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### Famines and Drought in Medieval India: A study of environmental stress and state response

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#### Abstract

This paper examines the recurrent famines and droughts of medieval India, situating them within the intersecting frameworks of environmental stress, agrarian vulnerability, and state response. Using primary accounts such as Ain-i-Akbari, Baburnama, Tuzuk-i-Jahangiri, and Barani's chronicles, along with modern historical analyses, it explores how erratic rainfall, climatic variation, and ecological degradation repeatedly undermined agricultural production and triggered subsistence crises. The Delhi Sultanate and the Mughal Empire alike witnessed episodes where prolonged droughts, combined with exploitative taxation policies, administrative mismanagement, and rapid urban expansion, exacerbated peasant distress and precipitated epidemics such as plague, cholera, malaria, and smallpox.

The study highlights that rulers like Alauddin Khilji and Muhammad Bin Tughlaq experimented with reforms—ranging from price control policies and revenue restructuring to agricultural loans and institutional innovations such as the Diwan-i-Amir-i-Kohi. However, these interventions were often short-lived, inconsistently implemented, or politically compromised, resulting in widespread migration, peasant uprisings, and demographic decline. Simultaneously, irrigation works, tanks, and canals reflected state initiative but were counterbalanced by sanitation failures, ecological imbalance, and water contamination in rapidly urbanizing centers.

By integrating environmental history with political economy, the paper argues that medieval famines were not isolated natural disasters but systemic crises born of the interaction between climate variability, agrarian taxation regimes, and imperial governance. The findings contribute to a nuanced understanding of how environmental stress shaped resilience, vulnerability, and social transformation in premodern South Asia.

**Keywords:** *Medieval India; Famines; Drought; Environmental Stress; Agrarian Crisis; Delhi Sultanate; Mughal Empire; State Response; Epidemics; Climate Variation.*

## INTRODUCTION

Mughal India had a vast geographical zone with peasants cultivating the separate field. As an English visitor noted, they tilled the land and dressed the corn with no remarkable difference from other nations'<sup>1</sup>. During this time India witnessed artificial means of irrigation to feed the land. Tanks and wells were particularly the main source of irrigation. Dhenkli, charas, and saqiya were the most important of all the irrigation techniques. In the northern plains, we can see that the upper Gangetic and the Indus plain were cut to replenish the irrigation. Shahjahan's Nahr-i Faiz was over 15 miles in length, taking off from Yamuna river at the point it leaves the hills, then running, first south-west, and then south-east, to join the parent river at Delhi.

Another very striking feature of the Indian agriculture is the cultivation of food and non-food crops, which makes us distinct from the farming of the other countries, whose knowledge is confined to cultivation of few crops. Ain-i-Akbari gives the detail of 16 crops. The seventeenth century saw the introduction and expansion of two major crops, tobacco and maize. The expansion of tobacco grew manifold on the western coast after 1600, but after 1650 the cultivation saw an immense strike and was grown covering the Indian subcontinent of Mughal empire.

This article especially dwells into the aspect of understanding how famines and drought created tension during the medieval era. The environmental degradation that could be understood in the form of water wastage, urbanization, less focus towards sanitation and hygiene that culminated to cause Epidemic and Famines. These climatic conditions were the major reason behind the degradation of the country which not only impacted the Indian subcontinent but also globally.

### CASE OF EARLY MEDIEVAL ERA:

We saw the frequent use of famines and epidemics in India during the 10<sup>th</sup> century. The first case witnessed around 917-918AD in the region of Kashmir, another case saw during the Delhi Sultanate, particularly during Muhammad Bin Tughlaq. The 14<sup>th</sup> cent political thinker and Muslim historian Ziauddin Barani says, the frequently famine and Epidemic during Muhammad Bin Tughlaq was the exorbitant tax levied on the peasants by the hands of aristocrats.

### How the Climatic Variation works:

<sup>1</sup> Habib, Irfan. "Mughal India-Systems of Agricultural Production." *cambridge.org*. Cambridge University Press, 28 Mar. 2008. Web. 6 Aug. 2025.  
<<https://www.cambridge.org/core/books/cambridge-economic-history-of-india/mughal-india/39A25B0F82EFFEA94FF4829A1310B3A0>>

Climate Variation definitely played a crucial role during the medieval India. Less rainfall in the Himalayas created the situation of rebellion, warfare, tension and conflict which ultimately led to the heavy casualties of citizens and decrease in population. From 1200-1300AD, we saw drastic change in the climate resulting in acute famines. In the late 12<sup>th</sup> century, dry climate spelled in Central Asia, at the same time, Muhammad of Ghor, sultan of the Ghurid empire conquered India, but with the spell of drought over Sindh made him lost the Muslim control over the subcontinent.

We saw a similar case when Firoz Shah Tughlaq sat on his throne as the sultan of Delhi, extreme aridity spelled in his empire, resulting in rebellions throughout his reign. To be precise, from 1300-1400, less rainfall could be seen during his tenure leading to empire's downfall. Many small kingdoms consequently emerged, we also saw an increase in trade, education leading to expansion in rural settlements, urbanisation, which later culminated in many health concern, naming a few epidemics, starvation and more.

### THE DELHI SULTANATE

The Delhi Sultanate was not unknown to epidemic or any other hazardous catastrophe, Iltutmish reign saw a drought leading to hunger and death of many. Famine occurred during Jalaluddin Khilji, a darwesh Siddi Maula was seen plotting against Jalaluddin Khilji, leading to his death, during the same time, storm hit the country, making it more worsened and consequently led to the decline of Khilji Dynasty soon. Sultan Alauddin Khilji (r. 1296-1316) introduced a price control policy, and the price of certain commodities was fixed in Delhi. The Sultan faced Mongol invasions and large-scale conquests that no other Sultan of Delhi had faced. During the days of famine, people were not allowed to buy grains more than they needed. People drowned themselves to avoid famine. It shows that famine in the Khilji dynasty was the outcome of policy failure of the rulers.

### EXPERIMENTS AND REFORMS UNDER MUHAMMAD BIN TUGHLAQ

The failure of the three experiments which are the exodus to deogiri, withdrawal of the token currency and the failure of Khurasan and Qarachil expedition, must have undermined the fame of the sultan in the eyes of the general public. It did effect the treasury of the empire top, but it was quickly recovered by letting out big tracts of land on revenue farming terms (*Muqata*).

Meanwhile, certain agrarian measures adopted by Muhammad Bin Tughlaq created serious distress in the country- Famine, epidemic which lasted for six to seven years and affected large parts of the doab and

Malwa, created widespread peasant-uprising. We also saw that Ghiyasuddin had displaced the sharing of the produce adopted by Alauddin Khilji. According to Barani, the policy adopted by Ghiyasuddin was such that incidence of taxation should be gradual in such a manner that it didn't affect the flourishing state of peasantry. As argued by some historians we do not know at what rate he charges the peasantry, but it was around *one-fifth* of the total produce.

When Muhammad Bin Tughlaq ascended the throne, he attempted to substantially increase the land revenue. Barani says that he increased it from "one to ten or one to twenty". This was only a figure of speech, and twenty times, or one in ten or twenty, i.e. ten to five per cent. We are told new cesses were imposed which are *ghari tax* (house tax) and *Chari Tax* (grazing tax) diligently. These measures led to the destruction of the peasantry and created an agrarian uprising. Barani says, the peasants put the fire on the heap and led their cattle drove away from their homes. Thus, "the whole region was devastated. Cultivation was totally abandoned." The contraction of the cultivation in the doab, the devastation of the peasantry and the collapse of the food grains to reach Delhi led to the famine, also the failure of the rain, shook the prices of the grain making it difficult for the public to buy the necessary items, hence leading to subsistence crisis.

### THE STATE'S RESPONSE

To cope with the famine, various relief camps were opened at Delhi, food grains arrived from Awadh where there was no occurrence of famine. To make it more effective Muhammad Bin Tughlaq started giving *sondhar* (Agricultural loans) to relief the peasants with distress. It was found that during the year 1334-35, famine lasted for about seven years, so to get away from it, Muhammad tried to move to a place on the Ganges, 80km away. This place later came to be called *swarga-dwar* (Gateway to Heaven) and the grain was being supplied to Sultan and the civilians who migrated with him. After returning from the *Swarga-dwar*, he appointed a Diwan called '*Diwan-i-Amir-i-Kohi*', who would look after the cultivation.

During the time of Alauddin, peasants were so tired of paying the exorbitant revenue that they had to sell their wives and belongings to pay the tax. Afif, also recalled the same case during the reign of Firoz Shah Tughlaq that peasants were only left with one cow<sup>2</sup> each. It is possible to argue that the system of agrarian taxation of Delhi sultanate had its roots prevailing in the parts of Punjab and Sindh during the Ghazavid empire. Broadly, we can discern in the thirteenth century three distinct zones within the

Sultanate: first, the area administered fairly closely by the Sultan and his assignees or governors (muqti's walis and so on); second, areas under half-subjugated tribute-paying *raukas* and similar other chiefs, whatever their designations; and finally, the *mawas*, areas on which authority was claimed, but from which no tax or tribute could be obtained.<sup>3</sup>

### MUGHAL EMPIRE: FAMINES AND EPIDEMIC

One major drawback of the Mughal Administration is that they didn't focus on the agrarian expansion which resulted in famine throughout the Indian subcontinent. Quite often, with frequent tendency of famine leading to large scale migration. Babur mentions in his memoirs, *Baburnama*, instances of malaria. The plague wrecked Sindh in 1548, famine occurred in Gujarat in 1565 and year of devastation could be seen, causing death to many people. As recorded in *Tuzuk-i-Jahangiri*, in 1616, the first acute plague epidemic occurred in Punjab. The physicians believed that two years of drought and the changes in the air gave way to these epidemics. Drought and plague co-existed during the year 1682 at Dakhin. Peasants were deemed to be free-born only in name. In an official's letter, where their free-born status is conceded in words, it is nevertheless contended that peasants were not entitled to leave their village and take up cultivation in another place because their poll tax (*jizya*) and land tax (*Kharaj*) must be paid to the assignee of their original village.

Smallpox was not a new disease to be witnessed in India, it has its presence from ancient times, but the intensity increases during the medieval era. Ecological imbalance in the climatic conditions is considered the prime factor for the spread of smallpox. Jahangir in his memoir *Tuzuk-i-jahanagiri* talks about the cholera during his reign. Abul Fazal also talks about the spread of epidemic during the reign of Akbar, Malaria took the lives of many, creating a devastation in the economy.

### Sanitation and Ecological Degradation

Urbanization grew during the Sultanate era, and grew manifold under the Mughals. They took the initiative to build tanks, canals, wells and other irrigation devices to feed the uncultivated land. To this, they built the Kol lake at Fatehpur Sikri and Anguri bagh at Agra. There was an area of demarcation for the rich and the poor by the construction of hammams that was meant for the nobles and the rich class.

Flush toilets were also visible during the Mughal era. Daulatabad was the first identified Islamic city with an extensive drainage system. Similarly, Agra,

<sup>2</sup> 'Afif, *Tarikh -i- Firozshahi*, p. 98.

<sup>3</sup> Minhaj-i-Siraj, *Tabaqat-i-Nasiri* I, p. 491, II, pp. 18, 19, 27, 29;

Fatehpur Sikri, and Shahjahanabad had efficient drainage and sewage systems. The water usage in the urban areas also resulted in contaminated water, and garbage flow near the houses as sewerage was prominent in few cities, and inefficient drainage and sewage must have deteriorated the condition of the people.

## CONCLUSION

The medieval era rulers did take a stern measures to solve the problem of famines and epidemics, but unfortunately these measures came as short term goal. There were rebellions, warfare, conflicts that diverted the attention of the rulers hence not focusing on the measures to improve the artificial irrigation. Urbanisation increased during the medieval period, alarming the spread of epidemic and health concern. However, to fight against such diseases Indian medical system did save the lives of many people.

During the Mughal rule, the country witnessed the climatic change that affected the crop production, but somehow the rulers came with an immediate solution to cater the situation. The ignorance of the rulers alarmed the situation of Famines and drought. Similarly increase in taxation policy worsened the condition of the farmers more. Hence, with the introduction of artificial irrigation in the colonial era, India still continued to be ravaged. People continued to be indulged in many social vices like hoarding, slavery and robbery.

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