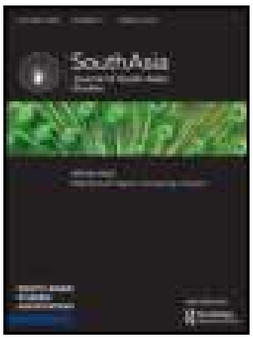

South Asia: Journal of South Asian Studies

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/csas20

Famine in a Rice Economy: Natural Calamities, Grain Scarcity and the Company-State in Bengal, 1770–1803

Baijayanti Chatterjee

To cite this article: Baijayanti Chatterjee (2023): Famine in a Rice Economy: Natural Calamities, Grain Scarcity and the Company-State in Bengal, 1770–1803, South Asia: Journal of South Asian Studies, DOI: 10.1080/00856401.2023.2178186

To link to this article: https://doi.org/10.1080/00856401.2023.2178186

Published online: 19 Mar 2023.

SOUTH ASIA: JOURNAL OF SOUTH ASIAN STUDIES
https://doi.org/10.1080/00856401.2023.2178186

Routledge
Taylor & Francis Group

ARTICLE

Famine in a Rice Economy: Natural Calamities, Grain Scarcity and the Company-State in Bengal, 1770–1803

Baijayanti Chatterjee

Department of History, Seth Anandram Jaipuria College, University of Calcutta, Kolkata, India

ABSTRACT

This paper analyses the conjuncture of factors that led to famines in late eighteenth century Bengal, a province in which, due to the fluvial ecology and monsoonal climate, the cultivation of rice predominated. I demonstrate that the exclusive dependence on rice crops created conditions of agricultural insecurity, which in turn was taken advantage of by merchants and hoarders of grain in a bid to profit from artificially enhanced prices. The East India Company, acquiring political authority in Bengal in the mid eighteenth century, was unable to break through the monopolies of the grain dealers. In addition, its experiment with grain storage in large public granaries (*golas*), intended to overcome food shortages, also failed on account of mounting costs and the irrevocable tension between *laissez-faire* and state interventionism, which ultimately led to the abandonment of the granary system. I argue that a combination of rice monoculture, mercantile strategies, and lack of effective state intervention was ultimately responsible for transforming natural calamities and the ensuing food shortages into full-scale famines in Bengal in the eighteenth century.

KEYWORDS

East India Company; famine; natural calamities; rice cultivation

Introduction

This paper attempts to provide an in-depth analysis of famines in late eighteenth century Bengal through a microstudy of the functioning of the rice economy of the region. The causes of famines—defined as episodes of acute starvation on a large scale[1]—have been highly contested. Broadly speaking, there are three different schools of thought. The first approach on famine causation is demographic and was given 200 years ago by the English priest turned economist Thomas Malthus. Malthus argued that 'human populations could not increase indefinitely in a world of limited natural resources—famine would eventually intervene to regulate population growth

CONTACT Baijayanti Chatterjee chatterjeebaijayanti@gmail.com

1. Tirthankar Roy, *How British Rule Changed India's Economy: The Paradox of the Raj* (Cham: Palgrave Macmillan, 2019): 116. For a wider discussion on famine definitions, see William A. Dando, *The Geography of Famine* (London: V.H. Winston & Sons, 1980): 57–65.

and balance the demand for food with food supplies'.[2] As a theory of famine causation, Malthusianism was used in India in the late nineteenth century to advocate free market economics and minimal state interference,[3] but the theory has been widely critiqued by modern scholars.[4] The second approach to famine causation is environmental and revolves around the idea that nature is the primary trigger of famine conditions through climatic aberrations like drought or floods. This view of famine causation gained ground in India from the 1880s when official enquiries advocated the view that famines occurred in the country due to an essentially vulnerable agricultural environment.[5] The nationalist discourse on the Indian economy emerging in the early 1900s did not accept either the demographic or ecological explanation of famines.[6] Anti-government and nationalist writers like William Digby and R.C. Dutt blamed the British government's policy of land assessments and free trade as the primary cause of India's poverty and food shortages.[7] Later writers like B.M. Bhatia also held colonial rule responsible for the destruction of the institutions of caste, joint family and the village community, which in an earlier era had afforded social security to the individual against occasional food shortages.[8] In contrast, Kingsley Davis and Michelle Burge McAlpin analysed how the development of railways and irrigation works under British rule significantly reduced the risks of food shortages.[9] But the contention that British modernising principles ended Indian famines was challenged by Ira Klein, who showed how the ideas of social Darwinism and Malthusianism inherent in colonial policies restricted the ability of the colonial state to combat food shortages despite the tools and techniques of modernisation that were at its disposal.[10] That capitalist modernisation and colonialism heightened vulnerability to famines was demonstrated by Mike Davis and Vinita Damodaran. While Davis argued that the severe nineteenth century drought-induced famines in India were precipitated by El Nino events and the dictates of a London-centred world market, Damodaran stressed on the 'whittling away' of the ability of local populations to withstand famine as a result of the loss of traditional livelihoods and 'ecological

2. Stephen Devereux, *The New Famines: Why Famines Persist in an Era of Globalization* (London: Routledge, 2007).
3. S. Ambirajan, 'Malthusian Population Theory and Indian Famine Policy in the Nineteenth Century', *Population Studies: A Journal of Demography* 30, no. 1 (1976): 5–14, https://doi.org/10.1080/00324728.1976.10412717.
4. The most powerful challenge to the Malthusian approach came from Boserup, who argued that population pressure was really the crucial factor which induced continual change in agricultural technology and caused economic development: Ester Boserup, *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure* (London: Allen & Unwin, 1965).
5. Famine Commission Report of 1880, cited in Roy, *British Rule*, 119; David Arnold, 'Famine in Peasant Consciousness and Peasant Action Madras 1876–78', in *Subaltern Studies III*, ed. Ranajit Guha (Delhi: Oxford University Press, 1984): 62–115; 65.
6. Romesh C. Dutt, *Famines and Land Assessments in India* (London: Trubner & Co., 1900): 17.
7. William Digby, *Prosperous British India: A Revelation from Official Records* (London: Fisher Unwin, 1901); Romesh C. Dutt, *Indian Famines: Their Causes and Prevention* (London: P.S. King & Son, 1901).
8. B.M. Bhatia, 'Famine and Agricultural Labour in India: A Historical Perspective', *Indian Journal of Industrial Relations* 10, no. 4 (1975): 575–94, http://www.jstor.org/stable/27765494.
9. Kingsley Davis, *The Population of India and Pakistan* (Princeton: Princeton University Press, 1951); Michelle Burge McAlpin, 'Dearth, Famine, and Risk: The Changing Impact of Crop Failures in Western India, 1870–1920', *The Journal of Economic History* 39, no. 1 (1979): 143–57, http://www.jstor.org/stable/2118916.
10. 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, https://doi.org/10.1177/001946468402100203

disempowerment'.[11] For anti-imperialist scholar Nicholas Dirks, the eighteenth century in India represented a long period of imperial scandal when the excesses of early capitalism manifested in the ruthless collection of revenue, and the predatory nature of British private trade in Bengal led to the severe famine of 1769–70.[12]

While the culpability of the colonial state takes centre stage in these recent analyses on Indian famines, a major turn in famine theorising took place in the 1980s with the publication of Amartya Sen's classic monograph, *Poverty and Famines*.[13] Unlike previous theories of famine causation that linked subsistence crisis to an overall decline in volume of food available, Sen's 'entitlement approach' focussed on the disparities in distribution that resulted in starvation among specific groups of people in a country or region. In the context of the Bengal famine of 1943–44, Sen challenged the view that the famine was caused by what he termed as Food Availability Decline (FAD), and asserted that it was the result of entitlement losses whereby certain sections of society lost their purchasing power in the market. Despite being one of the most authoritative explanations for modern famines, Sen's entitlement approach has not gone unchallenged. Critics argue that Sen needs to acknowledge at least a partial role of food shortages and the factors which cause them especially in the long term.[14] Moreover, Sen's views on famine causation, though relevant to modern debates on food supply, have been less applied in the case of premodern famines. O'Grada for one suggests that recent famines differ from historic famines in terms of the enhanced role of distributional shifts or entitlement losses, rather than output declines per se.[15] However, evidence from late eighteenth century Bengal, as this paper suggests, indicates both distributional shifts and entitlement losses.[16] Therefore, an attempt has been made in this work to review late eighteenth century famines in the light of Sen's theory of Failure of Exchange Entitlements (FEE). But rather than viewing the FAD and the FEE approaches as being antithetical to each other, this paper appreciates the nuances of both theories. The paper demonstrates how crop failures and ensuing food shortages in a rice economy were exacerbated by a widespread supply failure in the grain market caused by the mercantile strategies of indigenous grain merchants and ineffective intervention by the early colonial state.

11. Mike Davis, *Late Victorian Holocausts: El Nino Famines and the Making of the Third World* (London: Verso, 2002); Vinita Damodaran, 'The East India Company, Famine and Ecological Conditions in Eighteenth-Century Bengal', in *The East India Company and the Natural World*, ed. Vinita Damodaran, Anna Winterbottom and Alan Lester (Basingstoke: Palgrave Macmillan, 2015): 80–101; Vinita Damodaran, 'Famine in Bengal: A Comparison of the 1770 Famine in Bengal and the 1897 Famine in Chotanagpur', *The Medieval History Journal* 10, nos. 1–2 (2007): 143–81. https://doi.org/10.1177/097194580701000206. I borrow the term 'ecological disempowerment' from Dominik Collet, 'Predicting the Past? Integrating Vulnerability, Climate and Culture during Historical Famines', in *Grounding Global Climate Change*, ed. H. Greschke and J. Tischler (Heidelberg: Springer, 2015): 39–57; 51.
12. Nicholas B. Dirks, *The Scandal of Empire: India and the Creation of Imperial Britain* (Boston, MA: Harvard University Press, 2006).
13. Amartya Sen, *Poverty and Famines: An Essay on Entitlement and Deprivation* (Oxford: Oxford University Press, 1982).
14. Utsa Patnaik, 'Food Availability and Famine: A Longer View', *The Journal of Peasant Studies* 19 no. 1 (1991): 1–25, https://doi.org/10.1080/03066159108438469; David Arnold, *Famine: Social Crisis and Historical Change* (Oxford: Basil Blackwell, 1988): 46.
15. Cormac Ó Grada, 'Making Famine History', *Journal of Economic Literature* 45, no. 1 (2007): 5–38; 10, http://www.jstor.org/stable/27646746.
16. I owe this insight to my supervisor, Prof. Datta: see Rajat Datta, 'Subsistence Crises and Economic History: A Study of Eighteenth-Century Bengal', in *A Cultural History of Famine: Food Security and the Environment in India and Britain*, ed. Ayesha Mukherjee (London: Routledge, 2019): 37–51; 37.

In *Famine, Philanthropy and the Colonial State*, Sanjay Sharma has argued that the experience of famine was closely intertwined with the quest for legitimacy of rule by the colonial state.[17] Although principles of political economy advocated *laissez-faire*, the humanist and pragmatist concerns of the state led to the adoption of a series of interventionist policies. In the context of late eighteenth century Bengal, this essay deals with the attempts of the East India Company (EIC) to track crop outputs and prices and its decision to intervene in grain markets as part of its experiment with grain storage. The failure of the EIC's efforts is explained in terms of the underlying tension between *laissez-faire* and state interventionism that persisted in official circles with regard to famine relief in the latter decades of the eighteenth century. Nevertheless, the experiment with grain storage is viewed as an important landmark in the evolution of the EIC's famine relief policies. It demonstrated the adaptive role of the early colonial state in reaction to a subsistence crisis and how responses to famines became more varied and complex as colonial rule gradually consolidated and its knowledge base increased.[18] But before undertaking this discussion on the role of the colonial state, it is necessary to look into the functioning of Bengal's wet rice economy with reference to local topographical conditions, susceptibility to droughts and floods, and the credit relations which bound the peasants to the merchants and dealers in grain.

The dominance of rice cultivation

The cropping pattern of Bengal was to an extent peculiar, for everything depended on the outcome of a single crop—rice. Since very early times, rice formed the primary crop of cultivation in Bengal. According to the *Ain-i-Akbari*, the imperial gazetteer of Mughal India, there were so many different varieties of rice grown in Bengal that 'if a single grain of each kind were collected, it would fill a large vase'.[19] Writing in the second half of the sixteenth century, Ralph Fitch considered Bakla and Sonargaon as the places in Bengal where there was a great 'store of rice' that was also exported to other parts of India and to places outside India such as Ceylon (now Sri Lanka), Pegu and Malacca in modern-day Malaysia and Sumatra in modern-day Indonesia.[20] Two eighteenth century Persian treatises also provide evidence regarding the dominance of rice cultivation in Bengal's total agricultural output. The *Riyaz-us-Salatin* considers the crop of Bengal to be 'all paddy whether fine or coarse',[21] and the *Risala-i-Ziraat* mentions that in Bengal, food crops other than paddy were only secondary in importance.[22] Based on figures given by early colonial officials like Colebrooke, it has been estimated

17. Sanjay Sharma, *Famine, Philanthropy and the Colonial State: North India in the Early Nineteenth Century* (Delhi: Oxford University Press, 2001).
18. In his recent essay, Roy emphasises the need to consider the notion of an "adaptive state" in famine scholarship: Tirthankar Roy, 'Indian Famines: "Natural" or "Man-Made"', in *In Quest of the Historian's Craft: Essays in Honour of Professor B.B. Chaudhuri*, ed. Arun Bandopadhyay and Sanjukta Das Gupta (New Delhi: Manohar, 2018): 75–103; 81.
19. Abul Fazl Allami, *Ain-i-Akbari, Vol. 2*, trans. Col. H.S. Jarrett (Calcutta: Royal Asiatic Society of Bengal, 1949): 134.
20. Ralph Fitch, 'Ralph Fitch 1588–91', in *Early Travels in India 1583–1619*, ed. William Foster (London: Oxford University Press, 1921): 1–47.
21. Ghulam Husain Salim, *Riyazu-s-Salatin*, trans. Maulavi Abdus Salam (Calcutta: Baptist Mission Press, 1902): 21.
22. Anonymous, *The Risala-i-Ziraat*, in *Perspectives on Medieval History*, ed. and trans. Harbans Mukhia (New Delhi: Vikas Publishing House, 1993): 268.

that rice formed about 46 per cent of the total agricultural output of Bengal in the eighteenth century.[23]

Three main varieties of rice were grown by the Bengali peasant—the *aus* (summer rice), the *aman* (winter) and the *boro* (spring), of which the *aman* was the finest and the *aus* the coarsest. The *boro* crop was essentially grown in the lagoons and morasses.[24] These three main varieties of rice however had an endless number of subspecies, such diversity arising principally on account of the different seasons of cultivation and the adaptability of the rice crop to different soil situations. In Rangpur, the *aman* rice was subdivided into *ropa dhan,* which was transplanted, and *bona dhan,* which was sown broadcast. Of this, the *ropa* rice had 170 different subspecies.[25] In the marshes of Jessore and Khulna, the *raida*—a special variety of 'floating paddy'—was grown in masses called *dhaps* that 'were driven by the action of wind from one field to another'.[26] There were also special varieties of fragrant rice grown in districts like Burdwan.[27]

Rice also formed the primary grain of consumption in Bengal. William Tennant estimated that the chief food articles of daily consumption for a family of five people were about eight pounds (or 0.09 maunds/ca. 3.62 kg) of rice, two pounds (ca. 907 g) of split peas and two ounces (ca. 57 g) of salt.[28] Estimates for 1794 indicate that 1,200,000 people were expected to consume 1,400,000 *mans* of rice over a period of three months.[29] Rice was not only used as a food grain but also made into various food items like *muri* (puffed rice) and *chira* (flattened rice) consumed by the peasantry. Paddy was used to manufacture the only sweetmeat consumed by the Bengal peasantry—the *mudki*—which was parched paddy (with the husk taken off) dipped in treacle.[30] Because of the high rate of consumption, grain was the principle article in the internal trade sector.[31] Although other commercial crops like sugar cane, betel and tobacco were grown in Bengal, these required a larger capital investment than a rice crop. The cost of cultivating a *bigha* of rice was Rs3.87, while the cost of cultivating a bigha of *paan* (betel) was Rs30 in 1791.[32] Tennant points out that among the 'imperfections of husbandry' in Bengal was the too scanty cultivation of the more

23. Rajat Datta, *Society, Economy and the Market*: *Commercialization in Rural Bengal, c. 1760–1800* (New Delhi: Manohar, 2000): 76, Figure 1.
24. Radhakamal Mukherjee, *The Changing Face of Bengal: A Study in Riverine Economy* (Calcutta: University of Calcutta, repr., 2009): 94–95.
25. W.W. Hunter, *A Statistical Account of Bengal, Vol. 7* (London: Trubner & Co., 1876): 235–37.
26. Mukherjee, *Changing Face*, 95.
27. Rev. Day mentions ten different varieties of rice grown in Burdwan of which one species of fine and fragrant rice was known as *radhuni-pagol* or cook-maddening, for, in preparing it, the cook went mad with joy! Rev. Lal Behari Day, *Govinda Samanta: The History of a Bengal Raiyat* (London: Macmillan & Co., 1874): 201–2.
28. Rev. William Tennant, *Indian Recreations, Vol. 2* (London: C. Stewart, 1804): 3.
29. Tilottama Mukherjee, *Political Culture and Economy in Eighteenth-Century Bengal: Networks of Exchange, Consumption and Communication* (New Delhi: Orient Blackswan, 2013): 244. The *man* or maund was a measure of weight generally used in India but varying in its value in different places. There were two kinds of maund in Bengal: the 'bazaar maund', weighing 82 lb, and the 'factory maund' of approximately 74 lb. See H.H. Wilson, *A Glossary of Judicial and Revenue Terms* (London: W.H. Allen & Co, 1855): 326.
30. Day, *Govinda Samanta*, 156.
31. Mukherjee, *Political Culture*, 244.
32. Datta, *Society, Economy and the Market*, 40, 48. The *bigha* was a measure of land that varied in extent in different parts of India. In Bengal, the *bigha* contained only 1600 square yards, or a little less than a third of an acre. Wilson, *Glossary*, 85

valuable crops like tobacco, sugar, indigo, cotton, mulberry and poppy.[33] But given the low production costs for cultivating rice, it is but natural that the bulk of the 'resource-constrained' peasantry should eagerly take to its cultivation.[34]

The agro-ecological conditions of rice production

The fluvial topography of Bengal and its monsoonal climate was particularly suited to rice cultivation, the primary precondition of which was the availability of water. Six distinct river systems washed Bengal: (1) the north-western Mahananda-Atrai system; (2) the north-eastern Karatoya system; (3) the western Bengal river system consisting of the tributaries of the Bhagirathi—the Ajay, Mayurakshi, Damodar and Rupnarain; (4) the Ganges system and its spill channels; (5) the Brahmaputra; and (6) the Meghna system.[35] These rivers were crucial to the deposition of sediments and the annual inundation which resulted in the fertile soil on which the rice crop largely depended. Apart from fertilising the land, the rivers also acted as channels of transport for conveying surplus produce. Rennell estimated that all the salt and a large proportion of the food consumed by ten million people were conveyed by water within the kingdom of Bengal and its dependencies.[36] The crucial role of the rivers in sustaining the regional trade in grain is proved by the fact that occasional changes in the river courses had disastrous impact upon the grain trade. In 1787, due to a high flood, the river Teesta abandoned its old course and joined the Brahmaputra. As a result of the diversion, the Purnabhaba, the Atreyi and the Karatoya rivers (into which the Teesta had previously flowed) deteriorated.[37] So by 1794, the grain trade of the entire district of Dinajpur was on the decline. The collector reported that the grain merchants had deserted the district as a result of the total failure in navigation. According to the collector's report, 'neither the Attri [*sic*] nor Purnabubba [*sic*]' were 'navigable in the Rains for even common sized loaded Grain Boats except on some sudden floodings, which scarce lasts above five or six days at a time'.[38] A second crucial factor to the cultivation of rice in Bengal was rainfall. From March to May rain fell in Bengal on account of the Nor'westers (or the Kalbaishakhi) and again around September to October. This early and late rainfall, more than the total annual rainfall, determined the fortunes of agriculture.[39]

As regards the techniques of rice cultivation, many contemporary European observers commented on the rudimentary nature of the agricultural implements and

33. Tennant, *Indian Recreations*, 2, 11.
34. Datta, *Society, Economy and the Market*, 37–38.
35. Mukherjee, *Changing Face*, 142.
36. James Rennell and Joseph Banks, 'An Account of the Ganges and Burrampooter Rivers', *Philosophical Transactions of the Royal Society of London* 71 (1781): 87–114; 87–8, http://www.jstor.org/stable/106517.
37. S.C. Majumdar, 'Rivers of the Bengal Delta', in *Rivers of Bengal: A Compilation*, ed. Kumud Ranjan Biswas (Kolkata: Government of West Bengal, 2001): 1–102; 45–7.
38. John Eliot to G.H. Barlow, letter, Board of Revenue Grain, October 15, 1794, West Bengal State Archives (henceforth, WBSA), Kolkata, India.
39. It may be pointed out in this connection that the Nor'Westers of Bengal are hot weather storms caused due to the 'interaction between the damp sea winds and the dry winds from the interior of Bengal and Assam, supplemented by the action of the hills in giving rise to vigorous forced ascent'. The early rainfall in Bengal is due to the Nor'Westers, though they sometimes develop into tornadoes that cause great destruction of life and property. Mukherjee, *Changing Face*, 35, 33.

practices in Bengal without comprehending how the system of wet-rice cultivation was fundamentally different from agricultural practices in the wheat regions of Europe. The absence of the practice of crop rotation, for instance, is noted by Colebrooke. He observes that the rotation of crops, which 'engages so much the attention of enlightened cultivators in Europe, and on which principally rests the success of a well conduced husbandry', was not understood in India.[40] Regarding fallowing, Tennant says, 'the Indian allows [the land] a lea, but never a fallow'.[41] Colebrooke further denounces the practice of dung being used as fuel instead of as manure[42] and deplores the want of capital and large farms in Bengal's agricultural production.[43] Most of these observers, however, analyse Bengal's agriculture from the perspective of Europe with its emphasis on manuring, livestock and the creation of large farms. Yet, scholars have argued that agricultural development in most Asian states followed a very different trajectory from that in Europe.

In the wet-rice economies of monsoon Asia, as Francesca Bray has demonstrated, crop rotation, fallowing or the extensive use of manure were not required, for the soil type here was much less important than the water supply.[44] Further, rice cultivation did not exhaust the productive capacity of the soil. On the contrary, several years' continuous cultivation increased the fertility of the rice fields.[45] It was for this reason that the rice farmers preferred to work existing fields more intensely, rather than opening up new ones which would, at least for the first few years, be less productive than the ones that had been cultivated for long.[46] Small wonder then if the Bengali peasant did not use manure for the rice land. Despite the repeated remarks of European observers on the agricultural backwardness of Bengal and the 'indolence' of the native cultivator in extending the arable area and cultivating commercial crops, there was an inherent peasant rationality in the method of rice production that was linked to the ryot's needs and notions of risk aversion.[47] As a heavy-yielding staple best suited to the topographical conditions of Bengal, rice provided security against the repeated threats of dearth and famine in the eighteenth century. From 1761 to 1800, 13 recorded cases of harvest failures and scarcity occurred,[48] of which the drought-induced famine of 1769–1770, also known in Bengali as the *chiattorer-monnontor* or the calamity of '76 (from the Bengali year 1176), and the flood-induced famine of 1787–88 were perhaps the severest. In the following section, I examine the geographical asymmetry in the occurrence of droughts and floods in Bengal and what impact such disasters had on the subsistence requirements of the peasants.

40. H.T. Colebrooke, *Remarks on the Husbandry and Internal Commerce of Bengal* (Calcutta: Statesman Steam Printing Works, repr., 1884 [1804]): 27.
41. Tennant, *Indian Recreations*, 2, 16.
42. Colebrooke, *Remarks*, 41.
43. *Ibid.*, 45–6.
44. Francesca Bray, *The Rice Economies: Technology and Development in Asian Societies* (Oxford: Basil Blackwell, 1986).
45. *Ibid.*, 28.
46. *Ibid.*, 29.
47. Datta, *Society, Economy and the Market*, 56–66.
48. *Ibid.*, 243.

Droughts and floods: The geography of disasters

The lower part of the eastern Indo-Gangetic Plains is a delta region formed from the confluence of the two rivers Ganga and Brahmaputra before they meet the sea. For the period under review, a major ecological change in the Bengal delta was the eastward march of its active portion so that areas situated in the west became moribund. This had important consequences in terms of demographic growth and agricultural production. According to Kanangopal Bagchi's study, the active delta situated in eastern Bengal was agriculturally more productive and supported a higher density of population than the western parts.[49] Of the different varieties of rice in Bengal, the *aman* crop grew on low-lying lands and was a 'crop of the submerged delta', while the *aus* paddy grew on relatively high land and required the least supply of water among the different varieties of rice. Hence eastern Bengal, located in the active delta, became particularly conducive to the cultivation of the *aman*, while in western Bengal, the cultivation of *aus* paddy became predominant.[50] In eastern Bengal, especially in the Jessore and Bakarganj Sundarbans, the frontiers of cultivation also advanced rapidly,[51] although the crop introduced in the newly reclaimed lands was also rice. Beveridge describes the western part of the Bakarganj district and the central and southern portions down to the Sundarbans as 'one vast rice-field, sprinkled with trees and villages'.[52]

As a result of the eastward movement of the active delta, the western parts of Bengal became more vulnerable to droughts and drought-induced famines, as here the rivers had lost connection with their parent streams and were replenished only by the monsoons. The famine of 1769–70 was caused by a prolonged drought and the western districts were more affected by it than the eastern parts. During the famine, the district of Bakarganj continued to supply rice to Calcutta (now Kolkata).[53] Purchases were also made in the remote eastern district of Sylhet, which abounded with rice during the famine of 1769–70.[54] In 1784, however, Sylhet, situated near a hilly tract of country, experienced heavy rainfall as 'a large body of water came down in a torrent from the Jaintah and Cachar hills in the course of one night' leaving 'few villages' and 'scarcely any ryotts'.[55] Unlike northern and western Bengal, southern and south-eastern Bengal located in the active delta of the Ganges were more prone to floods. Cyclonic disturbances were also common in these parts. In 1787, the southern and eastern parts of Bengal were flooded after heavy rainfall. In Sylhet, the collector reported the river had 'risen 32 feet perpendicular', destroying the *boro* crop of the lowlands. On September 30, Tilman Henckell reported from Jessore that the distresses of the district daily became greater for 'the crops that were before above the surface of the water, and would probably have been preserved, had been immersed by the violence of the wind, and must inevitably be destroyed'.[56]

49. Kanangopal Bagchi, *The Ganges Delta* (Calcutta: University of Calcutta, 1944).
50. Mukherjee, *Changing Face*, 35.
51. Datta, *Society, Economy and the Market*, 68–75.
52. H. Beveridge, *The District of Bakarganj* (London: Trubner & Co, 1876), 3.
53. *Ibid*., 255.
54. W.K. Firminger, ed., *The Sylhet District Records (SDR), Vol. 1* (Shillong: Assam Secretariat, 1913): 3.
55. *Ibid*., 186.
56. Tilman Henckell to John Shore, letter, September 30, 1787, Board of Revenue Proceedings, WBSA.

Although western Bengal was less affected by the flood and famine of 1787–88, unfortunately, in that very year, Burdwan suffered from the rising of the Damodar and the Ajay rivers after heavy rain. On October 9, 1787, the acting collector reported that the rains had swelled the Damodar river to so great a height that 'it is beyond the memory of the oldest Inhabitants of this Place'.[57] Unlike the perennial rivers, the Ganga and the Brahmaputra, which had wide catchment areas, western Bengal was intersected by 'torrential rivers' like the Damodar and the Ajay, whose catchment areas were 'localized in comparatively small blocks'. This meant that 'in case of heavy rain in one part it usually rained heavily throughout the entire catchment area', causing devastating floods.[58] Nevertheless, the fact that eastern and western Bengal were not equally affected by droughts and floods encouraged the migration of people from the affected zones to the less affected areas.[59] Rajat Datta has shown how the drought-induced famine of 1769–70 caused a cross-migration of people from north and west Bengal to the districts in the south-west and south-east, while during the flood-induced famine of 1787, peasants migrated westwards to the districts of Birbhum and Bishnupur and to the towns of Calcutta and Murshidabad from the more eastern districts. Grain import from surplus to deficit areas was also feasible on account of the spatial differences in the occurrence of droughts and floods. Excessive imports, however, raised prices and caused scarcity even in the surplus areas. Early in 1787, the collector of Birbhum reported that perceiving the threat of an impending scarcity, the *byparies* (merchants) had flocked to Birbhum and here grain was 'purchased with such avidity' that eventually a hundred maunds could not be procured 'at first hand'. Prices rose by 150 per cent 'on those of the preceding years' and what was purchased was being speedily exported as soon as cattle could be procured to transport it. The collector therefore hoped that the ryots had been 'prudent enough to preserve sufficient for their own consumption'.[60]

Food shortage and the grain merchant

Erratic weather conditions caused crop failures, but crop failures did not necessarily lead to famines. An extensive failure of crops however brought to the forefront the 'basic conflicts and entitlement problems within [a] peasant economy'.[61] In this section, I examine how food shortages compounded into famines in late eighteenth century Bengal through the activities of the indigenous grain traders who played a crucial role in the functioning of Bengal's wet-rice economy. Although Bengal produced super-abundant harvests of rice for internal consumption and trade,[62] yet grain

57. Charles A. Bruce to John Shore, letter, October 9, 1787, Board of Revenue Miscellaneous Proceedings, WBSA.
58. Majumdar, 'Rivers of the Bengal Delta', 41.
59. Datta, *Society, Economy and the Market*, 268–71.
60. J. Sherburne to John Shore, letter, January 29, 1787, Board of Revenue: Miscellaneous Proceedings, WBSA.
61. Malabika Chakrabarti, *The Famine of 1896–1897 in Bengal: Availability or Entitlement Crisis* (New Delhi: Orient Longman, 2004): 94.
62. According to Martin's estimate, the district of Dinajpur produced 36,800,000 *mans* of rough rice, of which 4,400,000 *mans* were exported and there remained in the district 23,250,000 *mans* (Calcutta weight). This was sufficient to feed 4,000,000 persons in a district the population of which was estimated at only 3,000,000: Montgomery Martin, *The History, Antiquities, Topography and Statistics of Eastern India Vol. 2* (London: Wm H. Allen, 1838): 686–7.

cultivation even in normal years functioned under a system of advances from grain merchants repaid with interest by the ryots. In Birbhum and Bishnupur, for instance, *byparies* (traders) made their advances to the ryots in the Bengali months of *Asin* and *Kartik* for grain, to be repaid at the market price in the month of Pous when a settlement of accounts would take place once the crops were sold,. From the time of advance to the adjustment of accounts, the ryots paid an interest of two annas per rupee.[63] In Burdwan as well, the poorer class of ryots received advances from grain merchants and others long before their crops 'are fit to gather', and it was supposed that almost half of the crop on the ground was already engaged for in this manner.

In years of plenty, the cultivators lacked the means of storing the excess grain. Grain was principally hoarded by grain merchants in large granaries or *golas*. Apart from the peasants, rural artisans also did not possess grain reserves beyond their daily needs and were thus vulnerable to high market prices.[64] Colebrooke says that some grain was stored by the Bengali peasant in 'jars of unbaked earth, or in baskets made of twigs or of grass',[65] but he does not say how much grain was stored in this manner. He adds that the practice of storing grain in subterraneous hoards, as was done in Benares and in the western provinces, and also in South India, was not practicable in the damp climate and moist soil of Bengal. Here grain had to be hoarded in bulk above the ground in *golas* that were in the nature of 'round huts, the floor of which is raised a foot or two from the surface'.[66] The *golas* were generally made of *saul* posts, grass, bamboo, mats and twine. A *gola* for 5,000 maunds of grain could be about 20 cubits[67] broad, 30 cubits long and nine cubits in height. The estimated expense of building a *gola* was 200 sicca rupees (henceforth Sa. Rs.),[68] and therefore beyond the power of the ordinary peasant. Rice could be well preserved in these *golas* for about five years, and paddy for about twice that length of time.[69]

In times of scarcity, the merchants and rural elites in possession of large *golas* were ideally placed to profit from the hoarding of grain. Once the cost of grain had reached an all-time high, stocks were released by them with the motive of profiteering from the increased prices. Instances of such profiteering during the famine of 1769–70 can be found in the lengthy proceedings of the EIC. On July 25, 1772, the Committee of Circuit at Kasimbazar issued an advertisement requesting respondents to give information on alleged monopolies of grain made by natives as well as Europeans during the famine. On the publication of the advertisement, complaints were received from the zamindars and ryots of Purnea regarding the conduct of D*iwan* Devi Singh, who had allegedly monopolised rice and oppressed the ryots for revenue. According to the petition of the Purnea ryots, Singh, in the beginning of the

63. J. Sherburne to John Shore, letter, January 29, 1787, Board of Revenue: Miscellaneous Proceedings, WBSA.
64. Datta, 'Subsistence Crises and Economic History: A Study of Eighteenth Century Bengal', in *Cultural History of Famine*, ed. Ayesha Mukherjee (London: Routledge, 2019): 50.
65. Colebrooke, *Remarks on the Husbandry*, 37.
66. *Ibid.*, in footnote 6..
67. According to the *Oxford English Dictionary*, a cubit is an ancient measure of length derived from the forearm, usually about 18–22 inches.
68. James Graham to G.H. Barlow, letter, November 4, 1794, Board of Revenue Grain, WBSA. The sicca rupee was a prevalent form of currency in Bengal. See James Prinsep, *Useful Tables Forming an Appendix to the Journal of the Asiatic Society* (Calcutta: Bishop's College Press, 1840): 1.
69. S. Davis to G.H. Barlow, letter, October 17, 1794, Board of Revenue Grain, WBSA.

year of famine, purchased the produce of the ryots at an under price of two maunds of rice, and in some places two and a half maunds, per rupee. Towards the end of the year, he sent his people to forcibly enter the ryots' houses and grab their rice, load it in bullock-carts and transport it to Singh's own granaries in Purnea. Devi Singh sold the hoarded rice at the rate of three or four seer for a rupee.[70] The ryots went to complain to John Graham at Murshidabad, but Singh had them seized on the way and imprisoned. Devi Singh was also alleged to have set up a watch at the ferries and *chokies* to prevent anyone from going to Murshidabad to complain. Despite such grievous allegations from the ryots, both the collector of Purnea, a Mr. Ducarel, and the Committee of Circuit later absolved Devi Singh of the charges of monopolising rice. He was, however, removed from his office subsequently in view of popular resentment.[71]

Two years later, the EIC issued fresh orders against 'the secreting of grain and the artificial enhancement of the price', caused by 'withholding the public sale of it by monopolies or illegal combination of the merchants'.[72] It also attempted to limit the purchasing power of individual merchants by allowing the buying of only a fixed proportion of the grain depending upon the general harvest and the consumption capacity of the country.[73] Nevertheless, during the drought of 1775, at Murshidabad, it was reported that the merchants who were bringing grain to the city had 'ordered their boats to be detained in the Jellingee' in hopes of a further rise in prices, thereby increasing considerably the distress of the inhabitants of that city.[74] During the scarcity of 1783, the newly constituted Committee of Grain was instructed to adopt 'measures of paternal interference' by investigating the causes of sudden rises in price and punishing merchants who refused to bring their grain to the market and sell it at a reasonable price.[75] Yet the famine of 1788 witnessed similar attempts by merchants to corner and monopolise the sale of grain, thus artificially enhancing prices.[76]

Food shortage and the state

Probably in an attempt to prevent the hoarding of grain and the artificial enhancement of prices by merchants, the EIC decided to track the actual state of crops, harvests and prices in the different districts of Bengal. In 1774, the Council at Fort William instructed the Provincial Council of Revenue at Dacca (now Dhaka) to provide a 'report of the present condition of the country, the expected produce of the approaching harvests, the quantity of grain remaining of the last year's harvests, spec-

70. Committee of Circuit, Kashimbazar, to G.G. Ducarel, letter, August 5, 1772, WBSA. 40 seers make one *man*. See footnote 29 for an explanation of *man*.
71. Nani Gopal Chaudhuri, *Cartier—Governor of Bengal, 1769–1772* (Calcutta: Firma K.L. Mukhopadhya, 1960): 88.
72. Warren Hastings to William Lambert, letter, August 23, 1774, Proceedings of the Provincial Council of Revenue at Dinajpur, WBSA.
73. Warren Hastings to William Lambert, letter, August 23, 1774, Proceedings of the Provincial Council of Revenue at Dinajpur, WBSA.
74. Provincial Council of Revenue at Murshidabad to Warren Hastings, letter, July 27, 1775, WBSA.
75. Anonymous, *Further Report on the Famine in Bengal and Orissa in 1866* (Nagpore: Chief Commissioner's Office Press, 1867): 33.
76. Datta, 'Subsistence Crises', 99, 101–2.

Table 1. Loss of crops in Murshidabad *zila* in 1775, supposing the whole to be divided into 16 parts or annas.

District	Proportion of the full crop expected to be produced Annas	Proportion of the full crop expected to be lost Annas	% loss in crops
Rajshahi	11	5	31
Rokunpur	10	6	37
Futtysing	9	6	37
Thanah Cutwah	13	3	18
Silberris *talukdars* (smaller landholders)	11	5	31
Beerbazo	12	4	25
Lushkerpore	11	5	31
Chundelhy	9	7	43
13/16th division			
Messidah	10	5	31
Ticawul	9	7	43
Shahrun	9	7	43
Chunacolly	9	6	37
Jahangirpur	11	5	31
Hattinda	10	6	37
Mancour	10	6	37
Kasimpur	10	6	37
Kerpa	10	6	37
Asadnagar	13	2	12
Sonapur	12	4	25
Mucoond	9	7	43

Source: Provincial Council of Revenue at Murshidabad to Warren Hastings, letter, September 11, 1775, WBSA.

ifying the principal places at which it is supposed to be deposited'.[77] The Council was further ordered to enquire into the amount of grain consumed within the district and the proportion reserved for seed.[78] In the case of a natural calamity, the EIC also ascertained the extent of crop damage in order to prevent famine (Table 1).

Such crop reports were however compiled through local agencies such as the native zamindars, farmers, zamindari *vakils* and *sezawals*, who reported from different parts of the province. Tracking the nature of harvests and crop outputs obviously enabled the EIC to foretell scarcity and arrange for the import of grain from areas of surplus production. During the famine of 1787–88, the government ordered 30,000 maunds of rice to be sent from the neighbouring province of Bihar, but only 3,000 maunds were received.[79] The EIC also attempted to regulate grain exports from districts that were in the throes of scarcity and shortfall. In such cases, intervening in the regular functioning of the market, the EIC-state resorted to embargoes on exports.[80] Such embargoes had been part of Mughal famine policy in Bengal and 'expressed a strategy of local autarky in bad times'.[81] The collection of monthly price data as delivered by the zamindars and farmers also helped the EIC foresee a famine situation. Generally, grain prices determined the prices of all other commodities.[82]

77. Warren Hastings to Richard Barwell, letter, August 23, 1774, Proceedings of the Provincial Council of Revenue at Dacca, WBSA.
78. *Ibid.*
79. M. Day to John Shore, letter, April 26, 1788, Board of Revenue Miscellaneous Proceedings, WBSA.
80. Mukherjee, *Political Culture*, 258.
81. David L. Curley, 'Fair Grain Markets and Mughal Famine Policy in Late-Eighteenth-Century Bengal', *Calcutta Historical Journal* 2 (1977): 1–26.
82. Mukherjee, *Political Culture*, 245.

Sharp rises in prices provided famine warnings but years of abundant harvest leading to fall in prices could be as destructive to agricultural and revenue operations as a year witnessing a harvest failure. In 1774, the raja of Dinajpur complained that the ryots were deserting the province in large numbers because grain was too cheap.[83] In 1775, the *shikdar* of Baharband also reported that grain was so cheap that the ryots had deserted their lands.[84] It was therefore necessary for the EIC to track price movements within the district in order to cope with both dearth and overproduction in agriculture.

The granary experiment

Another innovation with regard to famine relief was the EIC's decision to establish large state-sponsored granaries all over Bengal. These granaries were to work on the principle of disposing of a quantity of the stored grain annually 'at the seasons when it usually rises in price', and replacing it with 'purchases made at height of the harvest, when it is always cheapest'. The venture was not altogether new, for pre-British Indian rulers had built public granaries and experimented with grain storage.[85] By the mid eighteenth century, public granaries had also proliferated across Europe as 'agents of food security' during famines.[86] However, from the EIC's perspective, the granary experiment marked an important landmark in terms of providing institutional relief during famines. In 1770, the EIC's reaction to agro-ecological dislocations was largely revenue-centric, but by the 1790s, the EIC had managed to penetrate deeper into the Bengal countryside. Collectors were expected to be aware of current market prices in all the districts in their charge and grain intended for storage could be procured at cheaper rates through their agency rather than by contract.[87] The paralysing effects of the famine of 1769–70 had probably made the EIC more vigilant about the need to check future occurrence of such scarcities. But apart from this, the EIC's soldiers and artisans involved in the manufacture of investments had to be protected from food shortages. Therefore, alongside a genuine desire to avert famines, the EIC remained particularly attentive to the needs of its soldiers and artisans,[88] and the granary experiment was perhaps the inevitable outcome of its increased penetration into rural Bengal and its pragmatic concerns about protecting its soldiers and artisans.

In 1784, the governor general and his council recommended the construction of 'buildings of solid masonry' to serve the purpose of 'perpetual granaries' in the provinces of Bengal and Bihar. Accordingly, the chief engineer was instructed to commence building the first one at Patna.[89] However, it was not until 1795 that public

83. Petition of Raja of Dinajpur, June 9, 1774, Proceedings of the Provincial Council of Revenue at Dinajpur, WBSA.
84. Petition of the *Shikdar* of Baharband, November 7, 1775, Proceedings of the Provincial Council of Revenue at Dinajpur, WBSA.
85. H.S. Srivastava, *The History of Indian Famines 1858–1918* (Ghaziabad: ASR Publications, 2014): 15.
86. Collet, 'Predicting the Past?', 49–50; Dominik Collet, 'Storage and Starvation: Public Granaries as Agents of Food Security in Early Modern Europe', *Historical Social Research* 35, no. 4 (2010): 234–52.
87. J. Shore to William Cowper, letter, March 11, 1796, The Grain Office or Clerk and Inspector of Public Granaries, WBSA.
88. Kumkum Banerjee, 'Grain Traders and the East India Company: Patna and Its Hinterland in the Late Eighteenth and Early Nineteenth Centuries, *Indian Economic and Social History Review* 23, no. 4 (1986): 403–29; 421.
89. Further Report on the Famine in Bengal and Orissa in 1866 with Appendices (Nagpore: Chief Commissioner's Office Press, 1867): 34.

Table 2. Estimate of the quantity of grain directed to be stored in the government *golas* in Bengal in 1795. Figures copied directly from the archives.

District	Quantity directed to be stored	
	Rice maunds	Paddy maunds
Burdwan	120,000	100,000
Birbhum	45,000	–
Sylhet	–	1,30,000
Jessore	50,000	2,00,000
Purnea	125,000	60,000
Bakarganj	200,000	–
Dinajpur	–	50,000
Dhaka	–	100,000
Rangpur	50,000	200,000
Rajshahi	130,000	45,000
Ramghur	15,000	15,000
Boglepore	–	50,000

Source: Governor-General in Council to W. Berrie, letter, October 16, 1795, The Grain Office, 'Accounts of Grain Lodged in Public Granaries 1794–1798', no. 26, WBSA.

Table 3. List of the EIC's *golas* and their respective costs. Figures copied directly from the archives.

List of the EIC's *golas*		Cost of *golas* (rupees)
Burdwan	89 *golas* of about 3,000 maunds each	20,440
Jessore	113 *golas* of about 3,000 maunds each	11,398
Birbhum	18 *golas* of about 3,000 maunds each	1323
Sylhet	25 *golas* of about 4,000 maunds each	5032
Ramghur	11 *golas* of about 3,000 maunds each	670
Purnea	43 *golas* of about 4,000 maunds each	10,192
Bakarganj	52 *golas* of 6,000 maunds each	14,067
Dinajpur	17 *golas* of 3,200 maunds each	1105
Dhaka	22 *golas* of 5,000 maunds each	6804
Boglepur	11 *golas* of 5,000 maunds each	1755
Rangpur	43 *golas* of 5,500 maunds each	8132
Rajshahi	36 *golas* of 4,000 maunds each	7926
Benares	7 *golas* to contain 250,000 maunds	Not stated

Source: W. Berrie, The Grain Office, 'Accounts of Grain Lodged in Public Granaries 1794–1798', no. 26, January 7, 1796, WBSA.

granaries were established at Burdwan, Birbhum, Rajshahi, Jessore, Purnea, Bakarganj, Dacca, Sylhet, and the office of the Clerk and Inspector of Public Granaries was created to supervise them. Table 2 gives an estimate of the amount of rice and paddy directed to be stored in these government granaries or *golas*.

Table 3 gives the total expense incurred by the EIC in building *golas* in the different districts of Bengal mentioned above.

The failure of the granary experiment

Despite these elaborate arrangements for stockpiling grain, the EIC encountered several problems in making fresh purchases for its granaries. Collective resistance from the grain merchants forced it to reverse its policy of buying directly from producers at regulated prices and forced it to purchase grain from the merchants even though the latter were known to have sold it at a higher price than the former.[90] On

90. Datta, 'Subsistence Crises', 89.

February 18, 1795, the collector of Purnea reported a rise in prices of grain owing to a combination among the 'Grain Brokers'.[91] Given the cost and difficulty in making fresh purchases, in 1796, it was reported by the Grain Office that 45 of the EIC's *golas* (three at Burdwan, 33 at Culna and nine at Patharcoochy), each with a capacity of 3,000 *maunds*, were lying empty.[92] In 1801, the Board of Revenue reported that there was a considerable deficiency in the stores of grain that were under the charge of the late Mr. Shaw, agent for the provision of grain in the district of Rajshahi. This deficiency rose from the fact that while in 1799, Rs80,507 had been authorised for the purchase of 1,45,000 maunds of rice, only 1,32,173 maunds and 11 seers had been purchased. The price of this reduced quantity, however, exceeded that of the authorised amount and stood at Rs1,08,655.[93] This was because the rates at which the EIC had estimated its purchase were considerably lower than the actual price at which the grain was bought. The EIC's rates were determined 'by the lowest average rate of past grain purchases', whereas the British agents bought grain at considerably higher market prices. This always led to an escalation of the EIC's estimated costs in buying. In the background of this controversy over the Rajshahi public granaries, the EIC drew up a balance-sheet of its expenses with regard to the maintenance of the public granaries from the time of their establishment in 1795. It was found upon enquiry that the total irrecoverable loss sustained by the government since the institution of the Grain Department amounted to Sa. Rs13,39,604, while only Rs7,10,288 had been recovered by the sale of public stores.[94] This huge loss seems to have been the result of wastage as well as the difference in the cost and sale price of the stored grain.

Apart from considerations of economy, a second factor which may have precipitated the decision to abolish state granaries in 1803 was the development of the Smithian policy of non-intervention during famines. It was argued that high prices alone—the natural outcome of free trade—were capable of exerting the requisite control over consumption during a famine crisis, and hence any intervention in the normal functioning of the market was bound to produce adverse consequences. The granary experiment had forced the state to directly participate in the markets as a major buyer and seller of grain.[95] Such direct participation was not only unprecedented but even within the colonial official circles, such intervention in the normal functioning of the market was frowned upon as it was thought to discourage private enterprise.[96] Already in 1794, in a lengthy letter to the chairman and court of directors of the EIC, Thomas Law, previously a member of the Board of Revenue in Bengal, had advocated the policy of governmental non-interference in respect to the functioning of the market during a famine. In justifying his position, Law quoted Adam Smith at length, suggesting that 'a famine has never arisen from any other cause but the violence of Government attempting by improper means to remedy the

91. Y. Burges to G.H. Barlow, letter, February 18, 1795, Board of Revenue Grain, WBSA.
92. The Grain Office, 'Accounts of Grain Lodged in Public Granaries 1794–1798', no. 26, January 7, 1796, WBSA.
93. J. Buller to Peter Speke, letter, October 2, 1801, from the Board's Collections 1804–1805, India Office Records, British Library, London.
94. *Ibid.*
95. Banerjee, 'Grain Traders', 422.
96. For the arguments against state intervention, see James W. Furrell, 'Famines in India and Duty of the Government in Connection with Them', *The Calcutta Review* 58 (Calcutta: Thomas S. Smith, 1874).

inconvenience of a dearth'.[97] This inherent tension between state interventionism and principles of political economy persisted and was ultimately responsible for the abolition of the Grain Office.

Towards a comparative perspective

In the foregoing sections I have demonstrated how peasants in the rice economy of Bengal remained susceptible to subsistence risks so that even slight changes in weather brought about the spectre of dearth and famine to the peasant household. Yet it is not my intention here to argue that rice economies are essentially famine-prone or that the cultivation of rice is by itself a precondition for disaster. The point being made here may be better illustrated using the comparative tool. Like Bengal, the Indonesian island of Java was a rice country. Until the nineteenth century, Java remained South-East Asia's largest producer of rice[98]—the so-called 'granary of the East'.[99] Although Javanese peasants experienced the *paceklik* or recurring annual period of pre-harvest food shortage,[100] famines (unlike Bengal) were rare on the island, at least according to the testimonies of the colonial officials writing at the turn of the century.[101] From the 1830s, however, the situation changed with the introduction of the *cultuurstelsel* or the cultivation system under which the production of export crops like coffee, sugar and indigo gained prominence over the cultivation of rice. While the impact of the cultivation system on the Javanese peasantry varied widely across Java and is still disputed, scholars have demonstrated that the extensive production of cash crops at the cost of rice hampered the subsistence security of the Javanese peasants. Bad harvests were followed by the warehousing of rice by local elites and Chinese merchants.[102] By the 1860s, the system came under sharp attack most notably by the former colonial official, Eduard Douwes Dekker, whose novel *Max Havelaar*, published under the pseudonym Multatuli, gave a most vivid account of the famines in nineteenth century Java as a result of the region's integration in the world market system.[103]

If the cultivation of rice was crucial to the subsistence security of the Javanese peasant, the building of granaries and the storage of grain was integral to the political commitments of the Chinese state based on a larger programme of 'nourishing the

97. Thomas Law to William Devaynes Esqr., Chairman, and Court of Directors of the Hon'ble United East India Company, letter, April 5, 1794, WBSA.
98. M.C. Ricklefs, *A History of Modern Indonesia since c. 1200* (Stanford: Stanford University Press, 2001): 19.
99. John Splinter Stavorinus, *Voyages to the East Indies, Vol. 1* (London: G.G. & J. Robinson, 1798): 231.
100. W.R. Hugenholtz, 'Famine and Food Supply in Java 1830–1914', in *Two Colonial Empires: Comparative Studies on the History of India and Indonesia in the Nineteenth* Century, ed. C.A. Bayly and D.H.A. Kloff (Dordrecht: Martinus Nijhoff Publishers, 1986): 155–88.
101. Dirk Van Hogendorp (1800), in his memoir on Java, writes: 'In the article of rice, Java possesses advantages superior to Bengal … the navigation from and to Bengal is always more difficult than that from and to Java, from whence, at all seasons of the year, the passage may be made to most parts of India: and in Bengal it often happens, that the rice is very scarce and dear, and even that a famine rages there. On the island of Java, on the contrary although the crops may sometimes partially fail in a few places, a general and total failure never happens: at least there is no instance of it on record': quoted in Thomas Stamford Raffles, *The History of Java, Vol. 1* (London: John Murray, 1830): 240.
102. Ricklefs, *A History*, 160.
103. Multatuli, *Max Havelaar or the Coffee Auctions of the Dutch Trading Company* (Edinburgh: Edmonston & Douglas, 1868): 68.

people' (*yang min*). Like Bengal, the southern part of China was crucially dependant on the rice crop.[104] Yet China seems to have avoided a catastrophic famine of the proportions that hit Bengal. This, I argue, was due to the policy of active intervention followed by the Chinese state. When a natural calamity occurred, the Chinese state responded by conducting disaster surveys.[105] After the survey, public food relief was provided in villages that were classified as disaster areas in the form of monthly distribution of free foodstuff to disaster victims. The Chinese also maintained large state-sponsored ever-normal granaries (*changpingcang*) that functioned on the simple principle of selling stored grain in the spring when the market price was high and purchasing grain after the fall harvest when the market price was low with the funds accumulated from the earlier grain sales, thereby keeping grain prices and granary stocks 'ever-normal'. These state-sponsored granaries were stocked from public purchase and private donations as well as with the grain tax imposed by the Chinese state.[106] The state granaries were complemented by community granaries (*shecang*) in the villages and by charity granaries (*yicang*). Unlike Bengal, the granary network was thus more widespread in China and the grain tribute was crucial in stocking these public granaries.

Kathryn Edgerton has demonstrated that the ideology of the Chinese state was fundamentally different from that of the British empire in India.[107] The Chinese called disasters such as floods and droughts '*tianzai*', or heavenly calamities, but they recognised that famines, or '*zaihuang*', resulted from the interaction of human and natural forces. A series of recurrent disasters was seen as a sign that the reigning dynasty no longer possessed the mandate of heaven and therefore the rulers had to do everything in their power to forestall the decline of their dynasty.[108] Active interference by the Chinese state and bureaucracy was the lynchpin of Chinese famine relief efforts, unlike in British Bengal where the tension between *laissez-faire* and interventionism constrained the state's ability to implement a more liberal and effective scheme of famine relief. While the granary experiment marked an important landmark in terms of the state's ability to provide institutional relief during famines, its failure also indicated deep divisions within the colonial official hierarchy with regard to the nature and extent of the state's intervention during famines. Therefore, rather than characterising the early colonial state as a homogenous and unvarying entity, I have sought to emphasise its 'heterogenous' and 'adaptive' character.[109] Moreover, traditional historiography views famine as a problem of either 'availability' (FAD) or 'entitlement' (FEE). In this paper I have sought to combine the two seemingly

104. In the area south of the Yangtze river, rice was the main crop, and in the area to the north, wheat and a wide range of other cereal grains were important: Randolph Barker, Robert W. Herdt and Beth Rose, *The Rice Economy of Asia* (Washington, DC: Resources for the Future, 1985): 246.
105. Pierre Etienne Will, *Bureaucracy and Famine in Eighteenth Century China*, trans. Elborg Forster (Stanford: Stanford University Press, 1990): 110.
106. *Ibid.*, 191.
107. Kathryn Edgerton Tarpley, 'Tough Choices: Grappling with Famine in Qing China, the British Empire, and Beyond', *Journal of World History* 24, no. 1 (2013): 135–76, http://www.jstor.org/stable/43286248.
108. Lillian M. Li, 'Food, Famine, and the Chinese State', *The Journal of Asian Studies* 41, no. 4 (1982): 687–707; 689, https://doi.org/10.2307/2055445.
109. For the concept of a heterogenous state, see Leela Sami, *Famine, Disease, Medicine and the State in Madras Presidency (1876–78)* (unpublished PhD thesis, University College, London, 2013). On the adaptive character of the colonial state, see Roy, 'Indian Famines', 81.

exclusive approaches.[110] It is argued that famines in late eighteenth century Bengal occurred under a complex conjuncture of events. Crop failure alone cannot explain their occurrence, but it did sharpen the conflicts and entitlement problems within the rice economy. In this respect, therefore, FAD and FEE do not appear to be contradictory but complementary causes contributing to the crisis. By combining these two theoretical perspectives, it is possible to arrive at a more comprehensive explanation of a complex phenomenon like famine.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Acknowledgements

I am much indebted to my supervisor, Prof. Rajat Datta, for his invaluable suggestions on this paper. I am also grateful to the two anonymous referees of *South Asia* and editor Prof. Kama Maclean for their constructive comments on earlier drafts of this paper. As the article draws from archival sources in the British Library, London, and the West Bengal State Archives, Kolkata, I would like to thank the librarians and archivists at these two institutions for their expertise and assistance. The usual disclaimers apply.

110. It is important to clarify at this point that the entitlement approach *per se* does not discount food shortages as a possible cause of famine, but it criticises any theory that considers this one factor a sufficient and even necessary condition for famine: Donna Lee, 'The North Korean Famine and Food Shortage: The Problem, the Politics, and the Policy', Digital Access to Scholarship at Harvard, accessed September 8, 2022, https://dash.harvard.edu/handle/1/8944674.