COINCIDING INSTANCES OF FAMINES AND EPIDEMICS IN ANCIENT INDIA

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Abstract

Due to fewer historical records, it is generally believed that famines and epidemics were less frequent in ancient India. However, various records depict that ancient India was not immune to these natural catastrophes, and they proved disastrous on some occasions; furthermore, certain other factors also depict the high presence of famines and epidemics. This article aims to identify the factors responsible for frequent and disastrous famines and epidemics in ancient India, such as deforestation, urbanization, invasions, etc, their impacts, and the role of rulers in giving way to these catastrophes and how they responded to them. The findings of the study are based on qualitative research, and it is an analytical work based on secondary sources. The factors such as urbanization, deforestation, trade, migration, wars, and poor living conditions depict that ancient India was no different from medieval and colonial India when it comes to instances of these natural catastrophes.

Key words: Ancient India, Epidemics, Famines, and Ancient Literature.

Introduction:

The ancient civilizations emerged in arid and semi-arid areas near the riverbanks and highly depended on rainwater. As permanent settlements appeared, instances of famines and epidemics increased. People began clearing up land for agriculture, new living space, construction, or other purposes. This marked the beginning of environmental degradation, which had long-term impacts visible during the later eras. Ancient people focused on preventive and curative measures to protect

themselves from diseases. However, urbanization, lack of artificial irrigation, and traditional methods of agriculture could not save them from famines followed by epidemics. The historical period of early historical India is not well chronologically recorded, and it poses difficulty tracing the famines and epidemics.

The Indus Valley Civilization's Settlements:

The Harappans occupied the arid and semi-arid regions, which created problems, and these regions could not support massive urbanization (Agarwal, 2007, pp. 318-319). During the 2nd Millennium BCE, the Harappan people migrated to monsoonal areas such as Doab, but they lacked the experience of living in areas with high rainfall (Agarwal, 2007, pp. 318-319). Similarly, Rajasthan settlements suffered the most as the rivers changed their course and the river Ghaggar dried up, which affected Klibanghan and nearby areas (Agarwal, 2007, pp. 318-319).

Famines and Epidemics in Ancient India:

The recorded history of ancient India shows that it was not safe from famines and epidemics. The pre-Mauryan time had severe famines. As mentioned in the Buddhist scriptures, *Samyutta Nikaya*, *Anguttara Nikaya,* and *Divyadana,* famines cause colossal mortality (Agarwal, 2007, pp. 318-319). Harappan Civilization had well-planned cities but was gradually deserted. As climate change during this era coincided with the dissertation of cities, people migrated to other areas (Marris, 2014, para. 2). The migration must have resulted in famines and epidemics.

The Sanskrit text, *Yuga-Purana* mentions a twelve-year famine in India (Sahi, 1970, p. 164). It was the time when Sakas (nomadic Iranian groups who migrated from Central Asia to modern-day Pakistan) occupied the region around the river Sipra (Sahi, 1970, p. 164). Water was so scarce that it was only in the main rivers. The famine severely affected the Gangetic valley as people depended on the monsoon rains (Singh, 2009, pp. 6–7). There was a famine in Kashi, Kosala, Magadha, Rajgir, Vaishali, Kuru, and Shravasti, due to which people abandoned their homes and migrated in search of life (Sahi, 1970, p. 164). Under Mahabharata king Samvaran, there was a famine in Kuru for twelve years (Sahi, 1970, p. 164). Water bodies dried up during this period and annihilated animals and trees (Sahi, 1970, p. 164). People abandoned towns and became cannibals (Sahi, 1970, p. 165). Famine mentioned in the Sanskrit text, *Chandogya Upanishad* (6th-8th century BCE), ravaged a district for twelve years (Ganguli, 1933-34, p. 178). These horrific details of the famine days in the Sanskrit text, *Yuga-Purana* reflect the occurrence in ancient times. A long-duration famine also occurred under Chandragupta Maurya ((r. 324 or 321 – c. 297 BCE) and in the post-Mauryan period mentioned in *Mahabharata* and *Ramayana* (Ganguli, 1933-34, p. 188).

During the Atharva Vedic period (c.1000-900 BCE), crops got affected due to pest attacks and climatic transition. People linked the fluctuating natural conditions to divinity as they believed it to be the wrath of God. Jain sources also refer to widespread famines, droughts, and pestilence (Biswas,

2013, p. 191). The *Jatakas* also have references to famines resulting from floods and heavy rainfall (Biswas, 2013, p. 189). *Brihat Samhita* (4th-5th century) refers to droughts, rainfall, long-duration famines, pestilence, disease, and plague (Biswas, 2013, p. 190).

Pestilence also followed famines as the incidence of pestilence can be found in *Chandogya Upanishad*, *Yuga Purana, and* Jataka stories (Biswas, 2013, pp. 194-195). The towns were densely populated, due to which they suffered more, as one can find references to famines in the cities of *Samyutta Nikaya, Cullavagga,* and *Mahavagga* (Biswas, 2013, p. 195). Migration was also visible during famines as it was the only solution to escape hunger (Biswas, 2013, p. 195). Similarly, urban centers under the Mauryan Empire did not have hygiene or sanitation like the Indus Valley Civilization, as many epidemics of plague, cholera, leprosy, and tuberculosis were carried from India to other areas by trade in the post-Mauryan era (Avari, 2007, p. 119). The collection of Buddha's sayings, *Dhamma Pada,* mentions the plague in Bhadravathi which resulted in the death of animals and humans (Biswas, 2013, p. 195). People migrated to other cities but suffered due to famine in the neighboring areas (Biswas, 2013, p. 196).

Smallpox emerged in India in the seventh and fourth centuries in China, respectively ("History of Smallpox," 2021, para 1-4). Smallpox, in 10,000 BC, appeared in northeastern Africa and spread to India via Egyptian merchants (Meštrović, 2021, para 2-3). This shows that smallpox in India has an ancient history. Trade was one of the primary reasons for the spread of certain plagues and diseases, and ports became a hub for disease spread. India has had sea-borne trade since ancient times and must have been ravaged by diseases; most of them have remained unnoticed in history. An ancient Indian physician of the 5th century BCE, Sushtura, described diseases like cholera (Chaturvedi & Ramalingam, 2020, p. 94). It shows that cholera was present in India even during the 5th century and was not a new epidemic in the medieval or colonial era.

An Indian physician and surgeon, *Sushtra,* mentioned the horrors of the plague and gave it the name *Agairohini* (Biswas, 2013, p. 198). Due to this plague, lumps appeared in the armpit area, and fever killed people within fifteen days (Chaturvedi & Ramalingam, 2020, p. 94). These symptoms resembled bubonic plague (Chaturvedi & Ramalingam, 2020, p. 94). Thus, it might be true that the bubonic plague emerged in India and later in the rest of the world.

Sanitation and Hygiene:

The urbanization from 4000 BC-3500 BC at Harappa and Mohenjo-Daro during the pre-Vedic times was highly developed (Pushpangadan, Sharma, and Kaur, 1987, p. 2). Thus, the Indus Valley civilization had a proper drainage system and public and private baths and was highly aware of health and sanitation (Pushpangadan, Sharma, and Kaur, 1987, p. 2). The street had pipes that collected and transferred the water to the street drains (Agrawal, 2007, p. 2). Thus, the waste was taken to the end of the streets (Agrawal, 2007, p. 2). There were bathing facilities in all the houses of Harappa and a well-planned drainage system in the city (Biswas, 2013, p. 198). Apart from public wells, there were

also private wells and latrines in Mohenjo-Daro and Harappa in urban settings, indicating contamination or pollution (Pushpangadan, Sharma, and Kaur, 1987, p. 2). The Indus people were the first to build an efficient drainage system in urban areas (Pushpangadan, Sharma, and Kaur, 1987, p. 225). Good sanitation and sewage systems can be found in the urban centers of the ancient Indian civilizations, which depicts that the condition of areas other than urban centers was poor.

Causes of Famines and Epidemics in Ancient India:

Natural factors played a significant role in giving way to famines and epidemics in ancient India. India was an agricultural country, and the oldest civilizations settled near rivers, thus making rainfall essential for survival. Drought was the primary cause of famine in ancient India (Biswas, 2013, p. 56). The abandonment of some areas before the late Harappan and post-Harappan sites indicates that these places were inhabited due to famines (Biswas, 2013, p. 56). A two-century drought resulted in the downfall of the Indus Valley Civilization (c. 3300-c. 1300 BCE) (Biswas, 2013, p. 56). From the rocks of a lake, paleoclimatologist, Yama Dixit, and her colleagues estimated that monsoon rainfall ceased and badly affected the subsistence of South Asian people (Maris, 2014, para 3).

The palaeoclimatologist Sushma Prasad also concluded that drought began 4600 years ago but gradually became acute in 4200 (Maris, 2014, para 3-5). One of the reasons why Mohenjo-Daro was abandoned was that the Indus River, the source of life, had changed its course over time (Agrawal, 2007, p. 301). Droughts in Banaras, Kosala, Veranja, Kalinga, Vrijji country, Nalanda, Rajgrha, Anga, Kosala, and Magadha show that the wet eastern regions were also vulnerable to famines apart from western and northern regions (Agrawal, 2007, pp. 60-61). The literacy sources in ancient India are flooded with instances of famines but assigning a date to these events is not possible (Agrawal, 2007, p. 62).

Flooding was another major factor that resulted in famines in ancient India. During prehistoric and proto-historic times, the settlements in Sindh, Punjab, Kutch, Gujarat, Bahawalpur, and north Rajasthan near riverbanks where flooding remained a problem (Biswas, 2013, p.67). Flooding played a massive role in the downfall of Harappan culture as the silt deposits at the sites such as Mohenjodaro revealed that the floods destroyed the city many times (Biswas, 2013, p. 67). During the pre-Harappan and mature Harappan period (2600-1900 BCE), the urban area, Kalibangan also suffered from flooding (Biswas, 2013, p. 70). The agricultural technical development of the Harappan people was not advanced, so they settled near the rivers, which sometimes became the reason for their destruction (Biswas, 2013, p. 71). Even the later Vedic people did nothing for flood prevention (Biswas, 2013, p. 76). They prayed to God Indra for rain and offered food sacrifices (Biswas, 2013, p. 78). Flooding mainly resulted from excessive rainfall and has also been mentioned in *Jataka* tales (Biswas, 2013, p. 81).

An increase in population affected the carrying strength of the land (Biswas, 2013, p. 87). When the population increased significantly, but the production remained the same, the land could

not support the people after some time, thus resulting in famines. People had no surplus as the soil no longer supported irrigation due to floods, droughts, or other reasons. Any catastrophe that destroyed crops resulted in famine as the available food was insufficient to feed all the people (Biswas, 2013, p. 102). The population increase was visible during the mature Harappan period (2600-1900 BCE) as it became a significant urban center (Biswas, 2013, p. 94). This population increase exploited the lands, as the lands no longer remained fertile due to soil degradation, making arid lands more prone to famines (Biswas, 2013, p. 96).

The urban centers were visible during the early Harappan period (Agrawal, 2007, p. 319). The emergence of urban centers must have resulted in increased epidemics due to people's closer contact, making them more exposed to contagious diseases. The historians such as Lambrick, Fairservis, and Chakrabarti estimated that the population of Mohenjo-Daro was 35,000, 41,240, and settlements of 12.5 hectares with 5000 or above, respectively (Biswas, 2013, p. 101). Thus, the exploitation of land resources due to increased population resulted in famines during prehistoric times (Biswas, 2013, p. 102).

The ecological imbalance was witnessed due to deforestation and decreased grasslands (Biswas, 2013, p. 103). The Arthashastra mentions that kings should maintain forests, but deforestation was visible in ancient India (Ganguli, 1933-1934, p. 180). Due to deforestation, rainfall and water level declined, and organic matter from bones and animals decreased, thus, making the land barren (Ganguli, 1933-1934, p. 180). There were fewer references to drought in ancient India when there were more forests (Biswas, 2013, p. 103). Deforestation began from 600 BC onwards due to agricultural expansion, resulting in frequent famines in the Christian era (Avari, 2007, p. 53). Grasslands also decreased as in arid climatic areas, there was less rainfall and more droughts, so the animals relied on neighboring grasslands (Biswas, 2013, p. 104). Waterlogging also caused soil degradation in Harappan sites such as Punjab (Biswas, 2013, p. 107). The decrease of grasslands resulted in soil erosion, making the land infertile, and due to droughts, these lands resulted in famines (Biswas, 2013, p. 107).

The lack of artificial irrigation deeply impacted the emergence of famines as traditional methods were not enough to produce a surplus for the increasing population. Timely rainfall predicted crop production as excessive rainfall destroyed crops, and less rainfall also destroyed the crops (Biswas, 2013, p. 133). Artificial irrigation was needed, and the Harappan people dug wells for this purpose, but the late Harappan period had no reference to wells (Agarwal, 2007, p. 140). Similarly, *Rig-Veda* (*ancient Indian collection of Vedic Sanskrit hymns*) also refers to wells for irrigation as late Vedic people worked on artificial irrigation (Biswas, 2013, p. 134). Canal irrigation can be found in the Harappan site, Lothal, and *Rig-Veda* (Biswas, 2013, p. 135). It increased during the later Vedic times as after 600 BC; it became rampant (Biswas, 2013, p. 136).

After 600 BC, a stagnation occurred in technology, and the population went on increasing, thus resulting in famines (Biswas, 2013, p. 151). Thus, it implies that technological advancement was

necessary over time to produce surplus food for the increasing population. During food shortages in the early historical period, food was brought into the urban areas and agricultural fields near the urban centers, making food availability easier (Biswas, 2013, p. 139). During the second and third centuries, urbanization expanded under the Mauryan Empire (Singh, 2009, p. 334). Urban planning to some extent, was also visible as there were bathing areas and sewage systems (Singh, 2009, p. 336). With massive urbanization, some epidemics must have occurred, but the intensity of the disease might be at a low scale, like famines.

Aryans invaded India for the first time in 1500 BC and laid the foundation of Hinduism, mainly in the Gangetic plains ("Introduction of Indian agricultural heritage," n.d, p. 18). This period witnessed the beginning of the second urbanization after the Indus valley civilization ("Introduction of Indian agricultural heritage," n.d, p. 18. The Mahajanapadas (sixteen oligarchic republics from the 6th-4th century BCE) witnessed urbanization ("Introduction of Indian agricultural heritage," n.d, p. 18). This period references famines and epidemics, which depicts that urbanization must have given way to food shortages and diseases.

There was a growth of commerce in the Gangetic Valley during the 1st, and 2nd centuries BC, followed by low wages and poverty (Sahi, 1970, p. 171). Famines and epidemics gave it the final blow (Sahi, 1970, p. 171). Under these circumstances, people from all classes (artists, laborers, religious priests) migrated to western and southern regions (Sahi, 1970, p. 171). These calamities have been attributed to the cause of natural phenomena, but human actions played an equal role.

Impacts of Famines and Epidemics:

Even during the Vedic times, famines were so severe that people survived on dog meat (Biswas, 2013, p. 197). Buddhist literary sources such as *Mahavagga* mention that people ate dogs, snakes, and horses to survive famines (Biswas, 2013, p. 197). People indulged in cannibalism as in *svetashi-type* famine; people boiled bones and drank the soup (Biswas, 2013, p. 198). The consumption of such food must have given way to certain epidemics in those areas.

People became less charitable, and religious people closed the doors of food for people (Biswas, 2013, p. 198). Monks and mendicants suffered the most as, during the famine days, no one gave alms, and people even stopped respecting them several times (Biswas, 2013, p. 199). Even famines and epidemics had a profound impact on the family's bond. According to *Dhamma Pada* (collection of sayings of the Buddha), a plague occurred; parents asked their sons to leave town, return after the disaster was over and search for treasure their parents had left (Chaturvedi & Ramalingam, 2020, p. 94). In contrast, people also left their children to die when they could not feed them during the famine days (Biswas, 2013, p. 200).

Another impact of famines, as mentioned in *Satapatha Brahmana (*commentary on the Śukla Yajurveda), *Vassantara Jataka* (most popular jātakas of Theravada Buddhism)*, and Brha Samhita,*

was that robbery increased (Biswas, 2013, p. 200). During the famine days, slavery increased as people sold their children as enslaved people or for prostitution for money or food (Biswas, 2013, p. 201). *Anguttara Nikaya* and Jain traditions, such as *Vyavahara Bhasya,* mention how slavery and prostitution increased during famines in ancient India (Biswas, 2013, p. 201). Another significant impact of famines was that the Buddhist and Brahmanical laws for caste were molded during the famine days (Biswas, 2013, p. 201). Brahmins were allowed to accept gifts from people of any caste during the famine (Biswas, 2013, p. 202).

Remedial Measures:

Since the early historical period, famines have occurred in India, but the administration managed the food shortages better than the later era's rulers. Founder of The Maurya Dynasty, Chandragupta Maurya (r. 324-297 BCE) took several measures to prevent famines by constructing a dam on Sudarsana lake (Biswas, 2013, p. 206). Mahasthana stone plaque of the 3rd century BC and Sohgaura copper plate inscription references famines, and the remedial measures such as grain distribution helped people survive (Singh, 2009, p. 329). Similarly, according to *Sudhanhojana Jataka* and *Ramayana*, the king distributed alms extensively, and it was the king's duty to ensure artificial irrigation, respectively (Biswas, 2013, p. 207).

The Mauryan Empire (321 BCE to 185 BCE) recognized the importance of artificial irrigation by building canals, wells, lakes, and tanks and imposing taxes (Biswas, 2013, p. 137). The Sanskrit epics of ancient India, *Ramayana,* and *Mahabharata* also stress that kings should dig canals (Biswas, 2013, p. 138). After the Mauryan period, people collectively began to build irrigation projects (Biswas, 2013, p. 139). Buddhist sources of the post-Mauryan period also refer to adopting proper irrigation systems such as tanks, dams, and wells (Biswas, 2013, p. 140).

Conclusion:

Famines and epidemics in ancient India appeared in the large permanent settlements, and initially, natural factors such as drought, unpredictable rainfall, and flooding were responsible for its emergence. However, environmental degradation in the form of deforestation decreased grasslands, and soil degradation led to frequent famines and epidemics. One cannot find detailed accounts of famines and epidemics under various dynasties as firstly, the focus of writers was not the general public; secondly, the increased frequency of famines depicted the policy failure of a regime, and no ruler wanted to record anything that showed the failure of his regime. The sanitation system was highly developed in urban centers. However, one can find no reference to sanitation and sewage in the rural areas, depicting that it was poor and might have resulted in absent epidemics due to a lack of recorded history.

References

Agrawal, D.P. (2007). *The Indus Civilization: An Interdisciplinary Perspective.* Aryan Books International.

Avari, Burjor. (2007). *India: The Ancient Past: A history of the Indian sub-continent from c.7000 BC to AD 1200.* Routledge.

Biswas, Atreyi. (2013). *Famines in Ancient India: A study of Agro-economy from Prehistoric to Early Historic Period.* Gyan Publishing House.

Chaturvedi Pankaj and Ramalingam Natarajan. (2020). Into the past in the times of COVID pandemic. *Cancer Research, Statistics and Treatment,* 3, 94-96. https://journals.lww.com/crst/Fulltext/2020/03001/Into_the_past_in_the_times_of_COVID_pandemic.21.aspx.

Ganguli, R. (1933-34). Famine in Ancient India. *Annals of the Bhandarkar Oriental Research Institute, 15*(¾), 176-197. https://www.jstor.org/stable/41694849.

History of Smallpox. (2021). *Centers for Disease Control and Prevention.* https://www.cdc.gov/smallpox/history/history.html.

Marris, Emma. (2014). 200-Year Drought Doomed Indus Valley Civilization. *Scientific American.* https://www.scientificamerican.com/article/200-year-drought-doomed-indus-valley-civilization/.

Meštrović, Tomislav. (2021). Smallpox History. *News medical life sciences.* https://www.news-medical.net/health/Smallpox-History.aspx.

Pushpangadan et al. (1987). Environment, Health, and Hygiene in Ancient India: An Appraisal. *Ancient Science of Life,* VII(1), 1-5. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3331376/pdf/ASL-7-1.pdf.

Sahi, M.D.N. (1970). Famine of the Gangetic Valley mentioned in Yuga-Purana-its Date and Economic Aspect. *Proceedings of the Indian History Congress,* 32, 163-173. https://www.jstor.org/stable/pdf/44141062.pdf?refreqid=excelsior%3Af7d30cd544ef4c6571d6241d1e809020

Singh, Upinder. (2009). *A History of Ancient and Early Medieval India: From the Stone Age to the 12th Century.* Pearson Longman.