

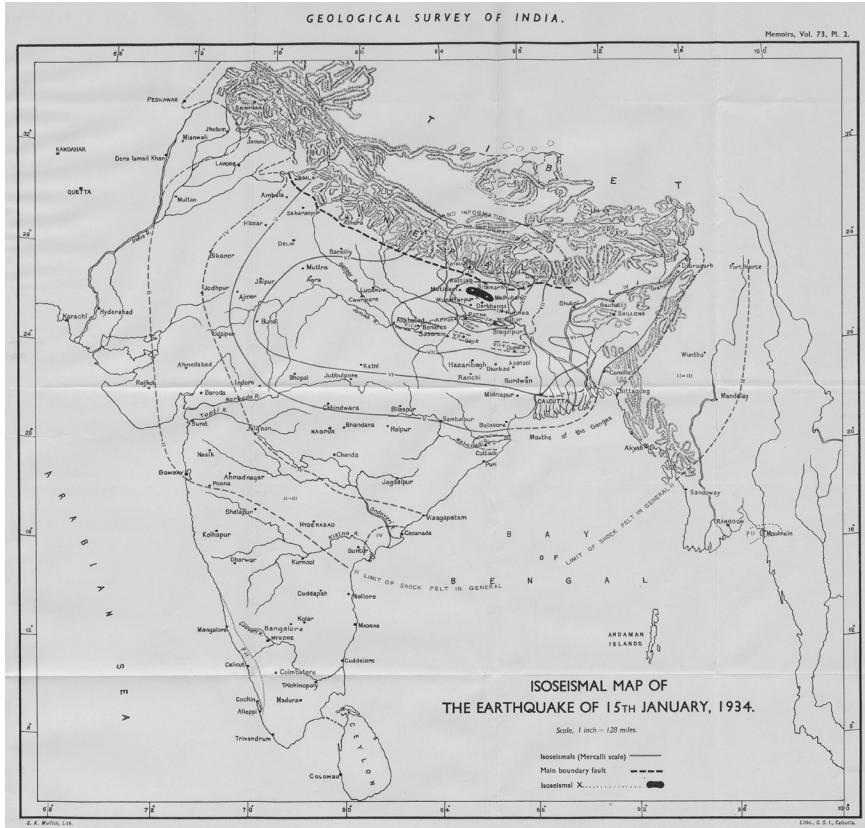
# Introduction

## Experiencing the Extraordinary and the Ordinary

### Continuities and Breaks

On 15 January 1934, at around 2.13 p.m. an earthquake struck north India and Nepal.<sup>1</sup> In the chronicles of states, popular writers and scientists, the earthquake would be known as ‘the Indian earthquake’,<sup>2</sup> ‘the great Indian earthquake’,<sup>3</sup> ‘the Bihar–Nepal earthquake’,<sup>4</sup> ‘the Bihar earthquake’<sup>5</sup> and in Nepal as ‘the Great Earthquake’.<sup>6</sup> As some of these titles reveal, Bihar, which the present study focuses on, was the worst-affected region in India: the districts Muzaffarpur, Darbhanga and Champaran in north Bihar, and Monghyr, south of the Ganges, suffered the most extensive human losses and damages. In India somewhere between 7,253<sup>7</sup> and 20,000<sup>8</sup> people succumbed and approximately 8,500 died in Nepal<sup>9</sup> in the upheaval measuring Mw 8.1<sup>10</sup> to 8.4<sup>11</sup> according to re-evaluated historical data. The epicentre located about 10 kilometres south of Mt Everest<sup>12</sup> caused severe damage to infrastructure, agricultural land and a large number of houses in an area extending from the foothills of the Himalayas in Nepal to the southern bank of the Ganges (Map 1.1).<sup>13</sup>

The 1934 earthquake was in many ways a revolutionary event in terms of magnitude and effect: it was a large-scale disaster with an unexpected and sudden onset. Almost exactly one hundred years had elapsed since the last major earthquake occurred in the region in 1833, an event of far less impact in terms of death and destruction, with no deaths reported in India despite damages to houses.<sup>14</sup> After the 1934 earthquake, the 1988 Udaypur (Udaipur) earthquake<sup>15</sup> served as a mild precursor to the recent 25 April 2015 Gorkha earthquake that not only caused extreme destruction and about 8,700 deaths in Nepal, but also severely jolted northern India from Delhi to Kolkata.<sup>16</sup> In combination with findings of historical seismology, these contemporary reminders of Bihar being



**Map 1.1** Isoseismal map of the impact of the 1934 earthquake in South Asia. This detailed map was published by the GSI in 1939, while an earlier preliminary map was published by the Geological Survey of India officers J. B. Auden and A. M. N. Ghosh in 1934.

Source: Dunn et al., ‘The Bihar–Nepal Earthquake of 1934’, pl. 2. The earlier version was published in J. B. Auden and A. M. N. Ghosh, ‘Preliminary Account of the Earthquake of the 15th January, 1934, in Bihar and Nepal’, 177–239, in *Records of the Geological Survey of India* 68, pt. 2 (1934), pl. 19.

at risk in the event of regional Himalayan earthquakes have spurred research into engineering and modes of coping. Contemporary earthquake risk reduction in the Kathmandu valley aims at improving building structures and creating awareness.<sup>17</sup> Vital in recommending building techniques and planning dam projects and power plants is research into historical seismology, which serves to

estimate location and magnitude of historical earthquakes.<sup>18</sup> A seismic record of the region extends back to the thirteenth century, as documented by geologists and historical seismologists of great historical and twentieth-century South Asian earthquakes.<sup>19</sup>

In modern South Asian history, the 1934 earthquake is foremost remembered for M. K. Gandhi's interpretation of the event as divine intervention, followed by an exchange of opinions with Rabindranath Tagore. Gandhi made the famous and disputed claim that the earthquake was a 'divine chastisement' of Bihar for the 'sin of untouchability', and Tagore contributed with a refutation of the statement as unscientific.<sup>20</sup> The brief discussion on whether the earthquake was caused by the treatment of Harijans, the name Gandhi used for the then untouchable castes, or whether it was a natural phenomenon detached from human actions has come to be interpreted as the manifestation of a schism between traditional beliefs and science. Scholarly works have in passing mentioned Gandhi's and Tagore's public exchange of opinions on the cause of the earthquake in order to illustrate their disparate outlooks on science and technology, most pronouncedly to prove the former's overall rejection of modern science versus the latter in its defence as a man of reason.<sup>21</sup> Gandhi's view of the earthquake as a divine punishment for the practice of untouchability has been taken as a case in point for proving his 'readiness to resort to harness faith'.<sup>22</sup> In one article his explanation of the earthquake as a punishment for sin has been described as moralistic.<sup>23</sup> Yet another analysis of the debate discerns an inherent theodicy in the statement by Gandhi as contrary to Tagore's rejection of divine intervention in physical phenomena.<sup>24</sup> Makarand R. Paranjape's article focuses entirely on their conflicting views after the earthquake, arguing that they represented 'two kinds of rationality, two ideas of science, and two approaches to modernity'.<sup>25</sup> Notably, the attention Gandhi's statement and Tagore's rejoinder attracted in the press then as well as later can partly be ascribed to the amount of publicity the exchange received, and partly to the historical importance of the two persons.

From a disaster studies' point of view, Gandhi's metaphysical interpretation offers an opportunity to understand how people's explanations and perceptions of human agency in disasters can affect responses.<sup>26</sup> Not unlike how the earthquake became incorporated into contemporary political discourse, histories of catastrophism outside the realms of 'scientific modernity' enabled people to explain, account for and rationalise loss, according to Sumathi Ramaswamy's book on the imaginary submerged Indian Ocean continent Lemuria.<sup>27</sup> Similarly, local knowledge in disaster myths, Urte Frömking points out in her comparative study of volcanoes in Iceland and Indonesia, is in 'modern' Western discourse

regarded as magic rather than keys for understanding real-life strategies in dealing with disasters as well as perceptions of society and nature.<sup>28</sup> The practical usefulness of disaster interpretations is thereby lost as even anticipated and imagined disasters carry an important social potential for probation and development, cultural historians argue.<sup>29</sup>

If Gandhi's interpretation of the earthquake gained considerable attention in contemporary media as well as in the scholarship of today, the social psychologist Jamuna Prasad's study on the proliferation of rumours in the aftermath would come to leave a long-lasting mark on his discipline's scholarship, albeit in a different manner than intended.<sup>30</sup> In what appears to have been the first academic research project on the earthquake, he conducted interviews and listed observations and accounts in newspapers with the intention to understand the psychological factors underlying rumours after a disaster.<sup>31</sup> Prasad's contribution to the research field was in support of a 'social' approach towards rumours and challenging an analysis of the individual as independent of the 'crowd', like his contemporary Bernard Hart argued in the influential article 'The Psychology of Rumour' in 1916.<sup>32</sup> In 1950, Prasad published one more article based on comparisons of earthquake reports and rumours, introducing more material collected from the 1934 earthquake and later earthquakes.<sup>33</sup> The second article came partly in reaction to the influential study of rumour by Gordon Allport and Joseph Postman in *Psychology of Rumour* (1947), which viewed rumours as individual experiences and did not take cognizance of Prasad's article and his contrary claims on the role of the group.<sup>34</sup> Even though Prasad's research received limited acknowledgement by international colleagues in social psychology,<sup>35</sup> his study earned far wider recognition after the psychologist Leon Festinger (1919–89) used it as a key example for developing his theory of cognitive dissonance.<sup>36</sup> From this moment, Prasad's study would take a remarkably different academic trajectory. To prove his theory, Festinger argued that the rumours studied by Prasad had occurred outside the worst disaster area 'among people living in the area which received the shock of the earthquake but which did not suffer any damage'.<sup>37</sup> The 'fear-justifying rumours' served to overcome cognitive dissonance among people who felt fear but did not experience damage or death consonant with the frightening event, according to Festinger.<sup>38</sup> Patna, where Prasad started collecting rumours,<sup>39</sup> was indeed less damaged in comparison with north Bihar and Monghyr, but the district as a whole nevertheless suffered almost 150 officially recorded deaths, and Patna city saw a great number of private houses and large old buildings in ruins.<sup>40</sup> Both Prasad and eye-witness accounts contradicted Festinger's understanding of the earthquake rumours as detached from the worst-affected area. In this way,

Prasad's study gained fame, although not for his contribution to the role of collectives in social psychology, as the research had intended.

Perhaps less famous to a wider audience than Festinger's theory, but a classic contribution in the field of history, Ranajit Guha's *Elementary Aspects of Peasant Insurgency in Colonial India*, agrees with Prasad's social approach towards rumours in the sense that rumours are seen as a source for discerning popular mentalities and flows of information,<sup>41</sup> capable of triggering far-travelling panic within a very short period.<sup>42</sup> The seminal study on subaltern modes of communication and informal networks ascribes rumour a fundamental role.<sup>43</sup> By analysing rumours as an efficient communicative mode, particularly in subaltern communication,<sup>44</sup> Guha builds upon Prasad's argument that rumours functioned as a social medium.

Despite these significant socially embedded interpretations of a disaster and far-reaching records of earthquakes in the region, historians of South Asia have taken a sporadic interest in how society responded to earthquakes, or to natural disasters in general for that matter. Historical studies on disasters in Bihar have addressed floods,<sup>45</sup> and recurring floods and cyclones in Orissa,<sup>46</sup> the south-eastern part of the province<sup>47</sup> and not to forget, famines. Floods are still considered a normal and a recurrent disaster in north Bihar, one of the most flood-prone areas of the region where the Ganges and the large rivers Kosi and Gandak with tributaries criss-cross the landscape and cause regular inundations as well as major floods of varying intensity on a yearly basis.<sup>48</sup> Famines, the most salient and fatal of disasters from the beginning of the British East India Company Rule around 1770, are generally considered a man-made or hybrid disaster with elements of causation based on environmental conditions, weather and governance.<sup>49</sup> Why earthquakes have so far caught marginal attention in South Asian history may partly be explained by an inclination in historical narratives to focus on phenomena that are recurrent and lend themselves for generalisation and the gradual development traced in environmental disasters rather than singular disasters. Another reason may be a perception of catastrophes of nature as outside the scope of political history, and particularly the history of states, which would explain why historical research tends to study the role of governance in hybrid or man-made disasters rather than governance in natural hazards.<sup>50</sup> The lack of interest in natural disasters can, according to the pioneering work of Arno Borst, be traced to notions of modernity where a focus on societal progress led to a repression of singular events considered as abnormal interruptions in historical research.<sup>51</sup> Global environmental history, too, tends to focus on governance in disasters unfolding over a longer time-span, for example, famines, droughts, floods and climate change, but less so on natural disasters with a sudden onset

such as earthquakes, tsunamis, typhoons, hailstorms and hurricanes.<sup>52</sup> The contemporary wider acceptance of human beings' agency in relation to their environs can be traced to the experience of living in the ecological epoch of the Anthropocene, defined by human geological agency and a scientific consensus on climate change being human-induced.<sup>53</sup> This late shift in perceptions of human agency in relation to climate change has occurred in parallel with the increasingly human toll of environmental disasters such as the dumping of toxic waste, deforestation and industrial pollution. Yet environmental disasters are largely rendered invisible, evolving during a long period and unequally distributed across the globe, termed by Rob Nixon as a form of 'slow violence' against the poor and the developing world.<sup>54</sup>

After a turn in geographical, anthropological and sociological research towards an understanding of natural disasters as social processes rather than natural events, cultural and historical studies have intervened to further our understanding of how people have experienced historical natural disasters and at the same time how disasters structure social life.<sup>55</sup> The most extreme among the constructionist approaches on disasters argues that nature and hence 'natural' disasters exist as sociocultural constructs where the natural is not purely physical or biological occurrences but depends on social and cultural understanding of nature. At the other end of the spectrum, the realist approach maintains that risk is a hazard that exists and can be measured independently of social and cultural processes, consequently not taking people's vulnerability into account. A weak constructionist approach regards risk as a hazard that usually is mediated through social and cultural processes. A strong constructionist approach, on the other hand, treats nothing as a risk in itself but as a product dependent on historical, social and political perceptions.<sup>56</sup> With this shift, natural disasters are the outcome of cultural and historical contexts, where social parameters, a person's socio-economic position, knowledge of resources and local environment, age, gender and social networks determine vulnerability and exposure to disaster. Thereby, a person's vulnerability is defined by the 'capacity to anticipate, cope with, resist and recover from the impact of natural hazard'.<sup>57</sup> Vulnerability is thereby directly related to resilience, the ability of a system, community or society to resist, absorb, accommodate to and recover from the effects of a hazard.<sup>58</sup> In the form of a geological event, an earthquake is a natural *hazard*; as a social experience, sociocultural constructs and human agency make it a natural or a man-made *disaster*.<sup>59</sup>

In line with Wisner and colleagues, who emphasise the contribution of so-called normal historical processes in producing disasters,<sup>60</sup> this book examines

the extent to which contemporary perceptions of disasters, political agendas and governance shaped responses in the relief and reconstruction phase in Bihar in the aftermath of the 1934 earthquake. Building upon cultural and historical research into the social aspects of natural disasters, the larger aim of this book is to examine how the aftermath of a disaster demonstrates previous experiences with disasters, or a lack thereof, and the ways responses shape resilience. By studying relief and rehabilitation in the aftermath of the earthquake, the book aims to contribute to a historical understanding of 'natural' disasters as social processes, which it argues is necessary to arrive at a contextualised understanding of resilience and what it means in relation to vulnerability in future disasters. The aftermath of an earthquake is similar and yet different from other natural disasters in terms of human experience, suddenness and physical impact on built environments. Susanna M. Hoffman underlines the use of researching responses to catastrophes in order to understand the fundamental constructs that underpin the social world.<sup>61</sup> The ability of earthquakes to reorder society, as noted by historians, may further help us to understand how societies have adopted practices and in some instances learnt to cope with disasters. The specific scenario of an earthquake has been referred to as a form of creative destruction, a groundbreaker and an 'opportunity' for 'improvements' in the rebuilding process,<sup>62</sup> or cyclical renewal by reconstruction.<sup>63</sup> Case studies of disaster responses show how large-scale disasters have functioned as so-called focusing events on societies in terms of their ability to respond or change approaches.<sup>64</sup> Disaster as an opportunity to reorder society, both in the moment of crisis and in a longer aftermath, creates spaces where political legitimacy is contested or reinforced.

In order to analyse the transformative aspects of disaster, socially and historically contextualised studies are vital. These studies help us understand the trajectories of political instrumentalisation of aid,<sup>65</sup> individual and collective memorialisation,<sup>66</sup> the importance of cultural modes of coping<sup>67</sup> and the force of outside interventions.<sup>68</sup> The 2001 Bhuj earthquake and the 2004 Indian Ocean tsunami were large events. Small disasters recurring with a certain regularity, such as annual inundations or seasonal storms, may elicit responses and adaptive processes that shape institutional and organisational learning. Sociological research shows that responses to small disasters tend to result in learning which produces mitigative and preventive measures at local levels, while the policies developed for responses to large-scale disasters focus on clearing up in the aftermath.<sup>69</sup> Governance institutions and social science research consciously and/or purposefully make use of past experiences with disasters to improve or change responses. The development of systemic learning in responses to disasters

has been differentiated into two categories that can be useful to have in mind: learning from established patterns based on previous experiences, so-called accumulative learning, or by introducing a fundamental and often innovative change.<sup>70</sup>

At the same time, the idea that societies and researchers can learn from history and historical disasters remains contested. Christian Pfister argues that historical disaster research can make it possible for a human to conceive risks, to make the seemingly unthinkable thinkable [*Undenkbares denkbar*].<sup>71</sup> When the implementation of knowledge repeatedly fails, as in the recent mega-disasters Hurricane Katarina and the Indian Ocean tsunami, Stewart Williams argues that large-scale disasters expose the limits of what we can know. Instead of a social constructionist approach to natural disasters, where human agency and technocratic solutions dominate, he suggests a post-social understanding of disaster as helpful in order to grasp the complexities of material realities of what he sees as non-human nature.<sup>72</sup> Learning from disasters is also questioned by James K. Mitchell who argues that the element of surprise in disasters such as the 2004 Indian Ocean tsunami and the 9/11 terrorist attack shows a need to plan for contingencies rather than relying on past experiences.<sup>73</sup> Misplaced faith in the capabilities of institutionalised scientific knowledge and technical expertise may exacerbate vulnerability, Williams writes, inspired by Ulrich Beck's influential risk thesis that modernisation by way of technological change and reflexivity has changed the notions of risk and thereby also how societies deal with hazards.<sup>74</sup> In his book on the long aftermath of the 2001 Bhuj earthquake, Edward Simpson suggests that instead of remembering and thereby learning from the disaster, amnesia occurs as the earthquakes are too big and too terrible to take in. Since the earthquakes are beyond the capacity of what our minds can comprehend, the enormity of the events are scaled down and in the process 'the true earthquake (...) is lost from view'.<sup>75</sup> As these examples show, scholars to various degrees emphasise that learning, remembering or/and forgetting at an institutional or collective level play a role in how societies respond to disaster. Historical disaster research, however, generally finds learning from the experience of disaster to be a fundamental part in explaining how societies deal with disasters differently. Jared Diamond delineates some of the most extreme ways in which societies have collapsed or survived human and environmentally induced disasters—partially choosing to learn or not to learn from past experiences.<sup>76</sup> Accordingly, studies of experiences with disasters can help in understanding social and environmental patterns and circumstances leading up to societal responses.<sup>77</sup> Gregory Clancey illustrates how in Japan, the normative machinery of governance and the



unexpected natural disaster intertwined, 'creating not only states of emergency but disaster-oriented states'.<sup>78</sup> Cultural politics surrounding seismicity changed building techniques as well as methodology in scientific discourse.<sup>79</sup> As previous research on specifically cultural and religious disaster interpretations points out, disasters are not simply explained according to established narratives, but more often they make an impact on explanatory models, whether scientific, religious or governance-oriented.<sup>80</sup> Disasters add layers to narratives, embedded or normalised into the course of life, or featured as extraordinary events. The multiple narratives of a disaster such as the 1931 Yangtze River floods form a lens to understand how a 'disaster regime' developed in the history of modern China. The disaster regime explains how different strands of causality, both environmental and anthropogenic, intertwined to create hazards, famines and epidemics, which all translated into disaster for human beings.<sup>81</sup> Within this wide context of human–environmental relations, disaster learning becomes embedded within multiple practices used for interpreting and responding to emergencies. Such an analysis of disaster as a part of a larger systemic context allows for several narratives about the event and aftermath to coexist. Taking the learning experience one step further, Bas van Bavel and colleagues argue for using history, and specifically 'disaster history', as a laboratory to test and review variables and factors leading up to or preventing disasters.<sup>82</sup> In anthropology, disasters have long been framed as the closest thing to a natural laboratory that a student of society gets access to.<sup>83</sup> By analysing historical disasters, researchers argue that society can 'learn' about governance tools for responding to or preventing disasters. In contrast, historical research shows that though societies implementing changes in response to disasters frame it as a learning outcome, from the perspective of the historian, it becomes a covert instrumentalisation of the conditions a disaster creates. The literally ground-levelling effects an earthquake can have on soft and hard infrastructure feed into modernisation narratives, according to case studies from Japan and the United States. Improvements in urban reconstruction and town planning may safeguard residents in the event of a future earthquake or fire, but is primarily driven by financial interests.<sup>84</sup> Similarly, disasters can be used as a pretext to secure long-held political goals by installing moral values in children, Janet Borland argues in the case of the 1923 Kanto earthquake.<sup>85</sup>

The ability of societies to learn by adapting to disasters plays a central role in *Cultures of Disaster: Society and Natural Hazard in the Philippines* by Greg Bankoff. He suggests that societies can come to terms with hazards to the extent that disasters are not regarded as abnormal situations but rather a constant feature of life.<sup>86</sup> According to him, a 'culture of disaster develops and

the threat is no longer a threat but becomes normalised into an extreme ecological process' if hazards recur frequently and shape responses so that mitigation and adaptation measures accommodate disaster.<sup>87</sup> Even in an earthquake, where the shaking ground is by most people regarded as the cause of the disaster, human agency in terms of infrastructural planning and building techniques reveal that previous experiences with disasters influence whether a natural hazard turns into a natural disaster or not.<sup>88</sup> And once the disaster is a fact, governance and organisation of relief work and reconstruction can prove vital to save lives and to build resilience and coping strategies, thus determining the magnitude of the disaster and the course of events in the long aftermath. The quote 'earthquakes don't kill people, buildings kill people'<sup>89</sup> is a pertinent example of reflection on the social dimension of an earthquake where risk can be mitigated. The present study rests upon ontological underpinnings that regard disaster as the outcome of human agency and negotiation of risks.

Accordingly, this book is about the aftermath of the earthquake. The earthquake in Bihar was a breaking point, an event, and its aftermath became a process embedded in a social context, which helps us in understanding how historical trajectories from previous disaster scenarios and contemporary social and political issues shaped responses. The disruption of *everyday routines* occurred suddenly with the earthquake in the form of casualties and physical devastation. As a process this involved coming to terms with and coping with the lasting disruptions of physical damages and sometimes mental instability, displayed as doubt in systems of belief or reliable state provisions.<sup>90</sup> Though the event and the aftermath of a disaster are seen as distinct entities, they are intimately linked in the disaster narrative where the event of physical destruction sets the scene for the processes of coping, relief and reconstruction in the aftermath. This book follows a sociological definition of disaster as 'the disruption of everyday routines to the extent that stability is threatened without remedial action'. The potential for disruption is contained within all social routines; each is vulnerable to breakdown.<sup>91</sup>

## 'Natural' Disasters in South Asian History

To date, there have been few studies in the field of South Asian history on the subject of natural disasters, in the sense of disasters originating from a natural hazard such as an earthquake or a cyclone. This book builds upon literature that can be classified into two categories. First, a broad group of studies that addresses

the sociocultural construction of nature in the colonial period and its bearings on perceptions of natural disasters, and second, a group of dispersed studies that addresses disasters or disaster relief in a larger political context. Unlike the first group, which is constituted foremost of scholars affiliated to environmental history, and argues for a sociocultural constructionist approach to nature, the second category of literature takes an interest in disasters from the point of social, economic or political history.

Historians, and in particular environmental historians, and to some extent ethnographers pursuing research on political ecology, to varying degrees share the view that natural disasters such as landslides and floods, as well as famines, are primarily man-made disasters. By contextualising disasters as part of political economy, these studies explain causes and responses to disasters as dependent on governance and cultural constructions of nature rather than environmental, 'natural' conditions. Famines, which the colonial government analysed as the outcome of historical and environmental conditions specific to India, have been convincingly dismantled by a rich body of literature as primarily contingent on governance. From the late nineteenth century, famines became a trope within the larger nationalist critique of colonialism as a draining force. Rather than conditioned on historical and environmental circumstances, the drain theory saw famine as an evidence of the destructive force of British rule, by conquest and plunder, by the destruction of India's manufacturers and trades, by excessive land revenue demands and the heavily administrative costs that India was forced to bear.<sup>92</sup> Amartya Sen's ground-breaking study of the last colonial famine in India—the Great Bengal Famine—further strengthens the perception of famine as an unfolding process constituent of multiple factors and not only a decline in food caused by natural circumstances.<sup>93</sup> Within colonial discourse, however, natural hazards such as floods, droughts and cyclones were natural causes of famines, and accordingly famines were natural disasters.

Although natural hazards have been left out of environmental history, research on governance and nature provides a framework for how natural disasters were perceived and, arguably, conceived in the colonial period. The early works of Madhav Gadgil and Ramachandra Guha,<sup>94</sup> and in particular Guha's *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya*, which is generally acknowledged for having established South Asian environmental history in the global theatre,<sup>95</sup> argue that British colonialism marked an ecological watershed by altering existing food production systems and their ecological basis. Their research falls within a Marxist approach to socio-economic history in arguing that the subordination and transformation of nature

were integral to colonial and economic interests.<sup>96</sup> Later constructionist analyses of the impact of colonial governance expand research on the complex workings of power, acknowledging not only the force of colonialism, but also its impact on the environment and the consequences of its 'expropriator approach' toward natural resources.<sup>97</sup> One example of such social constructionist analysis is David Arnold's influential research on how the colonial state's approach to disasters was influenced by perceptions of India as a zone of tropicity.<sup>98</sup> According to him, the cultural construct of the environment and climate as tropical in the gaze of the colonisers (foremost the British) during the nineteenth century manifested India as dominated by nature and void of a historical past. The appropriation of landscape as a site of improvement was repeatedly used to legitimise colonial rule and 'through nature a corresponding nature authority over human subjects'.<sup>99</sup> Arnold's research demonstrates how the relationship with nature became a way of trying to define, compare and contextualise India, to render it more accessible to the European imagination and ultimately to its colonising process by interventions in the forms of science and agricultural improvements. Scholars writing on Orientalism have argued that the projection of 'the East' as different served to create a self-image of Europe that helped in maintaining imperial power in the colonies.<sup>100</sup> The cultural construction of nature was used to undertake 'improvement' and later projected on areas as 'impoverished sites in urgent need of "development"'.<sup>101</sup> The Other, in the form of disaster-prone landscapes, was—like in many studies on Others and forms of Orientalism<sup>102</sup>—also the target for Western intervention in the name of help and improvement.<sup>103</sup> Outside the realms of South Asian history, Arnold's research on geographic Otherness and tropicity as a cultural construct has contributed to Bankoff's writings on the concept of vulnerability as a product of colonial perceptions of environments.<sup>104</sup> According to Bankoff, contemporary discourses on vulnerability stress the natural forces at work, while denying the wider historical and social context that shape how people interact with natural hazards. In his view, the technocratic remedies prescribed to ameliorate disasters have resulted in disaster prevention as only a matter of improving scientific prediction, engineering preparedness and the administrative management of hazard.<sup>105</sup>

Building upon Arnold's and Bankoff's research, Upamanyu Pablo Mukherjee argues that disaster relief in the form of 'palliative imperialism' was the outcome of a fashioning of India as a disaster zone.<sup>106</sup> He discusses first of all Victorian disaster debates in fictional accounts and administrative documents from the nineteenth century and restricts his examples to famines and epidemics, although he refers to them in the more general term 'natural' disasters.<sup>107</sup> In

the relationship between the 'tropical other' and the colonial state, he argues that imperialism entered a specific mode and became 'imperialism as an act of care, in fact, a relief effort—undertaken in order to fulfil Europe's historic mission of rescuing the native inhabitants from their own habitat'.<sup>108</sup> According to Mukherjee, the archetypical 'disaster events' of British South Asia, shaped 'understanding and practices of empire, progress, development and civilisation'. Explanations of the origins of famines and epidemics as natural or historical events demonstrate how perceptions of disasters held the Indians responsible for the suffering, while colonisers and administrators intervened and 'remedied the underdeveloped'.<sup>109</sup> Mukherjee's line of argument should be seen not only against the master narratives that served to justify colonialism; it also counters a Eurocentric historical scholarship built upon these narratives, epitomised perhaps foremost in *The European Miracle: Environments, Economies, and Geopolitics in the History of Europe and Asia*.<sup>110</sup> In the book, Eric Lionel Jones argues that disasters, disaster management and technological advances in the period 1400–1800 played a central role in the arguably successful and prosperous development of European states as compared to the corresponding failure of a number of Asian states.<sup>111</sup> Building upon James Morris Blaut's analysis of Jones's book as an example of Eurocentric scholarship par excellence,<sup>112</sup> Mukherjee, first of all, reacts to the environmental determinism and cultural superiority claimed by Jones as central to European success. Jones views the European governments as suppliers of public goods (which he refers to as 'disaster management' when addressing epidemics or 'natural' hazards) and north European agriculture as uniquely productive, and an 'intrinsically benevolent European state system' as the result of benign environments.<sup>113</sup>

Turning to the second category of literature constituted of economic, social and political history, we are confronted with research that analyses society's approach to natural disasters from multiple angles. Three publications by the economic historian Tirthankar Roy provide overviews of how the market, the state and, to some extent, the 'indigenous' population responded to natural disasters during the colonial period. *Natural Disasters and Indian History* in the Oxford India Short Introduction series is a useful overview on the topic, while two articles provide case studies. Yet Roy himself states the obvious limitation of the article from 2008, as it is an 'exploration' and based upon published sources.<sup>114</sup> The 1934 Bihar–Nepal earthquake and the 1935 Quetta earthquake are two out of five case studies that are analysed by Roy to explore relations between the state, society and market after natural disasters, and through these studies Roy illustrates how state involvement in disaster responses gradually increased in the

period 1864–1935. He proposes a transition in terms of the actors responding to natural disasters: while the market dominated responses in the nineteenth century, gradually the idea of government responsibility took root in the period leading up to the 1934 earthquake. His argument is twofold: the effectiveness of state intervention depended on compatibility between private and social goals, therefore legitimacy could affect disaster responses. In the increasingly interventionist state and simultaneous development of a critical civil society in disaster responses, Roy sees a mirroring of the political–economic context of the period. The second part of his argument is inferred from the first and proposes a general chain of events or processes. First, the initial destruction of state capacity; second, the activation of ‘anarchic unregulated markets’ and private actors in reaction to the temporary retreat of the state; and finally, a rebound of the state. According to Roy, the last phase was intensely contested as ‘the return of the state was beset with collective actions problems, and with political conflicts of a kind engendered by late colonialism’.<sup>115</sup> Roy finds it ‘simplistic’ to explain the development of an increasingly interventionist state in the period as ‘another example of “governmentality”’. Rather, he sees state control as a reaction partly to the sharp loss in control, and partly to the need for reviewing property rights in the rebuilding phase after a disaster.<sup>116</sup>

With regard to cyclones and flood damage, Roy refers to Braja Bandhu Bhatta’s *The Natural Calamities in Orissa in the 19th Century* on the prevalence of ‘natural calamities’ such as floods, cyclones and famines, and responses by the colonial state in Orissa.<sup>117</sup> Bhatta explains revenue remission in the aftermath of floods and cyclones as a response to prevent famines. According to Bhatta, the frequency of natural calamities left people impoverished, but at the same time poverty resulted from ‘high rent collection and increasing land revenue’, which contributed to making people ‘resourceless’.<sup>118</sup> In effect, the government’s relaxation of taxes or rents meant a temporary relief from distress caused not only by extreme environmental conditions but also by over-taxation. Even the increase in mitigation measures such as building embankments, canals, transport systems, etc. can be interpreted either as the government’s gradual realisation of its responsibility in terms of governance in turning hazards into disasters, or as a way to improve the conditions for maximising revenue profit. Bhatta’s conclusion subscribes to the latter as he finds the government’s mitigation measures to floods and cyclones ‘partial and oriented [according] to their interests’,<sup>119</sup> that is, the construction of canals, expanding roads and railways were meant to contribute towards agricultural improvements and thereby increase the government’s revenue collection. Despite this analysis, Bhatta rather contradictorily classifies

famine as a 'natural calamity' at par with floods and cyclones,<sup>120</sup> leaning towards a view similar to the colonial government's explanation of famines as caused by environmental conditions.<sup>121</sup>

In his second article, Roy suggests that the idea of government institutions as partly responsible for action in terms of prediction and understanding of disastrous events emerged in the period 1800–50, based on a comparison of responses to floods and cyclones in the Bengal delta.<sup>122</sup> The colonial government's introduction of a meteorological office to track cyclones and a public works department to construct embankments in protection of floods marked the beginning of the state as the 'principal agency for disaster response' in eastern Bengal.<sup>123</sup> Roy's economic history perspective on the emergence of a disaster response by the colonial government can be contrasted with 'the environmentalist discourse', described by him as written by historians who mainly focus on the social and environmental costs of these projects.<sup>124</sup> Among them, Rohan D'Souza in his acclaimed book *Drowned and Dammed: Colonial Capitalism and Flood Control in Eastern India* argues that the colonial administration of the East India Company in deltaic Orissa 'began to recast the phenomenon of inundations as chiefly a calamitous event rather than a hydraulic process'.<sup>125</sup> Although other research also shows the importance of water for governance structures,<sup>126</sup> such as the role of the state versus local management of floods and river systems,<sup>127</sup> D'Souza's persuasively makes the argument that flood control was integral to the strategies of empire—a strategy that led to the transformation of nature from a 'flood-dependent' agrarian regime into a 'flood-vulnerable' landscape.<sup>128</sup> Per se, colonial governance had brought on environmental catastrophe. Benjamin Kingsbury makes a similar argument in his study of the Bengal cyclone of 1876, in terms of the role that colonial governance played in creating disaster rather than establishing disaster management in his study of the Bengal cyclone of 1876.<sup>129</sup> The government chose to ignore existing knowledge about preventing, predicting and recovering from cyclones and their effects, such as epidemics and hunger, and instead took decisions based on economic policies that calculated risks and profit.<sup>130</sup> The failure to protect interests beyond those of the colonial state and select groups in hazards raises questions that go beyond disaster management. Can these extraordinary events offer an opportunity to examine distinctive environmental and social patterns in governance during the period?

This discussion on the socio-environmental context and responses of the colonial government to disasters leads us to a group of studies that has examined state-making or nation-building in the twentieth century. State-making is 'fundamentally about defining the forms and legitimations of government and governmentality', and thereby 'simultaneously about the making of civil

society'.<sup>131</sup> This dialectical relationship in power between the state and civil society was perhaps nowhere as apparent as in famine relief in the nineteenth and twentieth centuries when people organised according to capacities of moral and political nature, consisting of a wide range of organisational bodies, for instance, political parties, relief associations and private enterprises.<sup>132</sup> Before proceeding to a set of case studies on state-making and nation-building processes in natural disasters, a body of research linking the crisis of famine with state formation and the expansion of civil society in the subcontinent are worth taking note of. While famines in terms of causation undoubtedly differ from sudden disasters, such research seems to demonstrate continuity in the critique of the failure of the colonial state in providing relief in famines as well as in natural disasters. Sanjay Sharma convincingly shows how the colonial state expanded its infrastructure through relief works for building roads and employing manual labour as a part of its processes of centralisation and expansion in north India in the early nineteenth century. Governance of famines facilitated state-building processes by strengthening the state's capacity at certain moments in history.<sup>133</sup> Ravi Ahuja argues that famine policy served as a way of gaining political legitimacy in the processes of state formation in south India in the early colonial era.<sup>134</sup> Famine became part of criticism against the state, in particular in Ireland and India, where it served as a conclusive demonstration of British indifference to people's suffering. While famine relief in terms of revenue remission, relief works and control over charitable relief was the result of colonial ideological and organisational power, it was also a 'key argument in the critique of colonialism' towards the end of the nineteenth century<sup>135</sup> as contemporaries saw it as a sign of the failing of the colonial state.<sup>136</sup> The more famine was seen as something not solely a consequence of natural causes but as man-made or at least as a phenomenon in which it was possible to intervene, the more famine was part of a 'developing critique of state power', as Arnold writes. Much of the political struggle involved countering the state's position as autocratic ruler, justified by the necessity to answer in the name of a population regarded as not yet capable.<sup>137</sup> As David Hall-Matthews demonstrates, the state was 'exclusively internal' in terms of accountability when inquiries remained within its boundaries, for instance, when the Government of Bombay failed to respond to the famine in 1876–78.<sup>138</sup> The government's increasingly interventionist stance in famines, as Lance Brennan has discussed in his analysis of the Indian Famine Codes as part of British policy, took shape in reaction to the failure of the state that the famines represented during the three first quarters of the nineteenth century.<sup>139</sup> If famines represented the failure of colonial governance, they also opened a space for new actors, discussions and



policy changes that aimed at preventing the repetition of failures. The development of famine relief by the state and civil society in the second half of the nineteenth century forms the backdrop of an article by Georgina Brewis, who argues that famine relief at the very end of the century was used in order to channel patriotism into practical social service and contributed towards a politically active civil society. Inadequate disaster management and accountability limited to the sphere of the government and administrators in the last years of the nineteenth century and in the famine of 1900–01 marked a transition period for the formation of social service associations in the organisation of voluntary work.<sup>140</sup> Building upon Carey Anthony Watt's study about the role of social service activities in nation-building,<sup>141</sup> she emphasises, in particular, the prominent function of voluntary forces. Relief and governance of famines have thereby served to facilitate state formation as well as exposed 'bad governance', triggering state critique which strengthened nation-building activities among civil society groups.

In the context of twentieth-century earthquakes, Kokila Dang makes a similar claim on the political importance of relief in relation to nationalism, in the context of the Indian National Congress (INC) and relief work in the aftermath of the earthquake in 1934 and the 1935 Quetta earthquake.<sup>142</sup> Dang argues that disaster relief after the 1934 earthquake became an arena where authority was contested by the colonial state and by 'an emerging nationalism'.<sup>143</sup> Similarly, William Kuracina's book about the political development of the INC and the emerging state of independent India takes relief work in the 1935 Quetta earthquake as an instance of 'parallelism' in governance by the INC.<sup>144</sup> Compared to Kuracina, Dang's analysis bypasses the state-making and/or nation-building processes of disaster even though her dissertations directly address the political aspects of disaster relief. Yet her detailed research on the INC and civil society in the organisation of relief is an informative contribution about the larger context of the colonial state's relation to relief of various sorts. In a focused case study of the 1950 Assam earthquake, Bérénice Guyot-Récharard argues that the large-scale encounter in the relief process between communities and the Indian administration led to an 'unprecedented movement of state expansion in this strategic borderland'.<sup>145</sup> For the Indian state, the timing and location of the large-scale event that caused environmental and infrastructural damages resulting in landslides and flood-submerged villages posed as a major site for interventions in the form of aid. Guyot-Récharard's rich sociopolitical history refers to it as a 'significant juncture' in the geopolitical development of Assam. State-making and nation-building process following the earthquake manifested in relief and rehabilitation work, where the encounter between the central government and

local communities brought them into close contact for the first time and showed the state as a potential provider of tangible goods and benefits rather than a force of control as under colonial rule.<sup>146</sup>

The common field of enquiry by Dang, Kuracina and Guyot-Récharid is the earthquake aftermath as a political space where the role of the state and political power can be harnessed and negotiated into efficient tools of state-making or nation-building. Besides these in-depth studies, a few publications have briefly addressed the 1934 earthquake in the context of social history. S. N. Mukherjee briefly describes the aftermath as a socio-political process and an example of how disasters are 'not just natural events, but social experiences' but unfortunately does not venture beyond comments on nationalist politicians' participation in relief work.<sup>147</sup> Wendy Singer's research addresses political aspects of the aftermath of the earthquake in relation to the Darbhanga Raj, local elites and peasant unrest by arguing that dissatisfaction with earthquake relief provided an opportunity for mobilisation against the authorities in 1934–37.<sup>148</sup> Similar to Singer, Stephen Henningham has also touched upon political loyalties and conflicts in relief and reconstruction following the earthquake in his series of publications on the Darbhanga Raj.<sup>149</sup> Both Singer and Henningham show how relief and reconstruction became politicised and served as a means to assert political power or contest it. These important aspects of the aftermath of the earthquake will be discussed in the context of state-making and nation-building in the course of this book. The opportunity for change that a disruptive event offers, according to these socio-political histories, rests with the agency of political actors after the physical destruction of landscape, infrastructure and human lives. The present study builds upon their suggestions that disasters can be formative in developing or shaping the state and civil society, yet, at the same time, it underlines the importance of considering responses to disasters not only in a socio-political context, but also as a part of experiences with previous hazards and disasters. Research on the sociopolitical importance of 'natural' disasters constitutes a refreshing perspective in South Asian history which this study suggests can broaden the scope of historical inquiry in order to understand better how environmental and human factors affect people in hazards.

## **Situating the Disaster in a Historical Perspective**

This book aims to add to the existing literature on how nature and culture intersect to produce disasters as social processes. The choice of taking the

1934 Bihar–Nepal earthquake as a case study is motivated by an interest in how natural disasters were perceived and reacted upon by the state and society during the colonial period. The book focuses on the earthquake's aftermath in the geographical region that today is referred to as the state of Bihar, then a part of the province of Bihar and Orissa.<sup>150</sup> The earthquake of 1934 was by no means a local or even a regional disaster; the event was widely related and interpreted in media and publications across the subcontinent and also abroad. The impact of the earthquake is evident not only in records and academic publications but also from the fact that until today the earthquake serves as a time marker for births or important events,<sup>151</sup> and contemporary media reports a continuing memorialisation of the event.<sup>152</sup>

The book's first aim is thereby to join concepts from historical disaster studies with South Asian history by building upon previous research about theoretical models of disasters on the one hand, and by using a context-specific historical experience of disaster in the subcontinent on the other. By studying 'responses' after the earthquake, the book seeks to understand how the large and sudden disaster functioned as a sociopolitical event at a specific historical moment. This book argues that a sudden, unexpected and purely 'natural' disaster such as the 1934 earthquake opened a political space where political power could be contested and concentrated in relief work and rehabilitation. The book aims to understand how the earthquake and the disaster response shaped society in the aftermath. In doing so, it examines continuity and breaks with practices in previous disasters. The relationship between lessons learned and 'unlearned', between knowledge and its implementation, and between institutional adaptability and institutional change, are key issues addressed in this book. How does the response to the earthquake fit in with the larger picture of disasters in the colonial experience? To what extent can we discern a continuity with previous responses to disasters, and, or where did breaks with established practices occur? By examining responses to the 1934 earthquake, this book aims to contribute to a growing body of knowledge on how vulnerability and adaptation are shaped by historical 'natural' disasters. In doing so, the study builds upon historical research on South Asia which has dealt with disasters on a broader span and with literature addressing the role of governance, civil society and disasters.

These larger aims of the book can be further broken down into a series of questions according to the chapters. In Chapter 2, I address the government's role in the immediate aftermath by placing the official narrative of the earthquake in the larger context of colonial governance and the use of communication. What was the role of the colonial government in disaster relief? How did its perception

of the earthquake as a 'natural' disaster impact the response? In Chapters 3 and 4, I examine how the collection of relief funds and distribution of aid were carried out by civil society and the colonial state on local, national and international levels. In Chapter 5, I seek to understand the allocation and distribution of relief among the victims of the earthquake. Who were the winners and losers in terms of making gains or increasingly becoming marginalised as a consequence of earthquake relief and reconstruction? In Chapter 6, I address why changes in building techniques and infrastructural construction in the aftermath did not address earthquake-safety, but instead may have increased vulnerability in future earthquakes. Can we discern any learning outcomes from the earthquake in terms of how it shaped perceptions about the built environment or how far did established ideas in urban governance prevail in reconstruction? What interests did the government and residents have in the renewal of towns and town planning? In Chapter 7, I conclude with a discussion on the patterns and ruptures discerned in responses to the earthquake and how we can understand them in relation to resilience and vulnerability. These are some of the central questions that have been dealt with throughout the course of this project.

## **On Methods and Approach**

This book does not just construct a narrative of events but looks at some of the moments of crises that were dealt with in the aftermath. It needs to be acknowledged that the sources to a large extent are based on government archives from where correspondence, memoranda and reports have been consulted. They have served to understand why and how certain decisions of the government were taken and what implications reasoning and ideas had on the relief-response and reconstruction process. Mined from libraries and archives are also official government reports and reports by relief organisations. Although the archives have proved to be valuable sources for understanding the government's actions and its attitudes, they are often found to be dominated by an administrative or institutional 'voice' that leaves the account void of personal details and nuances. Therefore, eye-witness accounts found in poetry, private papers and manuscript collections, newspaper editorials, and accounts in regional, local and international newspapers are valuable to bridge these silences.

A real problem is a limited range of sources representing, with greater or less accuracy, the voice of people on the margins of decision-making processes in the aftermath. Any conclusions based on a limited amount of material obviously

cannot make any claims to be comprehensive. This limitation entails, at times, a disproportionate focus on 'official' experiences by either the government or by relief organisations and their leaders. To counter such a misbalance, I have endeavoured to supplement and make the best use, wherever possible, of the collections of private individuals involved in the relief process, accounts in personal letters, memoirs and newspapers to provide glimpses into a variety of perceptions related to the aftermath. Nevertheless, even these sources were not always unbiased. Many times, letters, telegrams and newspapers had to be passed through government censorships before getting published, thereby making the task further complicated. Within the given constraints, using unexplored sources, it seems possible to offer a narrative of the earthquake that could help to understand responses from a variety of perspectives.

A central archival source in this research process has been correspondence, memoranda and reports emanating from the Reconstruction Department (R.D. in the notes) and the Earthquake Branch at the local government's administrative headquarters in Patna. The new department and branch centralised tasks concerning relief and reconstruction to one administrative unit since the government feared that the earthquake was likely to slow down the local government's administration by affecting 'all branches'.<sup>153</sup> By early February 1934, most enquiries and correspondence regarding exceptional costs, relief and damages were coordinated by the Reconstruction Department and relevant files from the other departments were renamed and transferred to the new department.<sup>154</sup> It processed enquiries related to damages, relief and reconstruction, except for agricultural relief which remained under the Revenue Department, and if necessary forwarded requests to the concerned departments.

A majority of the consulted files from the new department and branch contain correspondence, memoranda and reports by district officers, relief engineers and the central administration in Patna. The correspondence and participation appear to have been chaotic, not only in retrospect but also for the persons involved. District officers, experts employed for technical surveys and rural committees often had conflicting views regarding the need for reconstruction and actions to be implemented. Contrary to final accounts in the government reports, archival sources in the form of correspondence and briefings at the level of the local government administration reveal a complex and nuanced appreciation of the relief process. At the headquarters in Patna, W. B. Brett, an experienced administrator and Finance Secretary to the Government of Bihar and Orissa at the time of the earthquake, had been appointed Relief Commissioner in charge of the new Reconstruction Department in the first half of February 1934, despite

the fact that he at the time of the earthquake was on leave in England.<sup>155</sup> Once back, he facilitated and coordinated relief measures from the local government's headquarters in Patna, with frequent visits to district towns. Though Brett did not exercise any executive powers in the district, he was often part of decisions or at least consulted on numerous issues pertaining to relief provisions and reconstruction. He was also responsible for the publication of the first government reports on the earthquake. *Report on the Progress of Earthquake Reconstruction in Bihar*, issued by Brett in June 1934,<sup>156</sup> was brief and intended for dissemination to specifically the Indian public through the press. It represented a culmination of publicity work that sought to promote press articles with positive accounts of the government's relief response after the publicity officer from the Department of Public Information had returned to Delhi after about two months of deputation to the government of Bihar and Orissa.<sup>157</sup> *A Report on the Bihar Earthquake and on the Measures Taken in Consequence Thereof up to the 31st December 1934* (henceforth referred to as *A Report on the Bihar Earthquake*), published in January 1935,<sup>158</sup> provided a comprehensive and summary account of the first year of relief and reconstruction and will be discussed further in the introduction of Chapter 2. The extensive use of government reports and archival sources throws light on the problem of data in terms of numbers and evidence of damages since most of these investigations of agricultural land and buildings were undertaken for the purpose of estimating the need for rehabilitation, and thereby financial compensation. The practical use of scientific reports and data collection is, for instance, demonstrated by the local government's reliance upon the Geological Survey of India (GSI), a Government of India institution.<sup>159</sup> The local government and not the GSI published the first 'preliminary report' of the earthquake by the GSI officers in order to provide guidelines to the public on reconstruction.<sup>160</sup> Despite biases, the GSI volume from 1939 dedicated to the earthquake contains a wealth of information ranging from geological investigations in the immediate aftermath to discussions on the cause of the earthquake, eye-witness accounts, images and maps. From a scientific point of view, contemporary research points to the limited data collected by the GSI officers whose work was constrained by the border between India and Nepal, and the lack of geodetic measurements in the region.<sup>161</sup> The same methodological issues were stated by the GSI officers themselves: investigations in Nepal were circumscribed by the special permissions granted by its government, and in India they lacked seismograms able to register the severest earthquakes (the 1934 earthquake was but one example), in addition to their perception of seismology as a neglected field in general, being looked upon as 'merely requiring the occasional attention' of the Meteorological Department and the Geological Survey of India.<sup>162</sup>

In addition to files of the Reconstruction Department, I have mainly consulted files of the Political Department Special Branch (sometimes referred to as 'Special Section' in the sources) and the Revenue Department Lands Branch in the Bihar State Archives (BSA).<sup>163</sup> The former branch addresses 'political' topics such as politically active persons, relief societies, public disturbances and disputes, and the latter mainly rural relief concerning land damages. At the National Archives of India (NAI), New Delhi, I have used various files of the Public and Political branches of the Home Department, and Foreign Department Political Branch, which address 'political' topics similar to the Political Department Special Branch at the BSA, and files from Industries and Labour, Public Works Department (PWD), about questions pertaining to the reconstruction of buildings and infrastructure. The colonial government's debates on relief and reconstruction are traced in the Historic Hansard records available online<sup>164</sup> and in the published *Bihar and Orissa Legislative Council Proceedings (BOLCP)* and, after Bihar and Orissa became separate provinces in 1936, in the *Bihar Legislative Council Proceedings (BLCP)* and *Bihar Legislative Council Debates (BLCD)*. The council proceedings are useful for understanding conflicting interests in the reconstruction phase as well as a source of government expenditure on relief.

The India Office Records (IOR) at the British Library has also proved a valuable source for consulting government files and reports. Several narratives and accounts by prominent persons involved in the relief work and British officials' day-to-day descriptions have added alternative perspectives and viewpoints with their often personal accounts found in the European Manuscripts section. The newspaper section and the large South Asian book section provided narratives, poetry and accounts in Indian vernaculars.

In addition to government archives, officially published judicial documentation, and reports and books are available at the British Library, while the Maharajadhiraja Kameshwar Singh Kalyani Foundation (MKSKF) in Darbhanga (Bihar) hold administrative sources and private photographs of the Darbhanga Raj's reconstruction work in the aftermath. The Maharajadhiraja of Darbhanga<sup>165</sup> initiated the Darbhanga Improvement Trust, a scheme for town planning in Darbhanga town (see Chapter 6).<sup>166</sup>

Two rewarding and truly multifaceted sources for researching the aftermath have been unearthed from the Swiss archives in the form of private papers of Pierre Cérésolle and the international organisational archives of Service Civil International (SCI) in Lausanne and La Chaux-de-Fonds respectively. As the founder of SCI, Cérésolle ventured to Bihar three times in the aftermath (1934–37). With local cooperation partners and a small number of Europeans

sent as relief workers, he set up relief centres as well as a major relocation and reconstruction project of villages endangered by the changed flood landscape.<sup>167</sup> Correspondence, memoranda, drawings and photo albums document the institutional network, cooperation with local organisations and the government as well as the planning and methods involved in one of the first international disaster-aid projects in South Asia.

The press disseminated news and information in the aftermath, but strict government censorship limited its scope for critical reports of relief efforts. The period 1910–45 saw a rapid growth of the vernacular press, in particular the Hindi press, which also coincided with increased pressure of the government on the vocal nationalist movement which had the support of several printing presses.<sup>168</sup> During the non-cooperation movements between 1919 and 1935, the government kept an eye on ‘nationalist organs’ such as the *Bombay Sentinel*, *Amrita Bazar Patrika* (ABP in notes), *Forward*, *The Searchlight*, the *Bombay Chronicle* and *Harijan*, which have been used for this research.<sup>169</sup> Apart from being critical of the government in general, they often voiced opinions about its response to the earthquake and highlighted actions of civil society groups. As primary sources, the newspapers provide data omitted by official records and a range of opinions by individuals and organisations regarding the management of relief. Newspapers also served as vehicles for government communiqués about relief measures undertaken and provided official data collected by government officials. They played a significant role in communicating propaganda for the sake of fund collections and drawing international attention to the earthquake. The government had support from major cosmopolitan newspapers in English, such as *The Leader*, the *Times of India* and *The Statesman*, the latter widely read, highly influential and regarded as ‘unhelpful’ to the nationalist cause and in the 1930s.<sup>170</sup>

Among the ‘nationalist’ newspapers, support of ‘groups’ or political parties formed the basis of differing opinions and rivalry in issuing statements and reporting earthquake news. The editor of the *Indian Nation*, for example, claimed that the local office of the Associated Press of India (API) deliberately withheld ‘Patna news’ from the newspaper in question. Even though the *Indian Nation* was a subscriber to the API, as well as being ‘genuinely nationalistic’, the news bureau favoured newspapers such as *The Searchlight* belonging to the same political thought, according to the editor of the *Indian Nation*.<sup>171</sup> Its publisher C. S. R. Somayajulu had given notice that the paper would resume publication five days after the earthquake (20 January 1934) and in laudatory acclaim of its ambition, the newspaper described itself as ‘a Phoenix arising from its ashes’ with



the hope of working 'for the nation as a whole and not for only a particular section of it'.<sup>172</sup> The *Indian Nation*, first established in 1932 and published in English, was owned by the Darbhanga Raj's publishing house 'Newspapers & Publications Pvt. Ltd' and according to the government, the Maharajahdiraja of Darbhanga's mouthpiece.<sup>173</sup> It usually positioned itself in opposition to the INC but in May and June 1934, it published pro-Congress articles and helped to strengthen the position of the political party even though the publisher claimed to be opposed to essential parts of the Congress's political programme.<sup>174</sup> With its sometimes ambiguous political stance, it was considered the only moderate newspaper with any considerable circulation.<sup>175</sup>

The widely read Calcutta newspaper *Amrita Bazar Patrika*, branded 'extremist' by the Government of Bengal, often produced critical remarks about the government's relief response.<sup>176</sup> A moderate political view was expressed by the *Behar Herald*, which was published in Patna and represented the 'domiciled Bengali community'.<sup>177</sup> The Bihar Central Relief Committee (BCRC), a relief committee mainly run by local INC members under the leadership of Rajendra Prasad, made effective use of the 'Searchlight Press', the publishing house of the widely read newspaper *The Searchlight*<sup>178</sup> that was regarded by the government as the only English-medium vehicle for 'extreme nationalist opinion'.<sup>179</sup> It was often openly critical of the government and, as a result, faced damage suits and contempt cases.<sup>180</sup> The government considered it 'political', Congress-friendly and of 'influence'.<sup>181</sup> The Searchlight Press hosted the foundational meeting of BCRC. It issued the committee's publications, among them *Devastated Bihar: An Account of Havoc Caused by the Earthquake of the 15th January, 1934 and Relief Operation Conducted by the Committee*, which was published by late February or in the first half of March 1934.<sup>182</sup> The foreword described the first month of relief work, from 15 January to 15 February 1934, as 'a connected account of the devastation of the Province, of the problems facing it and the work being done to relieve the suffering of the stricken people'.<sup>183</sup> By providing maps, photographs and statistics, BCRC intended to provide a 'comprehensive picture' of the earthquake's aftermath for the public, who, the committee 'feared', had 'not yet been able to get an adequate conception of the havoc'.<sup>184</sup> The account outlined damages and relief work carried by the government as well as the committee and gave an overview of future tasks to manage. Compiled and published for the public,<sup>185</sup> the publication summed up and expanded on the committee's two earlier, relatively marginal publications, the short-lived weekly bulletin *Earthquake Relief* with updates from Rajendra Prasad for donors and relief workers, which ceased publication in March 1934,<sup>186</sup> and the summary of the

weekly bulletin in a leaflet by Rajendra Prasad, *Devastated Behar: The Problem of Reconstruction*, containing suggestions on how to proceed with reconstruction already one month after the earthquake.<sup>187</sup> The BCRC later published a report containing data and achievements in relief work, finances and members, as well as further data on the death toll, after its second general meeting in August 1934.<sup>188</sup>

As noted earlier, the reports of the BCRC, as well as the Marwari Relief Society, Calcutta, served to publicise relief work undertaken and the spending of relief funds; in the case of BCRC, the committee published the reports while still appealing for funds throughout 1934. On the contrary, written records of the Ramakrishna Mission Association do not share the same wealth of information. Although librarians and administrators of the Ramakrishna Mission in Patna and Kolkata generously shared available reports and printed sources, the association's financial contributions and visibility in newspapers indicate that its presence may have been stronger than what its institutional records document.<sup>189</sup> Nevertheless, documentation of its work, as well as that of the Marwari Relief Society (Calcutta)<sup>190</sup> and BCRC, provide data and narratives on the organisation of relief work and cooperation between the government and civil society that only surfaces occasionally in the government archives. While these associations among others participated in relief work, the special status given by the local government to the Indian Red Cross and its local branch in organising emergency relief and medical aid is amply documented in the government archives and the Indian Red Cross Society's official reports.

## Notes

1. The earthquake started between 2:13 p.m. and 2:14 p.m. Indian Standard Time, 15 January 1934, and continued to be felt for a period of five minutes in the central tract comprising north Bihar and Nepal, and across the Ganges, Monghyr, Patna, Barh, Jamalpur and Bhagalpur districts. John Alexander Dunn, John Bicknell Auden, A. M. N. Ghosh and D. N. Wadia (Officers of the Geological Survey of India), 'The Bihar–Nepal Earthquake of 1934', *Memoirs of the Geological Survey of India* 73 (Calcutta: Geological Survey of India, 1939; ix, 391 pp. xviii, 36 plates), 1–2. In the same volume, seismological data by S. C. Roy (Burma Meteorological Dept), 'Seismometric Study', 49–74.
2. Charles Freer Andrews, *The Indian Earthquake* (London: George Allen and Unwin Ltd, 1935).

3. William Arthur Moore (ed.), *Record of the Great Indian Earthquake: To Help the Earthquake Relief Work*, Special Issue of *The Statesman* (Calcutta: Printed and Published for *The Statesman*, 1934). Nobuji Nasu, 'No. 30, The Great Indian Earthquake of January 15, 1934', *Department Bulletin Paper* 13, no. 2, Earthquake Research Institute, Tokyo Imperial University (30 June 1935): 417–32, plate XVII–XXIII.
4. Dunn et al., 'The Bihar–Nepal Earthquake of 1934'.
5. William Bailie Brett, *A Report on the Bihar Earthquake and on the Measures Taken in Consequence thereof up to the 31st December 1934* (Patna: Superintendent, Government Printing, 1935).
6. Major General Brahma Shumsher Jung Bahadur Rana, *Nepālko Mahābhūkamp (1990 [1934])* (Nepali, 'The Great Earthquake of Nepal') (Kathmandu: Babaramahal, 1936 [first printed 1935], 249 pp., 3rd ed. by Sahayogi Press in 2041 Bikram Samvat [1984]). Nepal follows the Bikram Sambat calendar, approximately 56 years ahead of the Gregorian calendar. English translation: Major General Brahma Shumsher Jung Bahadur Rana, *The Great Earthquake in Nepal (1934 A. D.)*, trans. from Nepali by Kesar Lall (Kathmandu: Ratna Pustak Bandar, 2013, 136 pp.; rpt by Nepalaya [Kathmandu], 4th edn, 2015).
7. Brett, *A Report on the Bihar Earthquake*, 7. The same figure in Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 2.
8. Twenty thousand dead according to Bihar Central Relief Committee (BCRC), *Devastated Bihar: An Account of Havoc Caused by the Earthquake of the 15th January, 1934 and Relief Operation Conducted by the Committee* (Patna: Bihar Central Relief Committee, 1934), 2.
9. Soma Nath Sapkota, Laurent Bollinger and Frédéric Perrier, 'Fatality Rates of the  $M_w \sim 8.2$ , 1934, Bihar–Nepal Earthquake and Comparison with the April 2015 Gorkha Earthquake', *Earth, Planets and Space* 68, no. 40 (2016): 1–9, 1. The estimates of the death toll will be discussed in Chapter 2.
10. The moment magnitude scale ( $M_w$ ) is based on the seismic moment of an earthquake. It can be determined directly from instrumental observations or inferred from macroseismic intensity observations, that is, the ground-shaking strength based on reports of felt and damage effects. Emanuela Guidoboni and John E. Ebel, *Earthquakes and Tsunamis in the Past: A Guide to Techniques in Historical Seismology* (Cambridge: Cambridge University Press 2009), 526–27.  $M_w$  8.1 or 8.2 are mentioned in Roger Bilham and Susan E. Hough, 'Site Response of the Ganges Basin Inferred from Re-evaluated Macroseismic Observations from the 1897 Shillong, 1905 Kangra, and 1934 Nepal Earthquakes', *Journal of Earth System Science* 117, no. S2 (November 2008): 773–82, 775–77.

11. Samantha Jones, Katie J. Oven and Ben Wisner, 'A Comparison of the Governance Landscape of Earthquake Risk Reduction in Nepal and the Indian State of Bihar', *International Journal of Disaster Risk Reduction* 15 (2016): 29–42, 29.
12. The geological survey of the earthquake divided the area into zones according to the Mercalli modification of the Rossi-Forel scale used for classifying earthquake intensity by measuring the physical impact of a quake on human beings and the environment. The GSI also referred to the scale as 'the Mercalli scale ... with certain additions and modifications'. Isoseismal X for the worst-affected area was located in the districts of Darbhanga, Champaran and Muzaffarpur in north Bihar, and south of the Ganges in Monghyr. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 7, and 'Chapter 2: Discussion on Scales and Isoseismals'. The authors offer yet another explanation of the scale:

[T]he scale normally adopted by the Geological Survey of India is the Rossi-Forel scale, which is pitched in such a way that R.-F. [Rossi-Forel scale] [isoseismal] X is roughly equivalent to Mercalli [scale] IX and X [isoseismals]. For a truer comparison to be made with some of the other Indian earthquakes, it would be better to consider the whole of the area within Mercalli isoseismal IX as that in which the earthquake was severely felt. This area is approximately 14,000 square miles or 36,200 square km in extent. (Ibid., 16)

Pandey and Molnar refer to the scale adopted by the GSI for the Bihar–Nepal earthquake as the 'Rossi-Forel scale', referring to Dunn et al., 'The Bihar–Nepal Earthquake of 1934'. M. R. Pandey and Peter Molnar, 'The Distribution of Intensity of the Bihar–Nepal Earthquake of 15 January 1934 and Bounds on the Extent of the Rupture Zone', *Journal of Nepal Geological Society* 5, no. 1 (1988): 22–44, 24.

13. Located at 27.55°N, 87.09°N according to Wang-Ping Chen and Peter Molnar, 'Seismic Moments of Major Earthquakes and the Average Rate of Slip in Central Asia', *Journal of Geophysical Research Atmospheres* 82, no. 20 (1977): 2945–47, in Bilham and Hough, 'Site Response of the Ganges Basin', 776.
14. Roger Bilham, 'Location and Magnitude of the 1833 Nepal Earthquake and Its Relation to the Rupture Zones of Contiguous Great Himalayan Earthquakes', *Current Science* 69, no. 2 (1995): 101–28. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 116–17.
15. The 20 August 1988 earthquake measured Mw 6.6 and caused an estimated number of 1,004 deaths. S. K. Jain and N. C. Nigam, 'Historical Developments and Current Status of Earthquake Engineering in India', *Proceedings of the Twelfth World Conference on Earthquake Engineering*, Auckland, New Zealand,

- 30 January–4 February 2000, Paper no. 1792: 2; D. R. Nandy, A. K. Choudhury, C. Chakraborty and P. L. Narula, 'Geological Survey of India, Bihar–Nepal Earthquake, August 20, 1988', *Special Publication Geological Survey of India* 31 (1993). Udaypur (Udaipur) was also severely affected by the 1934 earthquake, according to both Nepalese and Indian primary sources (Rana, *Nepālko Mahābhūkamp (1990 [1934])*), and Dunn et al., 'The Bihar–Nepal Earthquake of 1934' in Pandey and Molnar, 'The Distribution of Intensity of the Bihar–Nepal Earthquake', 32.
16. S. Mitra, Ajay Kumar, Shashwat K. Singh, Siddharth Dey and Debacharan Powali, 'The 25 April 2015 Nepal Earthquake and Its Aftershocks', *Current Science* 108, no. 10 (25 May 2015): 1938–43. The earthquake affected mainly central Nepal and had its epicentre located 80 kilometres northwest of Kathmandu. It was followed by an *M*<sub>w</sub> 7.3 earthquake northeast of the capital in Dolakha district less than three weeks later. In Bihar, only 60 people were killed. Jones et al., 'A Comparison of the Governance Landscape', 29. On the death toll of the April 2015 Gorkha earthquake, see Sapkota et al., 'Fatality Rates of the *M*<sub>w</sub> ~8.2', 7.
  17. Amod M. Dixit, L. R. Dwelley-Samat, M. Nakarmi, S. B. Pradhanang and B. Tucker, 'The Kathmandu Valley Earthquake Risk Management Project: An Evaluation', 12WCEE: 12th World Conference on Earthquake Engineering, Auckland, New Zealand, 30 January–4 February 2000, New Zealand Society for Earthquake Engineering, Upper Hutt, New Zealand, 2000, 8 pp. See also Anand S. Arya, *Damage Scenario under Hypothetical Recurrence of 1934 Earthquake Intensities in Various Districts in Bihar* (Patna: Bihar State Disaster Management Authority, Government of Bihar, August 2013).
  18. See Pandey and Molnar, 'The Distribution of Intensity of the Bihar–Nepal Earthquake'; B. L. Jatana, 'Fail-safe Large Dams in Earthquake Prone Himalayan Region', *ISSET Journal of Earthquake Technology* 36, no. 1 (1999): 1–13. For an exhaustive guide to historical seismology, see Guidoboni and Ebel, *Earthquakes and Tsunamis in the Past*. With specific reference to India, Anu Kapur provides a bibliography of reports and secondary sources on earthquakes and seismology since the mid-nineteenth century. Anu Kapur, *On Disasters in India* (New Delhi: Cambridge University Press India Pvt. Ltd., 2009), 167–75; see also Anu Kapur, *Vulnerable India: A Geographical Study of Disasters* (Shimla: Indian Institute of Advanced Study, Sage Publications, 2010).
  19. Arun Bapat, R. C. Kulkarni and S. K. Guha, *Catalogue of Earthquakes in India and Neighbourhood from Historical Period up to 1979* (Roorkee: Indian Society of Earthquake Technology, 1983). R. C. Quittmeyer and K. H. Jacob, 'Historical and Modern Seismicity of Pakistan, Afghanistan, Northwestern India, and

- South-Eastern Iran', *Bulletin of the Seismological Society of America* 69, no. 3 (1979): 773–823. N. Ambraseys and D. Jackson, 'A Note on Early Earthquakes in Northern India and Southern Tibet', *Current Science* 84, no. 4 (2003): 570–82. N. Ambraseys, 'Three Little Known Early Earthquakes in India', *Current Science* 86, no. 4 (25 February 2004): 506–08. Sudhir K. Jain, 'Indian Earthquakes: An Overview', *Indian Concrete Journal* (November 1998): 555–61. The geologist Roger Bilham has written about historical earthquakes in north and northwestern India, among them the 1934 earthquake. Roger Bilham, 'Earthquakes in India and the Himalaya: Tectonics, Geodesy and History', *Annals of Geophysics* 47, nos. 2/3 (April/June 2004): 839–58; Roger Bilham, 'Slip Parameters for the Rann of Kachchh, India, 16 June 1819, Earthquake, Quantified from Contemporary Accounts', in *Coastal Tectonics*, ed. I.S. Stewart and C. Vita-Finzi, 295–318 (London: Geological Society, 1999); Roger Bilham, 'Slow Tilt Reversal of the Lesser Himalaya Between 1862 and 1992 at 78°E, and Bounds to the Southeast Rupture of the 1905 Kangra Earthquake', *Geophysical Journal International* 144, no. 3 (2001): 713–28; Roger Bilham, Vinod K. Gaur and Peter Molnar, 'Himalayan Seismic Hazard', *Science* 293, no. 5534 (2001): 1442–44; Bilham and Hough, 'Site Response of the Ganges Basin'; Nicholas Ambraseys and Roger Bilham, 'A Note on the Kangra Ms = 7.8 Earthquake of 4 April 1905', *Current Science* 79, no. 1 (10 July 2000): 45–50.
20. *Harijan*, 16 February 1934, reproduced in Krishna Dutta and Andrew Robinson (eds.), *Selected Letters of Rabindranath Tagore*, vol. 53, University of Cambridge Oriental Publications (Cambridge: Cambridge University Press, 1997), 537.
  21. Shambhu Prasad confuses the year of the event, that is, 'the Bihar earthquake of 1932', when the correct year is 1934, see Shambhu Prasad, 'Towards an Understanding of Gandhi's Views on Science', *Economic and Political Weekly* 36, no. 39 (2001): 3721–32; Sunil Khilnani, 'Nehru's Faith', *Economic and Political Weekly* 37, no. 48 (2002): 4739–99, 4795–96; Sukumar Muralidharan, 'Religion, Nationalism and the State: Gandhi and India's Engagement with Political Modernity', *Social Scientist* 34, nos. 3/4 (March–April 2006 ): 3–36, 12–13.
  22. Vinay Lal, 'The Gandhi Everyone Loves to Hate', *Economic and Political Weekly* 43, no. 40 (2008): 55–64, 58.
  23. Judith M. Brown, *Gandhi: Prisoner of Hope* (New Haven: Yale University Press, 1989), 274.
  24. Sabyasachi Bhattacharya (ed.), *The Mahatma and the Poet: Letters and Debates between Gandhi and Tagore 1915–1941* (New Delhi: National Book Trust, 1997), 31.

25. Makarand R. Paranjape, "Natural Supernaturalism?" The Tagore–Gandhi Debate on the Bihar Earthquake', *The Journal of Hindu Studies* 4, no. 2 (2011): 176–204, 177, 197.
26. Eleonor Marcussen, 'Explaining the 1934 Bihar–Nepal Earthquake: The Role of Science, Astrology, and "Rumours"', in *Historical Disaster Experiences: Towards a Comparative and Transcultural History of Disasters across Asia and Europe*, ed. Gerrit Jasper Schenk, 241–66, Transcultural Research—Heidelberg Studies on Asia and Europe in a Global Context (Heidelberg: Springer, 2017).
27. Sumathi Ramaswamy, *The Lost Land of Lemuria: Fabulous Geographies, Catastrophic Histories* (Berkeley: University of California Press, 2004), 13.
28. Urte Undine Frömming, *Naturkatastrophen. Kulturelle Deutung und Verarbeitung* (Natural Disasters: Cultural Interpretation and Processing) (Frankfurt/New York: Campus Verlag, 2006), 214–15.
29. Andrea Janku, Gerrit J. Schenk and Franz Mauelshagen, 'Introduction', in *Historical Disasters in Context: Science, Religion, and Politics*, ed. Andrea Janku, Gerrit Jasper Schenk and Franz Mauelshagen, 1–14 (New York; London: Routledge, 2012), 9.
30. Jamuna Prasad trained with Fredric C. Bartlett (1886–1969) at Cambridge in the 1930s and returned to India where he engaged in social psychological research. Wade E. Pickren and Alexandra Rutherford, *A History of Modern Psychology in Context* (Hoboken, New Jersey: Wiley & Sons, 2010), 245.
31. Jamuna Prasad, 'The Psychology of Rumour: A Study Relating to the Great Indian Earthquake of 1934', *British Journal of Psychology* 26, no. 1 (1935): 1–15, 1, 9.
32. Hart's article (with the same main title as Prasad's: 'The Psychology of Rumour') was re-published as a chapter in his book *Psychopathology from 1927*, which Prasad refers to in the article from 1935. J. Prasad, 'The Psychology of Rumour', 5. See 'Preface', in Bernard Hart, *Psychopathology: Its Development and Its Place in Medicine* (Cambridge: Cambridge University Press, 1927). Prashant Bordia and Nicholas DiFonzo, 'When Social Psychology Became Less Social: Prasad and the History of Rumour Research', *Asian Journal of Social Psychology* 5, no. 1 (2002): 49–61, 51.
33. Jamuna Prasad, 'A Comparative Study of Rumours and Reports in Earthquakes', *British Journal of Psychology* 41, nos. 3/4 (1950): 129–44.
34. Bordia and DiFonzo, 'When Social Psychology Became Less Social', 51. J. Prasad, 'A Comparative Study of Rumours and Reports in Earthquakes', 133.
35. However, his research clearly inspired Durgananda Sinha (1922–98) who carried out a study of rumours in 'catastrophic situations' of landslides following unusually heavy rains in Darjeeling in June 1950. Durgananda Sinha, 'Behaviour in a Catastrophic Situation: A Psychological Study of Reports and Rumours', *British*

- Journal of Psychology* (General Section) 43, no. 3 (August, 1952): 200–09. Sinha was, like Prasad, a student of Bartlett at Cambridge, and returned to India as faculty in Patna where he pursued his interests in memory, cognitive processes and, not the least, anxiety which would become one of his important fields of research. Cf. Girishwar Misra, 'Obituary: Professor Durgananda Sinha (1922–1998)', *Cross-Cultural Psychology Bulletin* 32, no. 3 (September, 1998): 6–10. Interestingly, the memory of the 1934 earthquake resurfaced in rumours about disasters. Sinha, 'Behaviour in a Catastrophic Situation', 202–03.
36. According to Festinger's theory, dissonance between two conflicting beliefs and actions can be reduced or overcome by either seeking consistency, reducing the importance of both or adding more consonant beliefs to outweigh the dissonance between the two. Leon Festinger, *A Theory of Cognitive Dissonance* (Stanford, CA: Stanford University Press, 1962 [1957]), 236–37. Biographical details in Pickren and Rutherford, *A History of Modern Psychology in Context*, 245. Bordia and DiFonzo, 'When Social Psychology Became Less Social', 59n1.
  37. He also compares Prasad's article from 1935 with data on rumours in Sinha's article, 'Behaviour in Catastrophic Situation.' Festinger, *A Theory of Cognitive Dissonance*, 237, 239–41.
  38. Festinger, *A Theory of Cognitive Dissonance*, 238–39.
  39. Prasad does not mention Patna as the site for the rumours but he personally verified the truth or fabrication of the rumours by observation in Patna while the other rumours in Darbhanga appear to have been collected from newspapers or other persons. Prasad continued collecting rumours until the end of February when road communication had been restored and the scope of damage was known, and did a follow-up study after aftershocks on 2 June and 19 August 1934. J. Prasad, 'The Psychology of Rumour', 1, 6, 9.
  40. These are the official numbers that could have been accessible to Festinger, in Brett, *A Report on the Bihar Earthquake*, 8, 61, 63.
  41. For reference to Prasad, see p. 257 in Ranajit Guha, *Elementary Aspects of Peasant Insurgency in Colonial India* (London, Durham: Duke University Press, 1999 [1983]).
  42. Guha, *Elementary Aspects*, 253. Also, Arun Kumar, *Rewriting the Language of Politics: Kisans in Colonial Bihar* (Delhi: Manohar Publishers, 2001), 79.
  43. Guha draws upon Lefebvre's work on rumours among the French peasantry during the French revolution. Georges Lefebvre, *The Great Fear of 1789: Rural Panic in Revolutionary France* (New York: Vintage Books, 1973 [French original publication 1932]). The role of rumours in communication is also discussed in Homi K. Bhabha, *The Location of Culture* (London; New York: Routledge, 1994); Kim A.



- Wagner, *The Great Fear of 1857: Rumours, Conspiracies and the Making of the Indian Uprising* (Oxford: Peter Lang, 2010). For a detailed account and analysis of Guha's understanding of rumours as well as an overview of the rumours in history writing, see 'Chapter 3, Rumour: Beyond Muffled Murmurs of Dissent', in A. Kumar, *Rewriting the Language of Politics*. The communicative function of rumour 'in a predominantly illiterate society' is also mentioned in Sumit Sarkar, *Modern India, 1885–1947* (Cambridge Commonwealth series. Basingstoke: Macmillan, 1989 [1983]), 181–83.
44. Guha, *Elementary Aspects*, 254–55.
  45. Praveen Singh, 'The Colonial State, Zamindars and the Politics of Flood Control in North Bihar (1850–1945)', *Indian Economic Social History Review* 45, no. 2 (2008): 239–59. Praveen Singh, "'Colonising the Rivers": Colonial Technology, Irrigation and Flood Control in North Bihar, 1850–1950', unpublished PhD dissertation, Centre for Historical Studies, School of Social Sciences, Jawaharlal Nehru University, 2003. Christopher V. Hill, *River of Sorrow: Environment and Social Control in Riparian North India, 1770–1994*, Monograph and Occasional Paper Series, No. 5. (Ann Arbor, Michigan: Association for Asian Studies, 1997). Nitin Sinha, 'Fluvial Landscapes and the State: Property and the Gangetic Deltas in Colonial India, 1790s–1890s', *Environment and History* 2, no. 20 (May 2014): 209–37.
  46. Rohan D'Souza, *Drowned and Dammed: Colonial Capitalism and Flood Control in Eastern India* (New Delhi: Oxford University Press, 2006). Braja Bandhu Bhatta, *The Natural Calamities in Orissa in the 19th Century* (New Delhi: Commonwealth Publishers, 1997).
  47. Bihar and Orissa formed a province from 1912 to 1936 when it was split into two separate provinces. Starting with the tax year 1936–37, Bihar and Orissa were governed as separate provinces. S. M. Wasi, *Bihar and Orissa in 1936–37* (Patna: Superintendent, Government Printing, 1938), 23–24.
  48. Dinesh Kumar Mishra, 'Bihar Floods: The Inevitable Has Happened', *Economic and Political Weekly* 43, no. 26 (September 2008): 8–12.
  49. Bal Mokand Bhatia, *Famines in India: A Study in Some Aspects of the Economic History of India with Special Reference to Food Problem, 1860–1990* (Delhi: Konark Publishers, 1991 [3rd ed. 1967]). Ira Klein, 'When the Rains Failed. Famine, Relief, and Mortality in British India', *The Indian Economic and Social History Review* 21, no. 2 (1984): 185–214. Aditee Nag Chowdhury-Zilly, *The Vagrant Peasant: Agrarian Distress and Desertion in Bengal; 1770–1830*. Beiträge zur Südasienforschung, Band 71 (Wiesbaden, Franz Steiner Verlag, 1982), 27–28. Most influential is the seminal study by Amartya Sen, *Poverty*

- and Famines: An Essay on Entitlement and Deprivation* (Oxford: Clarendon Press, 1981).
50. Lee Clarke, 'Possibilistic Thinking: A New Conceptual Tool for Thinking about Extreme Events', *Social Research* 75, no. 3, Fall (2008): 669–90.
  51. Arno Borst, 'Das Erdbeben von 1348. Ein historischer Beitrag zur Katastrophenforschung', *Historische Zeitschrift* 233, no. 1 (1981): 529–68; Monica Juneja and Franz Mauelshagen, 'Disasters and Pre-Industrial Societies: Historiographic Trends and Comparative Perspectives', *The Medieval History Journal* 10, nos. 1–2 (2007): 1–31; Andreas Ranft and Stephan Selzer, 'Städte aus Trümmern: Einleitende Überlegungen' (Cities in Ruins: Introductory Considerations), in *Städte aus Trümmern: Katastrophenbewältigung zwischen Antike und Moderne*, ed. Andreas Ranft and Stephan Selzer, 9–25 (Göttingen: Vandenhoeck & Ruprecht, 2004); Gerrit Jasper Schenk, 'Historical Disaster Research: State of Research, Concepts, Methods and Case Studies', *Historical Social Research* 32, no. 3 (2007): 9–31.
  52. John R. McNeill, José Augusto Pádua, Mahesh Rangarajan, *Environmental History: As If Nature Existed* (New Delhi: Oxford University Press, 2010); Richard H. Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600–1860* (Cambridge: Cambridge University Press, 1995).
  53. Nigel Clark, 'Geo-Politics and the Disaster of the Anthropocene', in *Disasters and Politics: Materials, Experiments, Preparedness*, ed. Manuel Torini, Israel Rodriguez-Giralt and Michael Guggenheim, 19–37 (Oxford; West Sussex: Wiley Blackwell/The Sociological Review, 2014), 21 (originally published in *The Sociological Review* 62, S1 [(2014): 19–37]. Dipesh Chakrabarty, 'The Climate of History: Four Theses', *Critical Inquiry* 35 (Winter 2009): 197–222. Rune T. Slettebak, 'Don't Blame the Weather: Climate-related Natural Disasters and Civil Conflict', *Journal of Peace Research* 49, no. 1: 163–76.
  54. Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge, MA; London: Harvard University Press, 2011), 2–3.
  55. Schenk, 'Historical Disaster Research', 19. Gerrit J. Schenk and Jens Ivo Engels (eds.), 'Historische Katastrophenforschung: Begriffe, Konzepte und Fallbeispiele' (Historical Disaster Research: Concepts, Methods and Case Studies), Theme Issue, *Historische Sozialforschung (Historical Social Research)* 32, no. 3 (2007). Christof Mauch (ed.), *Natural Disasters, Cultural Responses: Case Studies toward a Global Environmental History* (Lanham, MD: Lexington Books, 2009). Susanna M. Hoffman and Anthony Oliver-Smith (eds.), *Catastrophe and Culture: The Anthropology of Disaster* (Santa Fe, NM: School of American Research Press, 2002).

- For comparative historical disaster studies, see Juneja and Mauelshagen, 'Disasters and Pre-Industrial Societies', 27–28. Alessa Johns (ed.), *Dreadful Visitations: Confronting Natural Catastrophe in the Age of Enlightenment* (New York and London: Routledge, 1999). For an overview of the development of disaster studies in the social sciences, mainly from a sociological perspective, see David Brunnsma and J. Steven Picou, 'Disasters in the Twenty-First Century: Modern Destruction and Future Instruction', *Social Forces* 87, no. 2 (2008): 983–91. For the study of 'disaster cultures' or 'cultures of disaster' (*Katastrophenkulturen*), see Carsten Felgentreff and Wolf R. Dombrowsky, 'Hazards-, Risiko- und Katastrophenforschung', in *Naturreisiken und Sozialkatastrophen*, ed. Carsten Felgentreff and Thomas Glade, 13–29 (Berlin; Heidelberg: Spektrum Akademischer Verlag, 2008). For a literature overview over the use of disasters as an analytical category in the field of history, see Jonathan Bergman, 'Disaster: A Useful Category of Historical Analysis', *History Compass* 6, no. 3 (2008): 934–46.
56. Ben Wisner, Piers Blaikie, Terry Cannon and Ian Davis, *At Risk: Natural Hazards, People's Vulnerability, and Disasters*, 2nd ed. (London: Routledge, 2004 [1994]), 18–19. On the constructionist disaster paradigm dominating academic discourse and applied social science research, see Phil O'Keefe, Ken Westgate and Ben Wisner, 'Taking the Naturalness out of Natural Disasters', *Nature* 260, no. 5552 (1976): 566–67; and later in David Alexander, 'The Study of Natural Disasters, 1977–1997: Some Reflections on a Changing Field of Knowledge', *Disasters* 21, no. 4 (1997): 284–304. The idea that human beings play a major role in shaping the impact of 'natural' disasters is also accepted by major development agencies, see The World Bank and The United Nations, *Natural Hazards, Unnatural Disasters: The Economics of Effective Prevention* (Washington, DC: The International Bank for Reconstruction and Development/The World Bank, 2010); Janet Abramovitz, 'Unnatural Disasters', in Linda Starke (ed.), *Worldwatch Paper 158* (Washington, DC: Worldwatch Institute, October 2001).
  57. Wisner et al., *At Risk*, 11. See also Ben Wisner and Henry R. Luce, 'Disaster Vulnerability: Scale, Power and Daily Life', *GeoJournal* 30, no. 2 (1993): 127–40. 'Vulnerability' is a major theme in anthropological studies of disasters. For a comprehensive overview, see, for instance, Anthony Oliver-Smith and Susanna M. Hoffman (eds.), *The Angry Earth: Disaster in an Anthropological Perspective* (London: Routledge, 1999).
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- changes a disaster can bring about. Siambabala Bernard Manyena, Geoff O'Brien, Phil O'Keefe and Joanne Rose, 'Disaster Resilience: A Bounce Back or Bounce Forward Ability?' *Local Environment* 16, no. 5 (May 2011): 417–24.
59. For a discussion on 'nature' and the 'natural' in disasters, see Carsten Felgentreff and Thomas Glade, 'Naturrisiken–Sozialkatastrophen: zum Geleit', in *Naturrisiken und Sozialkatastrophen*, ed. Carsten Felgentreff and Thomas Glade, 1–10 (Berlin; Heidelberg: Spektrum Akademischer Verlag, 2008). For natural disasters as 'unnatural' from different perspectives, see Mike Davis, *Ecology of Fear: Los Angeles and the Imagination of Disaster* (New York, NY: Vintage Books, 1999); The Steinberg, *Acts of God: The Unnatural History of Natural Disaster in America* (New York, NY: Oxford University Press, 2000); Gary Stern, *Can God Intervene? How Religion Explains Natural Disasters* (West Port, Connecticut; London: Praeger, 2007).
  60. Wisner et al., *At Risk*, 18.
  61. Susanna M. Hoffman, 'After Atlas Shrugs: Cultural Change or Persistence after a Disaster', in *The Angry Earth: Disaster in an Anthropological Perspective*, ed. Anthony Oliver-Smith and Susanna M. Hoffman, 302–25 (London: Routledge, 1999).
  62. Kevin Rozario, 'What Comes Down Must Go Up: Why Disasters Have Been Good for American Capitalism', in *American Disasters*, ed. Steven Biel, 72–102 (New York: New York University Press, 2001), 75–77. Christopher L. Dyer, 'The Phoenix Effect in Post-Disaster Recovery: An Analysis of the Economic Development Administration's Culture of Response after Hurricane Andrew', in *The Angry Earth: Disaster in Anthropological Perspective*, ed. A. Oliver-Smith and S. M. Hoffman, 278–300 (London: Routledge, 1999), 279.
  63. Kai Weise, 'Summary and Commentary', in *Revisiting Kathmandu: Safeguarding Living Urban Heritage*, ed. K. Weise, 1–47, International Symposium Kathmandu Valley, 25–29 November 2013 (Paris: UNSECO, 2015), 7–8.
  64. Thomas Birkland, 'Natural Disasters as Focusing Events: Policy Communities and Political Response', *International Journal of Mass Emergencies and Disasters* 14, no. 2 (1996): 221–43. Thomas Birkland, *Lessons of Disaster: Policy Change after Catastrophic Events* (Washington, D.C.: Georgetown University Press, 2006). Also see David Butler, 'Focusing Events in the Early Twentieth Century: A Hurricane, Two Earthquakes, and a Pandemic', in *Emergency Management: The American Experience, 1900–2005*, ed. Claire B. Ruben, ch. 2, 11–48 (Fairfax, VA: Public Entity Risk Institute, 2007).
  65. Anu Sabhlok, 'Sewa in Relief: Gendered Geographies of Disaster in Relief in Gujarat, India', PhD dissertation, Geography and Women's Studies, Pennsylvania

- State University, UMI number: 3266196, 2007. Edward Simpson, *The Political Biography of An Earthquake: Aftermath and Amnesia in Gujarat, India* (New Delhi: Oxford University Press, 2014). David Sanderson and Anshu Sharma, 'Winners and Losers from the 2001 Gujarat Earthquake', *Environment and Urbanization* 20, no. 1 (2008): 177–86; Martha Patricia Kirpes, 'Bringing Environmental Justice to Natural Hazards: An Earthquake Vulnerability and Reconstruction Case Comparison from India', PhD dissertation, Natural Resources and Environment, University of Michigan, UMI number 9825270, 1998.
66. Edward Simpson and Stuart Corbridge, 'The Geography of Things That May Become Memories: The 2001 Earthquake in Kachchh–Gujarat and the Politics of Rehabilitation in the Prememorial Era', *Annals of the Association of American Geographers* 96, no. 3 (2006): 566–85; Edward Simpson, 'The "Gujarat" Earthquake and the Political Economy of Nostalgia', *Contributions to Indian Sociology* 39, no. 2 (2005): 219–49; Edward Simpson and Malathi de Alwis, 'Remembering Natural Disaster: Politics and Culture of Memorials in Gujarat and Sri Lanka', *Anthropology Today* 24, no. 4 (2008): 6–12. Manasi Kumar, 'A Journey into the Bleeding City: Following the Footprints of the Rubble of Riot and Violence of Earthquake in Gujarat, India', *Psychology and Developing Societies* 19, no. 1 (2007): 1–36. Jayasinhji Jhala, 'In Time of Fear and Terror: Seeing, Assessing, Assisting—Understanding and Living the Reality and Consequence of Disaster', *Visual Anthropology Review* 20, no. 1 (2004): 59–69. Lyla Mehta, 'Reflections on the Kutch Earthquake', *Economic and Political Weekly* 36, no. 31 (August 2001): 2931–36.
67. Frida Hastrup, *Weathering the World: Recovering in the Wake of the Tsunami in a Tamil Fishing Village* (Oxford; New York: Berghahn Books, 2011). Aaron Patrick Mulvany, 'Flood of Memories: Narratives of Flood and Loss in Tamil South India', PhD dissertation, South Asia Regional Studies, University of Pennsylvania, UMI number: 348516, 2011.
68. Emmanuel Raju, 'Exploring Disaster Recovery Coordination: Stakeholder Interfaces, Goals and Interdependencies', PhD Dissertation, Faculty of Engineering, Lund University, 2013.
69. In sociological disaster research, the term 'scaling' is used for determining the 'size' of a disaster on a range from 'everyday emergencies' to 'complete annihilation of a society'. Martin Voss and Klaus Wagner, 'Learning from (Small) Disasters', *Natural Hazards* 55, no. 3 (2010): 657–69, 662, 667.
70. Christian Pfister, 'Learning from Nature-Induced Disasters: Theoretical Considerations and Case Studies from Western Europe', in *Natural Disasters, Cultural Responses: Case Studies toward a Global Environmental History*, ed. Christof Mauch and Christian Pfister, 17–40 (Lanham, MD: Lexington Books, 2009), 20.

71. Christian Pfister, 'Die "Katastrophenluecke" des 20. Jahrhunderts und der Verlust traditionellen Risikobewusstseins', *GAIA* 18, no. 3 (2009): 239–46, 240.
72. Stewart Williams, 'Rethinking the Nature of Disaster: From Failed Instruments of Learning to a Post-Social Understanding', *Social Forces* 87, no. 2 (2008): 1115–38, 1116, 1128–31.
73. James K. Mitchell, 'Including the Capacity for Coping with Surprises in Post-Disaster Recovery Policies. Reflections on the Experience of Tangshan, China', *Behemoth. A Journal on Civilization* 1, no. 3 (2008): 21–38.
74. Williams, 'Rethinking the Nature of Disaster', 1117. Ulrich Beck, *Risk Society: Towards a New Modernity* (London: Sage Publications, 1992 [Risikogesellschaft. Auf dem Weg in eine andere Moderne. Frankfurt am Maine: Suhrkamp, 1986]); Ulrich Beck, 'Living in the World Risk Society', *Economy and Society* 35, no. 3 (2006): 329–45.
75. Simpson, *The Political Biography of an Earthquake*, 250.
76. Jared M. Diamond, *Collapse: How Societies Chose to Fail or Succeed* (New York: Viking, 2005). Critical review by Scott E. Page, 'Are We Collapsing? A Review of Diamond's *Collapse: How Societies Chose to Fail or Succeed*', *Journal of Economic Literature* 43, no. 4 (December 2005): 1049–62.
77. Bas van Bavel, Daniel R. Curtis and Jessica Dijkman, Matthew Hannaford, Maïka de Keyzer, Eline van Onacker and Tim Soens, *Disasters and History: The Vulnerability and Resilience of Past Societies* (Cambridge: Cambridge University Press, 2020), 1.
78. Gregory Clancey, *Earthquake Nation: The Cultural Politics of Japanese Seismicity, 1868–1930* (Berkeley: University of California Press, 2006), 4.
79. Ch. 7: 'Japanese Architecture after Nōbi', in Clancey, *Earthquake Nation*, 180–211.
80. Dieter Groh, Michael Kempe and Franz Mauelshagen, in 'Einleitung. Naturkatastrophen—wahrgenommen, gedeutet, dargestellt', in *Naturkatastrophen: Beiträge zu ihrer Deutung, Wahrnehmung und Darstellung in Text und Bild von der Antike bis ins 20. Jahrhundert*, ed. D. Groh, M. Kempe and F. Mauelshagen, 11–33 (Tübingen: Gunter Narr Verlag, 2003), 25.
81. Chris Courtney, *The Nature of Disaster in China: The 1931 Yanqzi River Flood* (Cambridge, UK: Cambridge University Press, 2018), 10–11.
82. van Bavel et al., *Disasters and History*, 43.
83. Hoffman, 'After Atlas Shrugs', 310.
84. Rozario, 'What Comes Down Must Go Up'.
85. Janet Borland, 'Capitalising on Catastrophe: Reinvigorating the Japanese State with Moral Values through Education Following the 1923 Great Kanto Earthquake', *Modern Asian Studies* 40, no. 4 (2006): 875–907.

86. Greg Bankoff, *Cultures of Disaster: Society and Natural Hazard in the Philippines* (London: Routledge Curzon, 2003), 153.
87. *Ibid.*, 159–60.
88. Heritage conservation can be an asset in disaster risk reduction, as outlined in Rohit Jigyasu, 'From "Natural" to "Cultural" Disaster: Consequences of Post-Earthquake Rehabilitation Process on Cultural Heritage in Marathwada Region, India', UNESCO–ICOMOS Conference. Earthquake-safe: Lessons to be Learned from Traditional Construction, Istanbul, 2001. Earthquakes are geological hazards which only when they affect human societies are considered natural disasters. Wisner et al., *At Risk*, 10, 17.
89. Susan E. Hough, *Earthshaking Science: What We Know (and Don't Know) about Earthquakes* (Princeton and Oxford: Princeton University Press, 2002), 193.
90. The definition of disaster as 'event' and 'process' is from Gary A. Kreps, 'Disaster: Systemic Event and Social Catalyst', in *What Is a Disaster? Perspectives on the Question*, ed. E. L. Quarantelli, 25–50 (London, New York: Routledge, 1998), 41.
91. Robert A. Stallings, 'Disasters and the Theory of Social Order', in *What Is a Disaster? Perspectives on the Question*, ed. E. L. Quarantelli, 127–46 (London, New York: Routledge, 1998), 131.
92. See Dadabhai Naoroji, *Poverty and Un-British Rule in India* (London: Swan Sonnenschein & Co., 1901). Also in David Arnold, *Famine: Social Crisis and Historical Change* (Oxford: Basil Blackwell, 1988), 116–17; David Hall-Matthews, *Peasants, Famine and the State in Colonial Western India* (New York: Palgrave and MacMillan, 2005), 2.
93. According to Sen, so-called food availability decline does not explain why some segments of society starve during famines while others remain immune. Sen, *Poverty and Famines*.
94. Madhav Gadgil and Ramachandra Guha, *This Fissured Land: An Ecological History of India* (New Delhi: Oxford University Press, 1992), 116–18.
95. Ramachandra Guha, *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya* (Berkeley: University of California Press, 2000 [1989]); Mahesh Rangarajan and K. Sivaramakrishnan, 'Introduction', in *Shifting Ground: People, Animals, and Mobility in India's Environmental History*, ed. M. Rangarajan and K. Sivaramakrishnan, 1–29 (Oxford University Press: Oxford Scholarship Online, 2014, accessed 5 July 2015).
96. Gadgil and Guha, *This Fissured Land*, 116–18; Ramachandra Guha, *The Unquiet Woods*; Arnold, *The Problem of Nature*, 175–80.
97. K. Sivaramakrishnan and Gunnel Cederlöf, 'Introduction. Ecological Nationalisms—Claiming Nature for Making History', in *Ecological Nationalisms*:

- Nature, Livelihoods, and Identities in South Asia*, ed. Gunnel Cederlöf and K. Sivaramakrishnan, paperback ed., 1–40 (Seattle, WA: University of Washington Press, 2014 [2006]), 11.
98. David Arnold, *The Tropics and the Traveling Gaze: India, Landscape, and Science, 1800–1856* (Delhi: Permanent Black, 2005), 111. See chapter 8, ‘Inventing ‘Tropicality’, and chapter 9, ‘Colonizing Nature’, in Arnold, *The Problem of Nature*, 141–87.
  99. Arnold, *The Tropics and the Traveling Gaze*, 6.
  100. Daud Ali, ‘Recognizing Europe in India: Colonial Master Narratives and the Writing of Indian History’, in *Contesting the Master Narrative: Essays in Social History*, ed. Jeffrey Cox and Shelton Stromquist, 95–130 (Iowa City: University of Iowa Press, 1998).
  101. Arnold, *The Tropics and the Traveling Gaze*, 133.
  102. Edward W. Said, *Orientalism*, Repr. with a new Afterword and new Preface (London: Penguin Books, 2003 [1978]), 1–4.
  103. Arnold, *The Tropics and the Traveling Gaze*, 6.
  104. For reference to David Arnold, see Bankoff, *Cultures of Disaster*, 7. Greg Bankoff, ‘Rendering the World Unsafe: “Vulnerability” as a Western Discourse’, *Disasters* 25, no. 1 (2001): 19–35.
  105. Bankoff, *Cultures of Disaster*, 11.
  106. References to Bankoff, see Upamanyu Pablo Mukherjee, *Natural Disasters and Victorian Empire: Famines, Fevers and the Literary Cultures of South Asia* (Basingstoke, UK: Palgrave Macmillan, 2013), 17, 25–26.
  107. Mukherjee excludes the cyclones of 1839, 1864 and 1876 in Bengal and Orissa and instead chooses to focus on ‘less visible, but arguably, more destructive disasters of recurring famines and epidemics’. *Ibid.*, 12–13, 22.
  108. ‘Tropical other’ Mukherjee takes from Bankoff, *Cultures of Disaster*, 7, who in turn builds upon Arnold’s work on tropicality; see Mukherjee, *Natural Disasters and Victorian Empire*, 17.
  109. *Ibid.*, 18, 31, 37.
  110. Eric L. Jones, *The European Miracle: Environments, Economies, and Geopolitics in the History of Europe and Asia*, 3rd ed. (New York: Cambridge University Press, 2003 [1981]).
  111. *Ibid.*, 225–27.
  112. Jones’s book is a case study in Eurocentric history in James Morris Blaut, *Eight Eurocentric Historians* (New York; London: The Guilford Press, 2000), ch. 5, 73–112.
  113. Mukherjee, *Natural Disasters and Victorian Empire*, 14–15.
  114. Tirthankar Roy, *Natural Disasters and Indian History*, Oxford India Short Introductions (New Delhi: Oxford University Press, 2012). Roy, ‘“The Law of



- Storms”: European and Indigenous Responses to Natural Disasters in Colonial India, c. 1800–1850’, *Australian Economic History Review* 50, no. 1 (2010): 6–22.
- Roy, ‘State, Society and Market in the Aftermath of Natural Disasters in Colonial India: A Preliminary Exploration’, *Indian Economic Social History Review* 45, no. 2 (2008): 261–94.
115. Roy, ‘State, Society and Market’, 264.
  116. *Ibid.*, 289.
  117. *Ibid.*, 268n15.
  118. Bhatta, *The Natural Calamities*, 210, 214–15.
  119. *Ibid.*, 89.
  120. *Ibid.*, xxi, 76.
  121. Arnold, *Famine: Social Crisis and Historical Change*, 22.
  122. Roy, “‘The Law of Storms’: European and Indigenous Responses’.
  123. *Ibid.*, 6–7.
  124. *Ibid.*, 12.
  125. D’Souza, *Drowned and Dammed*, 84.
  126. David Mosse, *The Rule of Water: Statecraft, Ecology, and Collective Action in South Asia* (Delhi: Oxford University Press, 2003).
  127. A number of interesting publications on water management pertain to floods and rivers in north and northeastern India, for instance, Meena Bhargava, ‘Changing River Courses in North India: Calamities, Bounties, Strategies—Sixteenth to Early Nineteenth Centuries’, *The Medieval History Journal* 10, nos. 1–2 (2007): 183–208. Debojyoti Das, “‘Majuli in Peril’: Challenging the Received Wisdom on Flood Control in the Brahmaputra River Basin, Assam (1940–2000)’, *Water History Journal* 6, no. 2 (2014): 167–185. M. A. Allison, ‘Historical Changes in the Ganges-Brahmaputra Delta Front’, *Journal of Coastal Research* 14, no. 4 (1998): 1269–1275. Iftexhar Iqbal, *The Bengal Delta: Ecology, State and Social Change, 1840–1943* (London: Palgrave Macmillan, 2010). Debjani Bhattacharyya, *Empire and Ecology in the Bengal Delta: The Making of Calcutta* (Cambridge: Cambridge University Press, 2018).
  128. D’Souza, *Drowned and Dammed*, 51–52.
  129. Benjamin Kingsbury, *An Imperial Disaster: The Bengal Cyclone of 1876* (Oxford University Press 2018).
  130. *Ibid.*, 164.
  131. K. Sivaramakrishnan, *Modern Forests: Statemaking and Environmental Change in Colonial Eastern India* (Stanford: Stanford University Press, 1999), 5.
  132. Sunil Khilnani, ‘The Development of Civil Society’, in *Civil Society: History and Possibilities*, ed. Sudipta Kaviraj and Sunil Khilnani, 11–32 (New Delhi: Cambridge University Press, 2001), 25.

133. Sanjay Sharma, *Famine, Philanthropy and the Colonial State: North India in the Early Nineteenth Century* (New Delhi: Oxford University Press, 2001), 7–9, 191.
134. Ravi Ahuja, 'State Formation and "Famine" Policy in Early Colonial South India', *Indian Economic and Social History Review* 39, no. 4 (2002): 351–80, 378–80.
135. Sharma, *Famine, Philanthropy and the Colonial State*, 2.
136. For example, early nationalists and the Poona Sarvajanik Sabha (founded in 1872) played an important role in criticising revenue and famine policies of the Government of Bombay. Christopher A. Bayly, *Origins of Nationality in South Asia: Patriotism and Ethical Government in the Making of Modern India* (Delhi: Oxford University Press, 1998), 106–07.
137. Arnold, *Famine: Social Crisis and Historical Change*, 115.
138. Hall-Matthews, *Peasants, Famine and the State in Colonial Western India*, 219–20.
139. Lance Brennan, 'The Development of the Indian Famine Codes: Personalities, Politics, and Policies', in *Famine as a Geographical Phenomenon*, ed. Bruce Currey and Graeme Hugo, 91–111 (Dordrecht: D. Reidel, 1984).
140. Georgina Brewis, "'Fill Full the Mouth of Famine": Voluntary Action in Famine Relief in India 1896–1901', *Modern Asian Studies* 44, no. 4 (2010): 887–918.
141. Carey Anthony Watt, *Serving the Nation: Cultures of Service, Association, and Citizenship* (New Delhi: Oxford University Press, 2005).
142. The 1934 and 1935 earthquakes are discussed in chapters 3 and 4 in Kokila Dang, 'The Congress and the Politics of Relief: 1920–1940', unpublished M.Phil dissertation, Centre for Historical Studies, School of Social Sciences, Jawaharlal Nehru University, 1992. Kokila Dang, 'Colonial Ideology, Nationalist Politics and the Social Organization of Relief in the Late Nineteenth and Twentieth Centuries', unpublished PhD dissertation, Centre for Historical Studies, School of Social Sciences, Jawaharlal Nehru University, 1998, ch. 11.
143. Dang, 'The Congress and the Politics of Relief', 108.
144. William F. Kuracina, *The State and Governance in India: The Congress Ideal* (New York: Routledge, 2010), 4.
145. Bérénice Guyot-Réchar, 'Reordering a Border Space: Relief, Rehabilitation, and Nation-Building in Northeastern India after the 1950 Assam Earthquake', *Modern Asian Studies* 49, no. 4 (July, 2015): 931–62, 936.
146. Guyot-Réchar, 'Reordering a Border Space', 936, 956, 950.
147. S. N. Mukherjee, 'Afterword', in *Disasters: Image and Context*, ed. Peter Hinton, 187–96 (Sydney: Sydney Studies, 1992).
148. Wendy Singer, *Creating Histories: Oral Narratives and the Politics of History-Making* (Delhi: Oxford University Press, 1997), 44–45, 134, 153n49.

149. Stephen Henningham, *Peasant Movements in Colonial India: North Bihar, 1917–1942* (Canberra: Australian National University, 1982), 140. Stephen Henningham, 'Bureaucracy and Control in India's Great Landed Estates: The Raj Darbhanga of Bihar, 1879 to 1950', *Modern Asian Studies* 17, no. 1 (1983): 35–57, 43, 47. Stephen Henningham, *A Great Estate and Its Landlords in Colonial India: Darbhanga 1860–1942* (Delhi: Oxford University Press, 1990), 128–52.
150. For research on the management of relief and reconstruction in Nepal after the earthquake, see Yogesh Raj, 'Management of the Relief and Reconstruction after the Great Earthquake of 1934' (Notes from the Archive), *Studies in Nepali History and Society* 20, no. 2 (December 2015): 375–422.
151. Referred to as the year of 'the dreadful earthquake' (*bhayanak bhukamp*), in A. Kumar, *Rewriting the Language of Politics*, 75n42. In March 2010 in Patna, people more than once told the author anecdotes of elders who were born in the year of the earthquake.
152. 'Tributes to Earthquake Victims: Residents Pay Homage to More than 1000 People Who Lost Lives in 1934', [http://www.telegraphindia.com/1150116/jsp/bihar/story\\_8626.jsp#.VmVQOnYrLIU](http://www.telegraphindia.com/1150116/jsp/bihar/story_8626.jsp#.VmVQOnYrLIU) (accessed 12 February 2015).
153. J. S. Wilcock, *Bihar and Orissa in 1933–34* (Patna: Superintendent, Government Printing, 1935), 14. The local government financed the department. 'Presentation of the Budget for 1935–36', in *Bihar and Orissa Legislative Council Proceedings (BOLCP)*, 13 February 1935, 32, no. 4: 261–62.
154. For instance, 'Finance Department, File No. 7/36 of 1934 P1–8, subject: 'Free Transport by Railway of Men and Stores on Earthquake Relief Work' became 'Reconstruction Department, E-33 of 1934 Part 1, subject: Railway Concessions on Occasion of Earthquake'. The files are in the present record management of BSA entered as 'General Department, Reconstruction Branch' but each individual file is marked 'Reconstruction Department, Earthquake Branch'. Local Self Government (LSG) Dept – Medical Branch, LSG Dept – Sanitation Branch, LSG Dept – LSG Branch, 1934–936 also contain files on the earthquake. Archival visits to BSA, March 2010.
155. William Bailie (W. B.) Brett was appointed Relief Commissioner 2 February 1934 (*Bihar and Orissa Gazette*, 1934, Part 1, p. 26 [BL IOR V/11/1153]), and was expected to return and take charge of the new department on 17 February 1934. D.O. 1036, James Whitty, Revenue Dept., Govt of B&O, Patna 17 February 1934, to J.W. Nicholson, BSA RE 56/1934. Brett had 'large administrative and secretarial experience and reputation for thoroughness and efficiency'. He joined the Indian Civil Service as an Assistant Magistrate and Collector in Bihar after having passed the exams in 1912, and was of a senior range with experience in

- various leading positions (Private Sec. to the Governor of B&O, Sec. to the Indian Taxation Enquiry Committee, Finance Sec.) before his appointment as Relief Commissioner. 'Builders of the New Bihar', in Moore (ed.), *Record of the Great Indian Earthquake*, p. 37. 'William Bailie Brett, B.A.', in *History of Services of Gazetted and Other Officers Serving under the Government of Bihar and Orissa* (Corrected until 1st July 1930) Part I (Patna: Superintendent, Government Printing, 1930), 14–15.
156. The publication is without author and date, but W. B. Brett is mentioned as the author and the publication appeared in D.O. 'The Bihar Earthquake' (Personal and Confidential), Home Dept, GOI, to Cornelia Sorabji, Simla 21 July 1934, BL Mss Eur F165/170. He also submitted the proof copy to the Home Department by 8 June 1934. D.O. 1960 R.D., W. B. Brett to M. G. Hallett, 8 June 1934, File: 'B&O Earthquake 1934. Publicity, Relief and Reconstruction Measures in Connection therewith. Accounts of Bihar Central Relief Committee's Fund', National Archives of India (NAI) HP 34/1/1934. Published as a public report on 13 June 1934, see W. B. Brett *Report on the Progress of Earthquake Reconstruction*, S.I, 1934 (18 pp.), 18. Henceforth referred to as *RPER* in notes. Brett sent communiqués to M. G. Hallett, who except for the short spell as secretary, Home Department, GOI, 1932–36, had spent many years of his career in Bihar and Orissa and would return as Governor of Bihar 1937–39. William Gould, 'Hallett, Sir Maurice Garnier (1883–1969)', *Oxford Dictionary of National Biography* (Oxford University Press, 2004), online edition, May 2007, <http://www.oxforddnb.com/view/article/67176> (accessed 16 June 2011). Sir Maurice Garnier Hallett (1883–1969): doi:10.1093/ref:odnb/67176.
157. Though the publication is without author, archival sources reveal that it was written by Brett on his own initiative. Brett started to work on the report after 'Clarke's memorandum' was sent from the same department (which is not available in the records reviewed and has not been seen by the present author). Presumably Clarke's memorandum was meant for the British public since *RPER* was for publication in India and 'much more suitable for Indian readers' according to Brett who wanted it published widely in Hindi and English. D.O. 1898 R.D., Brett to Hallett, Patna, 7 June 1934. NAI HP 34/1/1934.
158. Two thousand copies were printed 22 January 1935. Brett, *A Report on the Bihar Earthquake*.
159. Deepak Kumar, 'Economic Compulsions and the Geological Survey of India', *Indian Journal of History of Science* 17, no. 2 (1982): 289–300. For an in-depth study of Thomas Oldham, the founding father of GSI, and the role of his Irish geologists in the formation of 'British' science, see Barry Crosbie, 'Ireland, Colonial Science, and the Geographical Construction of British Rule in India, c. 1820–1870', *Historical*

- Journal* 52, no. 4 (2009): 963–87. Crosbie, *Irish Imperial Networks: Migration, Social Communication and Exchange in Nineteenth-Century India* (Cambridge: Cambridge University Press, 2012). Another example of the importance of GSI for the expansion of colonial power is given in Robert A. Stafford, 'Geological Surveys, Mineral Discoveries and British Expansion, 1835–71', *Journal of Imperial and Commonwealth History* 12, no. 3 (1984): 5–32.
160. See cover pager and p. 1 in J. A. Dunn, J. B. Auden and A. M. N. Ghosh, *Preliminary Report\* on the North Bihar Earthquake of the 15th January 1934* (Patna: Superintendent, Government Printing, 1934) (\*Certain portions of the report have been omitted).
  161. Bilham and Hough, 'Site Response of the Ganges Basin', 776.
  162. Dunn et al., 'The Bihar–Nepal Earthquake of 1934', 175.
  163. There were no indexes available for the departments and period reviewed at the time of visiting BSA, Patna in 2010.
  164. See <http://hansard.millbanksystems.com/> (accessed 20 July 2015).
  165. Kameshwar Singh (1907–62), Maharajadhiraj ('Great King of Kings') of Darbhanga 1929–62. His title was non-hereditary and conferred upon him by the Government of India when he inherited the Darbhanga Raj. Henningham, *A Great Estate and Its Landlords*, 128–29, 157.
  166. According to indexes of the Revenue Department 1934–36, reduction of rent for earthquake-damaged lands, earthquake relief loans and the Darbhanga Improvement Trust were some of the topics relevant to the present study. The visit to the archives was made between 20 and 21 February 2010. Unfortunately, a number of relevant files in the Darbhanga State Archives were unavailable for consultation.
  167. Eleonor Marcussen, 'Cooperation and Pacifism in a Colonial Context: Service Civil International and Work Camps in Bihar, 1934–1937', in *HerStory. Historical Scholarship between South Asia and Europe: Festschrift in Honour of Gita Dharampal-Frick*, ed. R. Klöber and M. Ludwig, 83–101 (Heidelberg; Berlin: CrossAsia-eBooks, 2018).
  168. Ramratan Bhatnagar, *The Rise and Growth of Hindi Journalism (1826–1945)*, ed. Dhirendranath Singh (Varanasi: Vishwavidyalaya Prakashan, 2003 [1947]), 387.
  169. *Ibid.*, 387–88.
  170. Established in 1875, the newspaper was British-owned and was regarded by nationalists to be a mouthpiece of British imperialism and the British community in India during the 1920s and 1930s. Even so, its editorials and contents were widely read and discussed by people holding diverse political views. Rangaswamy Parthasarathy, *Journalism in India*, rev. and enlarged ed. (New Delhi: Sterling Publishers, 1997 [4th ed., 1989]), 229–30.

171. The *Indian Nation* resumed print 24 March 1934, C. S. R. Somayajulu, *Indian Nation*, 10 April 1934.
172. 'Province Day by Day; News from the Mofussil; Earthquake Relief; Muzaffarpur; The Newest', *Indian Nation*, 25 March 1934.
173. The Political Department's perception of the press was provided in 'Notes' on the annual reports on newspapers and periodicals published in English, Oriya, Hindi and Urdu in Bihar and Orissa in 1934. P. 4 in, 'Notes', PS, File No. 1 of 1935 [s.d., printed 17 July 1935], BSA PS 1/1935.
174. D.O. D3360/34, M. G. Hallett to P. C. Tallents, Simla, 27 May 1934; Correspondence: Hallett to Tallents 30 May 1934; Somayajulu to P. C. Tallents, Patna, 7 June 1934, File: 'Re-publication of the Indian Nation. Question of Prosecution of the Editor in Connection with the Publication of the Report of the Non-official Enquiry Committee on Saran Firing', BSA PS 37/1934. According to Henningham, the newspaper was from its inception intended to provide a conservative rival viewpoint to the nationalist newspaper *The Searchlight*. It expressed 'implicit criticism of the Civil Disobedience movement', and had the support of the British official and administration. However, the Maharajahdiraja was also a 'great friend' of Rajendra Prasad and his close connections with INC leaders and donations to the party made the British administration question his political loyalties. Henningham, *A Great Estate and Its Landlords in Colonial India*, 129–31.
175. It had an annual subscription of 2,400 and 3,000 copies in circulation. 'Notes' by PS, p. 15, BSA PS 1/1935 (Appendix D, 7).
176. It had a circulation of 28,000 in 1934 and was thereby the third-largest Indian-owned newspaper in Bengal after *Ananda Bazar Patrika* (circulation 40,012) and *Dainik Basumati* (circulation 35,000). Govt of Bengal, Political Department, *Annual Report on Indian Papers Printed or Published in the Bengal Presidency: For the Year 1934*, 'Confidential' and 'For Official Use Only.' (Superintendent, Government Printing, Bengal Govt Press, Alipore, Bengal, 1935), 1, 16. BSA PS 271/1935.
177. *Behar Herald* or *Bihar Herald*, published in Patna, represented the beginning of the English Press in Bihar with its first publication in 1872. 'Appendix D', in 'Notes' by PS, pp. 3, 15, BSA PS 1/1935.
178. The committee members were: Rajendra Prasad, President, Baldeva Sahay and Syed Mohammed Hafeez, Secretaries, R. C. Pandit, Treasurer. BCRC, *Devastated Bihar*, 27. Unfortunately the spring issues of 1934 are missing from the holdings in NMML (New Delhi), Zentrum Moderner Orient (Berlin) and Cambridge University Library. Archival visits and email correspondence (Cambridge) in 2010.

179. It was one out of twelve newspapers in circulation in Patna district in 1934 and was, in terms of its opinions of the government, only matched by the Hindi newspapers *Navashakti* and *Yogi*. In Patna district, twelve newspapers were in circulation in 1934, out of which *The Searchlight*, *Earthquake Relief [Bulletin]*, *Indian Nation*, *Behar Herald*, *Patna Times* and *Patna Law Times* were published in English; *Navashakti*, *Yogi* and *Bhandaphore* were published in Hindi; *Jamhoor* and *Ittehad* in Urdu; and *Beyapar Market Report* in English, Hindi and Bengali. 'Notes' by PS, p. 4, BSA PS 1/1935.
180. N. Kumar, *Journalism in Bihar*, Bihar District Gazetteers. Patna (Govt of Bihar, Gazetteers Branch, Revenue Department: Secretariat Press, 1971), 57–59.
181. It was published tri-weekly in English with an annual subscription of 1,500 and circulation of 4,000 copies, printed at the Searchlight Press, Patna. The proprietor was Bihar Journals Limited, Editor, Publisher and Printer Murli Manohar Prasad, Patna. 'Appendix B: Newspapers and Periodicals Started in 1934', and 'Appendix D', in 'Notes', by PS, BSA PS 1/1935.
182. BCRC, *Devastated Bihar*.
183. 'Foreword' by Baldev Sahay and Syed Mahommed Hafeez (Secretaries), in BCRC, *Devastated Bihar*.
184. Until 15 February 1934 according to 'Foreword' by Baldev Sahay and Syed Mahommed Hafeez (Secretaries), in BCRC, *Devastated Bihar*.
185. The month of publication was probably end of February or earliest mid-March. The foreword was dated 2 March 1934, see *ibid.* An advertisement for the publication was published in *ABP*, 22 March 1934.
186. The *Earthquake Relief Bulletin* (alternatively referred to as the *Earthquake Bulletin*), published weekly in English from the Searchlight Press in Patna. Annual subscription 300, and 1,000 in circulation, ceased publication in the first quarter of 1934. The keeper of the press was the publisher Murli Manohar Prasad, Proprietor Bihar Central Relief Committee; the editor was Professor Manorajan Prasad. ('Appendix B: Newspapers and Periodicals Started in 1934', in 'Notes' by PS, p. 18, BSA PS 1/1935). The bulletin, like BCRC's other publications, was printed at the Searchlight Press and published by BCRC's Publicity Department (*ibid.*, 'Appendix D', 5, 14.) Also mentioned by Rajendra Prasad in *Autobiography* (New Delhi: Penguin Books India, 2010 [1946]), 355.
187. Rajendra Prasad, *Devastated Behar: The Problem of Reconstruction* (Patna: published by Publicity Officer, Bihar Central Relief Committee, d printed by Murli Manohar Prasad at the Searchlight Press, n.d. [end February to 10 March 1934]), 23 pp. In BCUL PC 1076. Pierre Cérésolle had read the booklet in Switzerland in February or March 1934, after which he contacted friends in England about the idea of sending

- volunteers to Bihar. Lilian Sinclair Stevenson to Pierre Cérésolle, 'Information Given by C. F. Andrews to Lilian Stevenson on March 16th, in Cooldars, Gerrard's Cross' (1934), BCUL PC 990: 39.
188. BCRC, *Report for the Period Ending 30th June 1934*, 4.
189. Visits to the Ramakrishna Mission Ashram, Patna, in February 2010, and to the Ramakrishna Mission Institute of Culture, Golpark, and the Belur Math, Kolkata, March 2010.
190. The Marwari Relief Society was established and registered under the Indian Companies Act 1913. Head Office, 7-1 Jugmohan Mullick Lane, Calcutta. Honorary Sec. Kanoria, Marwari Relief Society, to Sec., Behar Govt, Calcutta 29 January 1934, File: 'Loan of Officers from Other Provinces and Appointment of a Number of B.E.s to Tender Technical Advice to Private Persons Reg. the Safety of Their Houses', BSA RE 65/1934. The Honorary Secretary was Jwalaprasad Kanoria (alt. Jwala Prasad Kanodia). According to the final report of the Marwari Relief Society, it was compiled after a document referred to as 'Preliminary Report of the Earthquake' with an audited account of its funds had been circulated to donors. Calcutta, Marwari Relief Society, *Report of the Behar Earthquake Relief Work*, published by Jwalaprasad Kanoria, General Sec. (Calcutta, March 1935), 5, 7.