Singh Kalyani Foundation, 2007), 78.
148. Brett, *A Report on the Bihar Earthquake*, 14.
 149. The initial budget for reconstruction of the main buildings of the Raj amounted to 665,000 rupees. 'Construction after the Earthquake 1934' ('KS Records no 50'; 4 pp.) Chief Manager to His Highness, 10 November 1934; 'RD form no 88', office note, File: Administrative Report, Confidential (printed, 8), Chief Manager R.D., 16 June 1936. Darbhanga, MKSKF.
 150. P. C. Roy Chaudhury, *Darbhanga*, Bihar District Gazetteers (Bihar, Patna: Superintendent Secretariat Press, 1964), 422–23.
 151. Memo: 'Monghyr Town Planning Scheme', W. B. Brett, 15 April 1934, BSA RE 45/1934. Exact numbers are difficult to ascertain, for instance, another publication claims that by June 1934 the VERN had granted 70,000 rupees for clearing the Chowk bazaar. *RPER*, 18.
 152. Roy Chaudhury, *Monghyr*, 338. The amount was subdivided into 'Roads and Buildings 155,734 rupees', 'Water-supply and Sanitary Projects 56,644 rupees' and 'Other Charges 116,186'. The construction of Raja Bazaar Market [that is, Bekapur] for 116,186 rupees is listed separately, but appears to have been recorded as 'Other Charges' of Monghyr bazaar as well.
 153. Land acquisition costs for the new sites, 36,510 rupees, and Purabsarai Road widening, 13,183 rupees, went under the heading of 'Land Acquisition, 50,000 rupees'. Resumption costs of 10,000 rupees for cancelling *khas mahal* leases. The following memo was submitted together with Brett's and Temple's respective memos on Monghyr's town plan, dated 14 and 15 April 1934. Memo: 'Estimate of Town Improvement Costs, Monghyr', A. Wheeler, Town Engineer, Monghyr, 13 April 1934, BSA RE 45/1934.
 154. 'Supplementary Budget: Revenue; Appendix, Schedule no. 1', Supplementary Demand under the 'Land Revenue', 19 November 1936, *BLCP* 36, no. 2.
 155. November 1936. *Ibid.*
 156. *Ibid.*
 157. Henningham, *A Great Estate and Its Landlords*, 131–34.
 158. *Ibid.*, 130–37.
 159. 'Weekly Earthquake Report for the Week Ending 10 March 1934' (Muzaffarpur), D.I.G. to McDowell, Inspector General, C.I.D., BSA PS 33 III/1934.
 160. 'Explanatory Note. Scheme No II' by T. A. Freston, [s.a.] in 'Darbhanga Improvement Trust.' Darbhanga, MKSKF.

161. Gooptu, *The Politics of the Urban Poor*, 83–84.
162. 'Darbhanga Improvement Bill; Citizens' Strong Opposition; Representative and Influential Manifesto', *The Searchlight*, 2 September 1934.
163. 'Extract from the proceedings of the meeting of the Darbhanga Improvement trust held on the 7th of May, 1935', 2; 'Application for Sanction (Under Section 30 of the Darbhanga Improvement Act)' (41 pp.), T. A. Freston, Chairman, 8 May 1935. Darbhanga, MKSKF, 3–4.
164. Rai Bahadur Shayamnandan Sahay, one of the richest zamindars in Bihar, see 66–67 in Arvind N. Das, 'Peasants and Peasant Organisations: the Kisan Sabha in Bihar', in *Agrarian Movement in India: Studies on 20th Century Bihar*, ed. Arvind N. Das, 40–87 (London: Frank Cass and Company Limited, 1982).
165. 'B. & O. [Bihar and Orissa Legislative] Council; Darbhanga Improvement Trust Bill Carried', *Behar Herald*, 8 September 1934.
166. In a reply to suggestions (received 25 January 1934) regarding town planning in Tirhut up for debate in the Legislative Council in Patna. D.O. 930-J, J. E. Scott to P. C. Tallents, 9 February 1934, BSA RE 8/1934.
167. 'Earthquake Relief: Government Communiqué', *Indian Nation*, 7 April 1934.
168. 'The Darbhanga Improvement Act, 1934 (Bihar and Orissa Act 4 of 1934)', Pandey, *Manual of Bihar Local Laws 1790–1985*, vol. 3 [C–E], 65.
169. 'Application for Sanction (Under Section 30 of the Darbhanga Improvement Act)' (printed, 41 pp.), T. A. Freston, Chairman, 8 May 1935, 22–25. Darbhanga, MKSKF.
170. 'Explanatory Note. Scheme No. IV [Rehousing Scheme]', T. A. Freston, May 1935, enclosed with Darbhanga Improvement Trust'. Darbhanga, MKSKF.
171. Note: 'Organisation of the Town Engineers', by W. B. Brett, Patna, 19 March 1934, BSA RE 76/1934.
172. 'Allotments from Bihar and Orissa Branch Viceroy's Earthquake Relief Fund' ('up to the end of May'), 2 pp., compiled by H. C. Prior, D.O. 1813–18 V. R. C., H. C. Prior to W. B. Brett, Ranchi, 5 June 1934, BSA RE 43/1934.
173. Memo No. 447, Ramanugrah Jha, 'Special Officer' in charge of Monghyr Municipality, to District Magistrate [Mainwaring], 3 July 1934, BSA PS 33/B/1934.
174. Communiqué, 'Temporary Housing at Monghyr', R.D., Govt of B&O, 28 March 1934, NAI HP 34/1B/1934.
175. 'Maharaja of Mayurbhanj', *ABP*, 18 March 1934.
176. Archer, 'The Bihar Earthquake', *Mss Eur F236/1*.
177. *Ibid.*
178. 'Communiqué: Progress of Temporary Housing Scheme', R.D., Govt of B&O, 28 March 1934, NAI HP 34/1B/1934.

179. W. B. Brett, 'Weekly Bulletin' (for the week ending 9 March 1934), Reconstruction Office, Patna, to M. G. Hallett, Sec. to the GOI, Home Dept, NAI 34/1B/1934.
180. Marwari Relief Society, *Report of the Behar Earthquake Relief Work*, 39.
181. The Marwari Relief Society constructed 1,500 huts as temporary quarters and erected a colony with 300 rooms, sufficient to accommodate 1,200 persons, in the Prince of Wales Garden in Muzaffarpur. *Ibid.*, 10–12. The Servants of India Society, the Ramakrishna Mission and the Kushtia Marwari Society had built colonies in Muzaffarpur. BCRC, *Report for the Period Ending 30th June 1934*, 34.
182. See, for instance, expenditure in Monghyr of 4,267 rupees for corrugated iron sheets. Marwari Relief Society, *Report of the Behar Earthquake Relief Work*, 20.
183. 'Weekly Bulletin' (for the week ending 9 March 1934), W. B. Brett to M. G. Hallett, Sec. to the GOI, Home Dept, NAI HP 34/1B/1934.
184. 'Temporary Housing', Extract from 'Earthquake Reconstruction' report D.O. 320, 9 July 1934, enclosure to D.O. 2019, District Magistrate A. J. Mainwaring (Collector's House, Monghyr), to P. C. Tallents, Chief Sec. to Govt of B&O, Ranchi, 12 July 1934, BSA PS 33/B/1934.
185. Memo No. 447, Ramanugrah Jha, 'Special Officer' in charge of Monghyr Municipality, to District Magistrate [Mainwaring], Monghyr, 3 July 1934, BSA PS 33/B/1934.
186. Extract from 'Earthquake Reconstruction' report no. D30 320, 'Temporary Housing', 9 July 1934, to Commissioner [of Monghyr], BSA PS 33/B/1934.
187. The first telegram was sent by the postmaster to the District Magistrate, 22 June 1934, the second telegram on 23 June 1934. D.O. 2019, District Magistrate A. J. Mainwaring (Collector's House, Monghyr), to P. C. Tallents, Chief Sec. to Govt of B&O, Ranchi, 12 July 1934, BSA PS 33/B/1934.
188. Extract from 'Earthquake Reconstruction' report no. D.O. 299, 'Temporary Housing', 25 June 1934, to Commissioner [of Monghyr], BSA PS 33/B/1934.
189. Extract from the confidential diary of the Superintendent of Police, Monghyr, 2 July 1934. Forwarded as 'Memo no. 6027' to the Chief Sec., Govt of B&O, 7 July 1934. Another report claimed 'some 200 persons' attended. D.O. 304: 'Temporary Housing', Mainwaring to Commissioner of Bhagalpur, Monghyr, 2 July 1934, BSA PS 33/B/1934.
190. Among the people behind the call was the Vice-Chairman of the District Board, Sayed Rafiuddin Rizvi, and Shri Krishna Prasad, an M.L.C., as well as the two 'chief mischief makers' Sita Ram Khemka, the dispatcher of the withheld telegram, and Mansukh Ram Khemka, whom the district officer thought were behind the agitation. 'Temporary Housing', Extract from 'Earthquake Reconstruction', D.O. 299, dated 25 June 1934 to the Commissioner, BSA PS 33/B/1934.

191. Extract from the confidential diary of the Superintendent of Police, Monghyr, 2 July 1934. Forwarded as 'Memo no. 6027' to the Chief Sec., Govt of B&O, 7 July 1934, BSA PS 33/B/1934.
192. Nripado Mukherjee, president of the [Bihar] Central Relief Committee at Monghyr, accused the police and Special Officer of the Municipality of forcefully evicting residents of the Ramlila maidan. See file in previous footnote. 'Province Day by Day: Monghyr', *Indian Nation*, 7 April 1934.
193. Extract from 'Earthquake Reconstruction', D.O. 304: 'Temporary Housing', 2 July 1934, to Commissioner; Memo no. 447, Ramanugrah Jha, 'Special Officer' in charge of Monghyr Municipality, to District Magistrate [Mainwaring], 3 July 1934, BSA PS 33/B/1934.
194. D.O. 3473-C, P. C. Tallents to A. J. Mainwaring, District Magistrate, Monghyr, 9 July 1934, BSA PS 33/B/1934.
195. 'In reply to D.O. 3473-C', A. J. Mainwaring, District Magistrate, to P. C. Tallents, Monghyr, 12 July 1934, BSA PS 33/B/1934.
196. Memo No. 447, Ramanugrah Jha, 'Special Officer' in charge of Monghyr Municipality, to District Magistrate [Mainwaring], 3 July 1934, BSA PS 33/B/1934.
197. Extract from 'Earthquake Reconstruction', D.O. 304: 'Temporary Housing', District Officer Monghyr to the Commissioner [of Bhagalpur], 2 July 1934; Forwarded as 'Memo no. 6027' to the Chief Sec., Govt of B&O, 7 July 1934, BSA PS 33/B/1934.
198. Memo No. 447, Ramanugrah Jha, 'Special Officer' in charge of Monghyr Municipality, to District Magistrate [Mainwaring], 3 July 1934, BSA PS 33/B/1934.
199. Ibid.
200. Bata Shoe Co. Pvt. Ltd (founded 1894), later Bata India Ltd, was a Swiss-based Czechoslovakian shoe company with a production unit in West Bengal since 1931. Anthony Cekota. *The Stormy Years: An Extraordinary Enterprise... Bata 1932-1945* (Perth Amboy, NJ: Universum Sokol Publications, 1985), 33-34.
201. Memo No. 447, Ramanugrah Jha, 'Special Officer' in charge of Monghyr Municipality, to District Magistrate [Mainwaring], 3 July 1934, BSA PS 33/B/1934.
202. Memo: 'Monghyr Town Planning Scheme', W. B. Brett, 15 April 1934, BSA RE 45/1934.
203. 'Monghyr Town Planning; Government's Statement on Subject; Full Text of Mr. Brett's Speech in Council', *The Searchlight*, 12 September 1934.
204. Memo: 'Monghyr Town Planning Scheme', W. B. Brett, 15 April 1934, BSA RE 45/1934.
205. Ibid.

206. Memo No. 447, Ramanugrah Jha, 'Special Officer' in charge of Monghyr Municipality, to District Magistrate [Mainwaring], 3 July 1934, BSA PS 33/B/1934.
207. Memo: 'Monghyr Town Planning Scheme', W. B. Brett, 15 April 1934, BSA RE 45/1934.
208. Brett, *A Report on the Bihar Earthquake*, 73.
209. 'Monghyr Town Planning; Government's Statement on Subject; Full Text of Mr Brett's Speech in Council', *The Searchlight*, 12 September 1934.
210. One acre of the new settlement was sold to former *khas mahal* holders for 200 rupees. Memo: 'Monghyr Town Planning Scheme', W. B. Brett, 15 April 1934, BSA RE 45/1934.
211. 'Settlement of Lands with the Tenants of the Chauk [Chowk] Area, Monghyr', 34. [Question by] Rai Bahadur Deonandan Prasad Singh, reply by the Hon'ble Mr. Shri Krishna Sinha, *BLCD* 4, no. 5. Official Report. (Patna: Superintendent, Government Printing, 1939), 214–15.
212. Gooptu, *The Politics of the Urban Poor*, 83–84.
213. Governor James Sifton, 3 September 1934, *BOLCP* vol. 31, 56.
214. Brett, *A Report on the Bihar Earthquake*, 74.
215. Gooptu, *The Politics of the Urban Poor*, 84.