

Famines in Mughal India

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The present research paper highlights the causes and consequences of the famines in Mughal India and its ecological affects. How far famines are responsible for the migration spread of diseases and huge number of human losses in the famine affected areas. I also try to discuss the measures adopted by the Mughal Emperors to control the famine affected region.

Keywords: Famines, Mughal, waba, kahat, migration and diseases.

It is believed that war, epidemic (*waba*) and famine (*kahat*) ravished human population leaving scars on its size and demographic composition and presumably, on the structure of the society.¹ During last two million years of their existence, mankind has faced hunger and has developed technologies to reduce it. Improvement in tool-making represent one development and relatively ancient introduction of agriculture some 8,000-10,000 years ago has been another. Both before and after the development of agriculture, human population had to move on and adapt in the scenario of large and gradual environmental changes including the advance and retreat of glaciers as well as the intensification and weakening of the monsoon. The consequent movements and population growth and decline had led to various social conflicts, inequities, and cultural changes. These factors had contributed to food shortage for many human populations, food poverty within communities, and food deprivation within household.² In historical period, we know of many instances when drought, floods, or other environmental catastrophes had severe impact on food supply and distribution as well as on ecological balances. Thus, we can say that the chief concern of the famines lies in the fact that the misery and torment of a water famine have to be endured together with famine of food for people and fodder for beast.

Many countries across the globe from ancient times to modern world have witnessed different types of natural and man-made calamities in which famine was the most prominent which weakened the respective countries or areas and thousands of people and other species had lost their lives and habitats which seriously affected the ecology of the region. There are several references and the government's record of famines³ which occurred in the countries of the world.⁴ A number of devastating famines occurred in the ancient⁵ and medieval India. And in modern times various famines had affected the social life of India.⁶ There was serious dislocation of agriculture and other economic activities causing attenuation of production which lessened the people's power of resistance to withstand the effects of famine, drought, flood or other natural calamities. One of the most important natural causes which attributed a lot to famine was (and is today) the failure of

the Monsoon or early or late Monsoon. Flood and insects also attacked on the standing crops due to changes in climatic condition in respective areas. The intensity and distribution of rain fluctuates widely in space and time, and even the speed with which the monsoon currents move from one region to the other differs markedly year to year.⁷ Famine must have been more frequent than at present due to lack of artificial irrigation system, absence of agricultural technologies, and undeveloped means of transportation and any adequate policy of the emperors for its prevention.⁸ Although the experience of hunger and its most immediate consequences are individual in nature, this experience affects the functioning of the social aggregation within which hunger occurs as well as of hungry individuals themselves. Its root cause lies in natural environment, growth of human populations, their social organisation and technologies, and the interactions between populations and their environments.⁹

The scholars of ancient and medieval India like H. D. Sankhalia, D. D. Kosambi, Romila Thapar, D. N. Jha, R. S. Sharma, Irfan Habib and others have observed that the South Asian Society had always been shaped and reshaped by close interaction between pastoral nomads, agriculturists, and forest dwellers.¹⁰ Sumit Guha in his work has further elaborated this observation by stating that the boundary between the three environmental regions, i.e., forest, grazing lands, and cultivated fields had always been permanent before the advent of the British rule.¹¹ David Hardiman is of the view that the neglect of traditional water works by the colonial state brought drought and famine to the Deccan plateau.¹² Probably, the above cause was the most important regarding famine in Mughal India. These water works in forms of small irrigation systems like tanks, masonry dams, reservoirs, ponds, canals, etc. had successfully avoided the problem of grain shortage in the empire; in fact they paid attention towards the construction of dams, canals, and reservoirs but not in sufficient number. So, all these may be responsible for the visitation of famines in Mughal India.

Famines in Mughal India

Most part of India was covered with natural forest and vegetation, and the presence of varieties of wild animals near human habitat, which maintained the ecological balance. Thus, whenever natural calamities occurred it affected the lives of all abiotic and biotic families. The Mughal sources of the seventeenth century recorded a number of famines but it is incomplete, because we find several mentioned in accounts of the Dutch and English Factories record, which is not mentioned in the Persian chronicles.¹³ Famine is a major preoccupation of geographers, anthropologists, economists and historians of periods other than antiquity.¹⁴ The study of famine leads to a better understanding of the dynamics of particular societies.

A Persian traveller AbdurRazzaq who visited Vijayanagar in 1443, says, "The Empire contained so great a population."¹⁵ But later in 1540, it shows a major decline in the population of Vijayanagar,¹⁶ which is possibly due to famine and other natural calamities.¹⁷ The *Mirat-i Ahmadi* informs us that when Sultan Bahadur sat on the throne of Gujarat in 1526 A.D the region faced a famine which affected lives of the people. As a remedy Sultan Bahadur issued an order for the opening of *langarkhanas* and gave one *ashrafi* to every poor man when he mounted a horse.¹⁸

The author of the *Muntakhab-ut-Tawarikh* mentioned that in 1554-55 a dreadful famine raged in the eastern provinces due to scarcity of rain and uninterrupted warfare for two years especially

in Agra, Bayana and Delhi. The whole region turned a desert, and no husbandmen remained to till the ground. It was also noticed that one *ser* of the grain called *jawar* rose to two and a half *tankas*, and even at that price, it could not be obtained. Many people closed their doors, and died by tens and twenties, and even in greater numbers, and found neither cremation nor burial. Civilians were forced to eat seeds and leaves of the thorny deciduous trees and dry herbage of the forest, thus as a consequence, after a few days *bughma* (swelling) appeared on their hands and feet and they died.¹⁹

With the accession of Akbar in 1556 a famine occurred which was severe in nature. AbulFazl says, the capital was devastated and mortality was enormous.²⁰ Many cities especially Delhi and Agra were devastated due to famine and scarcity of food was so acutely horrible that many men became carnivores. It was noticed that some men joined together and made a person their food.²¹ AbulFazl further elaborates, "In his family of 70 persons, only one *ser* of grain was supplied and his father used to get it boiled and distributed a few grains with a cupful of boiled water, this being the only repast for the whole day and night".²² Badauni also informed us regarding the severity of the famine.²³

Between 1573 and 1595 in the Mughal India about five famines occurred.²⁴ In 1573-74 in the west Gujarat a dreadful famine occurred which lasted about six months. It is said that this famine was not caused by drought or the failure of rain, but was due to destruction of wars and rebellions which continued in the respective areas for a long time. Contemporary historians observe that "the famine occurred on account of misrule and oppression of the Afghans, the Abyssians and the *Mirzas*. The calamity was widespread and covered the whole of Gujarat, and an exodus of inhabitants followed. The mortality was so high that on an average one hundred cart-loads of dead bodies were every day taken out for burial from the city of Ahmadabad alone, and it was impossible to find for them land and cloth for burial. The severity was equally felt in the towns and district of Broach, Patan and Baroda, and in fact in the whole of Gujarat. On account of scarcity the prices of maize, a coarse grain, rose to 120 brass *tankas* for a mound. Grass and fodder for horses and other animals were not available, and they had to be fed on the bark of trees."²⁵ In 1574 a famine broke out in Gujarat followed by pestilence in which thousands of people died.²⁶ In 1576, during the reign of Ali Shah, Kashmir suffered from a devastating famine which was caused by a severe snowfall when paddy crops were still standing in the fields. Thousands of people died for want of food. Those who survived fed themselves on the dead. Many bartered away their children in return for food and many left the country.²⁷ In 1584, the Emperor built two places outside the city for feeding poor and famine affected people one for Muslims called *khairpurah* and another for Hindus called *Dharmapura* and due to immense number of Jogis a third place was built called *Jogipurah*.²⁸ Kashmir again witnessed a famine in 1583-85. In 1595, a famine occurred due to the failure of rains²⁹ and continued up to 1598.³⁰ In 1598, Akbar visited Kashmir third time and found under the grip of severe famine. It affected a large area of Northern India, especially Kashmir and Lahore.³¹ A kind of plague also occurred, due to famine in the area.³² There was such a scarcity of corn that people receded into the most primitive stage of human existence and even resorted to cannibalism. Jerome Xavier writes that a mother would leave her children in the streets to die and the Jesuit

missionaries picked them up and baptized them.³³ Akbar took action immediately by remitting the revenue and opening *langers*. He also ordered a fresh assessment based on *kaghaz-ikham* (actual village papers) and fixed the demand at a half of the produce,³⁴ and deputed Shaikh Farid Bukhari for relief works among the victims.³⁵ And *langars* were opened to distribute cooked food among the starving people.³⁶

In the reign of Jahangir in 1614-15, a severe famine occurred in the Punjab due to drought.³⁷ It ravaged Punjab as far as east of Delhi. But Moreland maintains that the drought was localised in the Punjab only.³⁸ The famine of 1618-19 spread in the Deccan in general and on Coromondal Coast in particular. This famine was very terrible and people suffered maximum hardship. Methwold who left the East Coast in 1622, informed us that the famine ravaged some parts of Vijayanagar.³⁹

In 1623, A.D. scarcity of rain throughout the whole of Hindustan, led a fearful famine which lasted continuously three or four years. The emperor ordered Shaikh Farid Bukhari to check that alms should be distributed in all the cities, did all in his power to relieve the general distress of the people.⁴⁰ In consequence of dearth of grain men ate their own relatives. The streets and roads were blocked up with dead bodies.⁴¹

In 1630-31 A.D. in Gujarat and most parts of Dakhin (Deccan) there was decline in rainfall⁴² and then by excessive rainfall the next year⁴³ which led to severe famine which is locally known as *Sattasiyah*.⁴⁴ The famine had widespread repercussions. It affected Golconda, Ahmadnagar, Gujarat and some parts of Malwa.⁴⁵ The next year, the crops were promising in Gujarat, but were first attacked by mice and locusts and then destroyed by excessive rains.⁴⁶ Inhabitants of the region faced difficulties due to scarcity of food and other eatables. The author of the *Mirat-i-Ahmadi* informs us about the severity of the famine⁴⁷ that "They gave life in exchange for bread and yet no one bought it. They sold a camel for a cracknel and yet it was not worth. A hand that always remained extended did not open except for begging bread; feet that always covered the plain of wealth did not measure except the path of begging. A dog's flesh was cooked in place of a goat's meat and bones of carcasses mixed with flour were sold."⁴⁸ But whenever it came into knowledge of the ruler the sellers were punished. The contemporary author further explained that "Ultimately, people began to eat one another's flesh due to extreme hunger. No one moved out alone through fear of some persons meeting him and eating his flesh. Anyone who after great hardship, obtained respite from promised death and found strength of walking in him, went to villages and towns of other province.⁴⁹ This region which is noted for fertility,⁵⁰ it is heard that people of Ahmadabad suffered more intense hardship and adversity than those of other regions."⁵¹ Thus, exodus occurred in the direction of less affected areas. Johan Vian's record of 7th October, 1630, in The English Factories records informs us that "He saw two small boats full of poor people that came from Combay bound for the Deccan country, by reason of extreme famine in Combay and all the Mughals country."⁵² As consequences of the hardship of the famine ruler issued an order that the *Mutsaddiyan-iMahmat* (officials) looking after the affairs of Burhanpur, Ahmadabad and Surat opened the *AashpaizKhana* (langer or free kitchen),⁵³ and *Diwan* of *suba* should send fifty thousand rupees from the public treasury in cash for bringing foodstuff to the city. As shortfall of rain and crisis of food grains were the causes of 'ryots' destruction, large sums of money about seventy

lakhs, that year were remitted from the government land and the *Jagirs*.⁵⁴ It was heard from elderly men who had survived this calamity that the mercy of God descended upon them next year.⁵⁵ Henry Sill, Christopher Read and Nicholas Bix from Aramgaon wrote a letter to the Bantam Factors on 27th December, 1630, and the letter was received on 11th February, 1631. They mentioned about a famine and plague in Surat and they also mentioned about officials those owing to the famine had petitioned, to be taken out of the country.⁵⁶ Rastell and other factors landed at Surat on September, 1631, were received by Skibbowe and Barber. They found that everything was normal at Surat but only most miserable was mortality amongst the natives of this country due to scarcity of food. Even Jacobs Sonns Day travelled with his family into frying parties to seek bread. He saw poor people lying as a woeful spectacle on streets and the highways, dying and dead in great numbers.⁵⁷ It is also noticed that when the scarcity of food started, prices of essential commodities like wheat and rice rose to 2½ ser for a *mahmoodi*, butter 1¾, a hen at 4 or 5 *mahmoodi*.⁵⁸ Further, Jacob Sonns inform us that the company had heard from Surat of the great famine in those parts and across India and it is noticed that trade declined, because of deaths of most of the weavers and washers.⁵⁹ Lahori in his work also informs us about decline of revenue of the Burhanpur environs due to famine and epidemic had the *jama* of 2,40,000 dam in a state prosperity and 6 *lakhs* of rupees as the *hasil* for 12 months left in it for the use of emperor.⁶⁰ Agra had not been affected with this famine and mortality.⁶¹ A Dutch Factor departed from Batavia and arrived at Surat on 23th October, 1631, noticed that there were many people who perished of hunger, and in that town there were about 260 families but due to famine only 10 or 11 families were alive. He further writes that the mortality in this town was so great that about 30,000 people died and 10 or 11 English factors people and three our (Dutch) lost their life in this calamity.⁶² It is also noticed that as there were no cattle, a he-buffalo was brought from Champaner for seventy rupees as there was no stallion for buffaloes.⁶³ Of all affected provinces, Gujarat suffered the most heavily.⁶⁴ Three million of its inhabitants are said to have died during the ten months after October 1631; while a million reputedly perished in the country of Ahmadnagar.⁶⁵ The cities of Gujarat were, by death or flight, reduced to almost one-tenth of their former state.⁶⁶

Peter Mundy's account shows that the Gangetic plain was not affected, especially, the major part of Malwa did not suffer from the famine of 1630-31.⁶⁷ He stayed at Ahmadabad for about fifteen days and noticed that *bazars* and streets were very large, but due to famine was half ruined.⁶⁸ A merchant who visited Masulipatam in July, 1631, writes, "The majority of weavers and washers both are dead and the country almost ruined."⁶⁹ Thus, it is found that the devastating famine of 1630-32 left a deep scar on the region's agriculture, and caused a long-lasting setback to its total revenues.⁷⁰ For the benefit of their subject the Emperor established almshouses and soup kitchen and on every Monday, about 5,000 rupees were distributed among the suffered people of Burhanpur, and at Ahmadabad remission were made.⁷¹

In 1634, a famine occurred in the *pargana* Jalor⁷² (in Rajasthan). It seems that it might have touched other parts of Marwar⁷³ as well. In 1636-37, Wajir Khan, the *Nazim* of Punjab was reported that the Punjab was suffering from famine and scarcity.⁷⁴ High grain prices prevailed at Agra in the summer of 1638, but there is no evidence of famine conditions.⁷⁵

During 1640s rains failed repeatedly in parts of Northern India. In 1640-41, famine condition prevailed from the Deccan to Ahmadabad due to heavy rainfall.⁷⁶ In 1641-42, famine broke out in Kashmir due to heavy rainfall which damaged the *kharif* crops in the region. At that time the emperor court was staying at Lahore and it's remarkably noticed that about thirty thousand⁷⁷ people migrated to Lahore.⁷⁸ Consequently, the emperor declared emergency and took relief measures. He sent Tarbiyat Khan with 30,000 rupees to look after the famine relief works and established about five *langarkhana* at Kashmir to provide free food.⁷⁹ But when Tarbiyat Khan failed to control the situation he was replaced by Zafar Khan *assubedar* who immediately went there and took relief steps. For this he received Rs 1, 50,000⁸⁰ from the imperial treasury to meet the expenses of relief measures.⁸¹ In 1644, Agra province was thus affected, though famine conditions were not reported.⁸² In 1646, drought broke out in Agra and Ahmadabad.⁸³ In the same year, (1646) a famine situation began due to scarcity of rainfall in Punjab. The emperor Shahjahan immediately appointed Saiyad Jalal to look after the crisis and ordered to set up ten *langars* for distribution of cooked meals amongst the needy with 10,000 rupees.⁸⁴ As the situation was not good the Emperor Shahjahan again issued 30,000 rupees in February, 1647 in the Punjab province.⁸⁵ From the letters of Thomas Ivy, George Travel and William Gurney from Fort St. George to Council at Surat in 1646-47 reported about the famine, having destroyed the entire kingdom. They also gave a statistical account of victims who had died at Pullicate, St. Thome and Madraspatam, no less than 3,000; 15,000 and 4,000 respectively.⁸⁶ In another letter written on 21st January 1647, the factors demanded 100 or 200 tons rice to protect the lives of painters and weavers and washer men who lived with them, and also demanded twenty bags of wheat due to the acute famine which occurred because of the failures of rains.⁸⁷ In 1647, rains failed utterly in Marwar, which has occasioned a famine, insomuch that those parts, either because of mortality or people's flight, became depopulated and impassable.⁸⁸ Most modern historians who worked on economic history of Rajasthan argued that agriculture in Marwar had largely been dependent on monsoon.⁸⁹ Whenever the rain fell short of normal, the peasants were even compelled to migrate and interestingly, it is also noticed that whenever excessive rain fell, it too led to migration.⁹⁰ In 1648, there was again a partial failure of rains in Agra region.⁹¹ Bengal on the other hand, was visited with excessive rain in 1644-45 and 1648, destroying its sugarcane crops.⁹²

In 1647, Marwar faced drought which led to famine in the area. As a result of high mortality and people's migration the whole area became depopulated.⁹³ In 1650, there was failure of rains in all parts of India.⁹⁴ The 'dearth of corn' was reported from Awadh,⁹⁵ and the scarcity affected the country between Agra and Ahmadabad.⁹⁶ As a result of this famine the emperor realized the situation and only a nominal amount of revenue was received which is known as '*patalbhog*'.⁹⁷ In 1651, in the Punjab the crops were harmed first by drought and then by excessive rains. Consequently, prices became high and peasants were unable to pay full revenue.⁹⁸ In Multan province the *rabi* crops of 1650 had been spoilt by locusts and *kharif*, as elsewhere, by drought, while the *rabi* crops of 1651 also suffered from inundations.⁹⁹

Muhammad Dara Shikoh marched toward Ahmadabad from Thatta in 1654 A.D. During this year, there was scarcity of rain and so ponds on the way were waterless. It is also noticed that

wells at most places did not supply sufficient water for the army. It was seen that many soldiers of Muhammad Dara Shikoh were critically starving. They were dying at two or three occasions. Many war animals also died. After facing such hardships he entered the desert which was situated at a distance of forty *kurohs* from seacoast. The *Mirat-i-Ahmadi* also mentions that the area was absolutely unobtainable of sweet-water in the whole of distance.¹⁰⁰

In 1655, the *kharif* crop in parts of Balaghat region of Mughal Dakhin was damaged by late and heavy showers.¹⁰¹ The revenue figure of 1657-58 also suggests a severe famine in Marwar.¹⁰² A Jain traveller also noted about this year that a dreadful famine visited in entire Rajasthan.¹⁰³ Again in the year 1658-59 crops were destroyed by excessive rains in some parts of Rajasthan.¹⁰⁴ The years 1658-60, saw a severe scarcity of food grains due to famine in Rajasthan. The Jain traveller noticed that the *sahs* (bankers), let alone the masses gave away their children to saints.¹⁰⁵ When in 1658, the war of succession started, the scarcity of food grains was felt in the region of Agra, Delhi and Lahor. Therefore, in 1661-62 *langarshad* to be set up by the administration in these cities.¹⁰⁶ The worst sufferer, however, was Sind, where famine and plague raged in 1659-60 and swept away most part of the populace.¹⁰⁷ In the same year (1659) famine at Masulipatam was occurred.¹⁰⁸ The English factors further explained the worsened conditions of the famine that living beings were hardly able to bury the dead.¹⁰⁹ The Company cautioned against excessive expenditure in housekeeping due to drought of 1660-61 caused by scanty rains in Surat.¹¹⁰ In 1661, a famine occurred in many places of the empire, especially Delhi and its neighbouring areas and at Lahor. Emperor ordered that ten more *langers* (alms house) should be opened at Delhi and twelve in the *parganas* around the city and similar arrangements were made at Lahor also for the fulfilment of survival needs of people. It was also ordered by him that the grandees down to the commanders of a thousand that they should donate rupees from their own accounts and this alms-giving continued until the scarcity was turned into plenty.¹¹¹ In Bengal, a local famine developed in 1662-63 in Dhaka, the distress was intensified owing to interference with transport of food grains by officials' exactions and obstructions on the routes.¹¹² In the same year (1663) Rajasthan again faced failure of monsoon.¹¹³ Hence prices of food grains hiked in the Marwar region. It led to numerous people's deaths and cattle also died due to scarcity of food.¹¹⁴ The scarcity of average rainfall at Malabar Coast in 1663 led to shortage of indispensable commodities creating situation of famine.¹¹⁵ In 1664, there was a local famine in Sojhat region which forced people to migrate while rains were normal in other parts of Rajasthan.¹¹⁶ A Jain saint traveller of the 17th century who was writing about Rajasthan, especially Marwar, observes that whenever rains failed or came in excess people would migrate to neighbouring states in search of better life and employment.¹¹⁷ In 1668, at Coromandal Coast a fear of famine grew due to the scarcity of seasonal rain.¹¹⁸

In 1670, the *kharif* crop utterly failed in Bihar¹¹⁹ for want of rain and during the succeeding year acute famine ravaged the territory extending from the west of Banaras to Rajmahal from October 1670 to November 1671. The eyewitnesses account of how multitudes perished on the routes and in the city of Patna, and how parents sold their children.¹²⁰ In Patna alone, 90,000¹²¹ were estimated to have died and of 'the towns near Patna, some were quite depopulated having not any person there'.¹²² Around the same time a severe drought affected Raybagh territory in Bijapur

resulting in migration and sale of children.¹²³ In the same year (1670) failure of rain in some parts of Rajasthan forced people to sell or leave behind their belongings and migrate to other parts of the country.¹²⁴ The year 1672 was a hard one for common masses and the failure of rain in the beginning of 1673 increased the distress among the victims and caused people to flee. In the region crops were totally dependent upon wells; and only the rains in the latter part of the year saved the people from this great calamity.¹²⁵ In 1674, in Marwar there was quite sufficient rain and the *rabi* harvest was flourishing, but then it was attacked by mice. Due to the hoarded grain in *kothis* (grain store-houses) the people did not face hardship.¹²⁶ Again in 1675, rain was sufficient but the standing crops were destroyed by locusts affecting the areas of Jodhpur.¹²⁷ In 1678, Aurangzeb's struggle against Rathorsardars¹²⁸ in the *pargana* of Marwar devastated the standing crops and due to the unfavourable condition of the *pargana* peoples migrated to forests and mountains which caused scarcity of food grains in the region and a famine condition started.¹²⁹

In 1681-82, Marwar again was devastated by famine due to failure of rain in time. And the prices of essential commodities rose and bubonic plague ravaged the place which claimed many lives and animals' loss. This affected the ecological balance of the region.¹³⁰ In 1682 A.D famine visited Gujarat due to scarcity of food. It is said that people suffered afflictions for want of bread. When the situation worsened people complained to Muhammad Amin Khan. It is mentioned in the contemporary accounts of Gujarat that 'whatever is understood from reports of elderly men who heard them from their ancestors in succession, is that when the pain of balance of dearness of corn and high price of cereals rose high, people began to moan and lament'.¹³¹ Further, it is also mentioned that once *Eid* fell during these days and Muhammad Amin Khan had gone out for prayers. After the prayer he entered the city through bazaar-road, and he saw small and great, young and old, men and women, who had come out for recreation, loosened tongues in complaints and lamentation about dearness and anguish for sustenance.¹³² A person namely Abu Bakr even tries to provoke the masses for riot.¹³³

In 1685, Azam's army stationed at Bijapur and due to heavy rain and warlike activities of Marathas, the standing crops were destroyed which gradually led to famine condition in the environs. It is noticed that grain was sold at Rs 15 a *ser*.¹³⁴ The drought extended to the whole of Dakhin in 1686.¹³⁵ Sind was also probably affected at the same time since a severe scarcity accompanied by epidemic occurred there and lasted from 1684 to 1688.¹³⁶ In 1691, both famine and pestilence visited Gujarat and scarcity was experienced there again in 1694-95.¹³⁷ In Marwar in 1692 due to excessive rainfall the standing *khariif* crops were destroyed which affected the grain stock and gradually in 1694, severe famine occurred in the region. For safety people migrated to neighbouring areas even *thakurshad* migrated for their better life.¹³⁸ It is observed that the status of even *brahamans* and *banias* woeful who were hit by the calamities. Children too were bartered by their parents for bread.¹³⁹ A poet compared this famine with the famine of 1630-31 of Gujarat.¹⁴⁰ The regional sources of Rajasthan mentioned that whenever famine occurred in Rajasthan, people migrated to Malwa, Gujarat and sometimes travelled long distances to reach Patna.¹⁴¹ The region around Delhi also felt scarcity during 1694-95, but the worst affected area was the Bagar tract on the north-eastern edge of Thar Desert. Its inhabitants migrated to other parts, eating

carrion, selling their children, and dying in thousands.¹⁴² In a letter, Girdhar Das (*amin*) and Manrup (*amil*) of the *pargana* Niwai of eastern Rajasthan informed Maharaja Bishan Singh that there was famine (*kahat*) in 1694 in the *pargana*.¹⁴³ But surprisingly, it is not mentioned in the letter about the causes of famine. It seems to be due to failure of rain. There was also famine in Orissa during 1695.¹⁴⁴

In 1696-97 in *pargana* Sanchor due to failure of rains, *kharif* crops got destroyed which affected lives of people. Due to acute starvation a large number of people died.¹⁴⁵ And in the very next year the crops were destroyed by locusts.¹⁴⁶ In 1697 A.D, as rainfall was insufficient in most of the *parganas* and especially, in the district of Marwar there was a famine uniformly from Patan to Jodhpur so much so that greenery and water had disappeared.¹⁴⁷ It also extended to Sind where 80,000 persons in Thatta alone reportedly died of plague following the drought.¹⁴⁸

A Great famine began in the Dakhin in 1702. In February it was reported to the court from Sangamner (Aurangabad province) that owing to drought most of the villages had been rendered desolate.¹⁴⁹ Gradually over the year ‘in the whole of Dakhin no rain fell that was in keeping with the interests of cultivation’.¹⁵⁰ Great scarcity prevailed everywhere south of the Narmada, and people were compelled to migrate from their ancestral homes.¹⁵¹ Drought with its following companion, plague, continued into 1704.¹⁵² In the two years, 1702-04 in the Dakhin ‘there expired over two millions of souls; fathers, compelled by hunger, offering to sell off their children for a quarter-and-half rupees, and yet forced to go without food, finding no one to buy them’.¹⁵³ In 1705, in Marwar region a famine occurred and the year was remembered as a year of misfortune. The people of these areas migrated to Dhaka and Patna.¹⁵⁴

In 1717-18, again famine struck which is popularly known as *Janbutra*. It is said that *Bajra* and *math* were sold at four *seers* a rupee. This too was obtained with difficulty but no one was strong enough to oppress the weak on account of strict administrative control of the *Naib* of the *suba*. It was decided that food-stuff that was brought from outside was to be sold in the house of Rai Raghunath Das, Diwan of Haider Quli Khan. It had rained untimely which was not useful for cultivation of crops. Plains and meadows became verdant. Most of the poor and destitute cooked leaves of self-grown vegetables of distress and thus, escaped starvation. But this food resulted in diseases and deaths. A person selling their children for one or two rupees reveals magnitudes of distress and epidemic appeared among the people. Numerous people died. In ancient Gujarat, rupee with a hole and of less weight technically known as *Chalani* and *Baqarkhani* respectively was used in payment of rice, food, *ghee*, eatable and drinkable commodities. New rupees were coined in this year of famine which is used till now in the same manner.¹⁵⁵

As far as the measures adopted by Mughal Emperors is concerned to check natural calamities and protect their people, they had taken various initiatives such as: Issued *Farman* for the remission of land revenue and dues; organised *langers* for hungry victims, distributed of money among the poor and needy; of canals, dams, reservoirs, etc. dug and constructed. In 1669 A.D, the author of *Mirat* recorded information related to the Royal *Farman* to land revenue. In the royal *Farman* there were eighteen types of regulations related to land revenue in which Regulations 9 and 10 deal with natural calamities and their remedies.¹⁵⁶ According to Regulation 9 ‘If some unforeseen

calamity takes place in limited part of cultivation, the tiller or owner should be given concession due to calamity when it is completely ripe. He should be so treated in taking the remaining revenue that half a share is safely received by the *ryots*. Then, anyone who leaves his land uncultivated in spite of his ability and absence of impediment, no revenue should be taken. For instance, water runs over it or there is no rain or some natural calamity occurs before harvesting so that he is not able to get food grain in hand or so much time is not left that before another crop sets in, he can cultivate it a second time. Revenue should not be taken. If calamity occurs after cutting it, whether it is possible threats to fodder for animals or some time is left for resourcing, revenue should be taken.¹⁵⁷

During the reign of Babur and Humayun famine was not a general phenomenon so they did not adopt any such measures. However, during the reign of Sher Shah (1540-45) a severe famine occurred in the Deccan. Sher Shah in one of his *Farmans* says, "If the insufficiency of rain destroys the crops of the year, it is necessary that the poor should be helped as far as the resources of the state permit with money from the treasury and save from the whirlpool of destruction".¹⁵⁸ Sher Shah also introduced a tax called as *Dahsari* tax for the scarcities of grain. Whenever the famine condition developed, people of the empire were supplied grains from local granaries at subsidised rates. As per *Ain 21 Dahsari* tax was prevalent during the time of Akbar. It took ten *seers* of grain as royalty on each *bigha* and storehouse had been constructed in every district. The storehouses supplied food for animals belonging to the state. It also supplied grains to the poor cultivators for sowing purposes and at the time of famines and other calamities, people would buy essential commodities at cheap rates.¹⁵⁹ AbulFazl informs us that at the time of drought and famine, the Emperor issued detailed instructions to his officers to grant remission on land revenue newly brought under cultivation and to send regular reports about the local conditions of people and prices of essential commodities.¹⁶⁰ Akbar also established granaries at every place where famine and drought frequently visited. The granaries were maintained by the *Dahsari* tax,¹⁶¹ which served many purposes. He also built places where the famine affected people were supplied free food grains known as *Khairpurah* for Muslims, *Dharmpurah* for Hindus and *Jogipurah* for Jogs.¹⁶² Sometimes army personnel were increased or deployed in the calamities affected areas in order to check crimes and for emergency public work.¹⁶³

The reign of Jahangir also witnessed several natural calamities, but the *Tuzuk-i-Jahangiri* is silent regarding welfare measures taken by him, probably the Emperor adopted the measures introduced by his father. Shahjahan too adopted numerous measures to control famine condition in his empire. The contemporary writers inform us that during one of the most horrifying famines of 1630-32, Shahjahan issued an order for the establishment of *langers* in the affected areas of Gujarat.¹⁶⁴ He also remitted seventy lakh rupees of the total income of the *khalsaland* (Crown-lands) in the famine affected areas of Gujarat, which amounted to eight crore of *dams* and was one-eleventh of the total revenue of the Imperial territories.¹⁶⁵ The Emperor Aurangzeb remitted the taxes *Rahdari* and *Pandarion* the transportation of grains to control the famine of Sindh and Gujarat in 1659-61. He also ordered the governor of Ahmadabad, Shujat Khan to fix the prices of grains imported from outside.¹⁶⁶

Various Measures to Prevent the Famines:

All the measures were taken by the Mughal emperors were temporally because in the Mughal empire agricultural activities depended on seasonal rains, and due to the lack of sufficient artificial irrigation facilities crops were destroyed which led to crises of food grains and fodder which turned into famine. Thus, it is noticed that one of the most important causes for the famine was failure or delay of rains. When Babur came in India he noticed two methods of irrigation, the *arhat*, or *rahat* also called *Saqia* (Persian-wheel in English)¹⁶⁷ and the *charas*¹⁶⁸ was prevalent in India.¹⁶⁹ The method of *arhat* or *rahat* was prevalent in east of Jhelam, in the regions of Lahor, Dipalpur and Sirhind¹⁷⁰ and villages of Sind¹⁷¹ and Marwar.¹⁷² Irfan Habib is of the view, that the *arhat*, or *rahat*, or *saqia* was not employed elsewhere.¹⁷³ And the method of *charas* was prevalent around Agra and further east.¹⁷⁴ The European traveller Fryer in his work describes one other method of water lifting called *dhenkli*, based on the liver principle was generally used where the water level was close to the surface.¹⁷⁵ But these methods of irrigation were not enough to fulfil the demands of the empire. So, the Mughal emperors drew their attention towards the development of the irrigation facilities which increased the production as well as supported the environment by planting trees along canals. They constructed wells, tanks, reservoirs and canals for better irrigation of agricultural land. Humayun did not give proper attention to improve the irrigation facilities; may be due to lack of time, but he established the department of *Khaki*, exclusively to see the matters of land affairs.¹⁷⁶ The Emperor Akbar constructed a lake at Fathpur Sikri which was seven *kos* in circumference for irrigation purposes. In 1578-79, when Akbar was returning from Ajmer, it was brought to his notice that the country was lying waste owing to the bad condition of reservoirs. He himself visited the neighbourhood and ordered for the renovation of reservoirs.¹⁷⁷ The European traveller, Tavernier saw a number of lakes in Golconda in which water was stored for irrigation purposes.¹⁷⁸ AbulFazl recorded in his work that many wells were dug for the benefit of people and *faujdar* were ordered to pay attention to the construction of reservoirs, tanks, wells etc. Akbar directed his subjects that people in each *pargana* should be made 'satisfied with the numbers of cuts'.¹⁷⁹ *Muntakhab-utTawarikh* informs us regarding Akbar's *sanad* for the construction of a canal which was dug by the *jagirdar* of *pargana* Safedon, Mulla Nuruddin Muhammad Tarkhan. The canal was named Shekhu-ni after Prince Salim. Badauni confirms that it resulted in considerable extension of cultivation and great increase in the prosperity of people.¹⁸⁰ He also got repaired the canal constructed by Firoz Shah Tughluq (1351-1388)¹⁸¹ in the *pargana* of Khizrabad by Shihabuddin Khan, the governor of Delhi and later Nuruddin Muhammad Tarkhan.¹⁸² It was named *ShihabNahr* for distribution of water during the seasons of cultivation.¹⁸³ Akbar appointed Nuruddin Muhammad Tarkhan, an expert in *hindsa* (geometry), *reyazi* (arithmetic), and *Ilm-inujum* (astronomy), as *Mir-i ab* (canal superintendent) for the construction of *Shah Nahr*¹⁸⁴ (*ShihabNahr*). After the canal was constructed, it was placed under the charge of *daroghah-inahr* who with the help of *gumashtas* and *mutasaddis* looked after its upkeep and collected a tax known as *nahrana* (canal water tax).¹⁸⁵ AbulFazl informs us that the canal was apparently carrying water from Hansi and finally disappeared at Bhadra.¹⁸⁶ The author of *Shahjahan Nama* informs us that the *Nahar-iBihist* is not less than a river. Ali Mardan Khan a noble of Shahjahan

dug it from the Jamuna at Mukhlispur, one hundred *kuroh* away from Delhi.¹⁸⁷ In 1639, when Shahjahan visited Panjab, Ali Mardan Khan, the governor of Panjab and Kashmir suggested the Emperor for digging a canal from the river Ravi at Rajpur (or Shahpur) that would irrigate the land around the city of Lahor about 37 *kurohs*.¹⁸⁸ The Emperor sanctioned one lakh rupees for that purpose to Ali Mardan Khan.¹⁸⁹ During the reign of Shahjahan the Mughal administration proposed to advance Rs 40,000 to 50,000 to cultivators in Khandesh and Painghat portion of Berar, for the purpose of erecting dams.¹⁹⁰ In the Deccan, digging of small canals from the rivers was so prevalent that the people of Baglana brought into every town and villages thousands of canals, dug for the irrigation facilities,¹⁹¹ and as per the report of the Royal Commission on Agriculture these were managed by the co-operative *phad* system.¹⁹² Thus, the author of the *Khulasat-utTawarikh* observed that in the reign of Aurangzeb about one-third of the country's irrigation was done through canals.¹⁹³ Aurangzeb also ordered his *karoris* to renovate the wells which were not in use and the governor of Gujarat to do all that for the improvement of agricultural production in the provinces.

However, we have little information regarding canal irrigation in the Mughal Empire. But whatever the information exist it shows that the Mughal emperors gave proper attention towards the development of artificial irrigation system in their regions for the increase of agricultural production and to avoid dependence on seasonal monsoon rains. Instead of all these developments the most parts of India were affected by famine at some time or the other during the sixteenth and seventeenth centuries. This knowledge may be taken as an assurance that the climate has not changed materially in the intervening period.¹⁹⁴ So, it probably seems that there was a major gap between the production of essential commodities and the consumers, which always created famine condition in the empire.

As far as the economic system of the Mughals is concerned, it is noticed that there was a wide gulf between the masses and the nobles, or the producers and the consumers. Thus, this gap also attributed to the famines in the empire. Famines, floods, droughts, and pestilences may perform their ancient function of checking the pressure of the population on the soil. Many historians like Carlo Cipolla, Wilhelm Abel, H. Dubled and M. Poston etc see the natural calamities as a culminating disaster due ultimately to the fact that population growth had outrun the means of subsistence.¹⁹⁵ As B. L. Bhadani who worked on Marwar region of Rajasthan is also of the view that the population growth ascribed to famines and other epidemics. He calculates that the compound growth rate of Marwar, from 1661-1891, was 0.17% per annum. Thus, the population of Marwar was proving to radical changes often because of famines.¹⁹⁶

Akbar endeavoured to relieve distress in these cases of famine, but the organisation in existence at the time was probably unable to do more than provide food for the starving in the towns and cities, and the effect of these recurring visitations must have been mismanagement of agricultural activities.¹⁹⁷ Cannibalism was a normal feature of famine. But famine itself was an exceptional rather than normal characteristic of the country and the period, and for our present purpose its importance lies in the evidence which it furnishes that the mass of the people had no economic reserve.¹⁹⁸

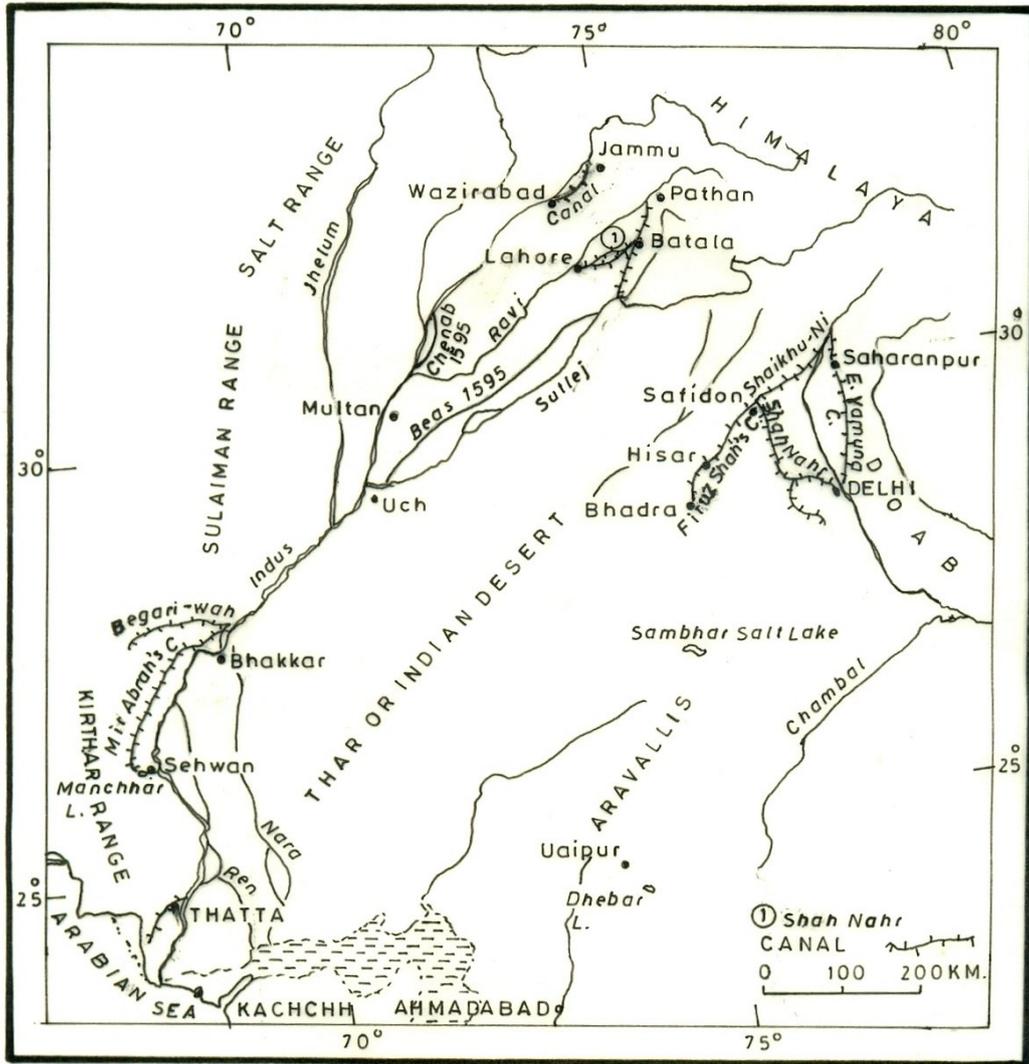
While writing in the late eighteenth century, Thomas Malthus¹⁹⁹ was the first to focus on

limits to population growth imposed by the natural environment. Starting from the basic assumptions that population is capable of growing geometrically and the means of subsistence only arithmetically, he concluded that the superior power of population to expand must in general be kept in check by requirements of food and other necessities whose production cannot be increased rapidly. The necessary balance between population and means of subsistence could be maintained either by “preventive checks” of fertility limitation or by the “positive checks” of mortality, including famine, pestilence, warfare, and so forth. In this view, hunger and other forms of human poverty and misery are an inevitable consequence of the pressure of population growth on limits of productive capacity.²⁰⁰

The Mughal era famines were the consequences of drought, inundations and early or late monsoons and the ravages of wars causing desolation in rural and urban areas. Famine in India was followed by the pestilence, both of which destroyed infinite numbers of people.²⁰¹ An extraordinary drought which destroyed vegetables, dried up rivers, and occasioned a dreadful famine. The imperial camp could not be supplied with provisions. Distress prevailed over the whole empire. Shahjahan remitted the taxes in many of the provinces, to the amount of three millionsterling, He even opened the treasury for the relief of the poor; disease followed close on the heels of famine, and death ravaged almost every part of India.²⁰² This famine was so acute that the reduced revenue from the Mughal Deccan provinces was unable to meet the administrative expenditure of the provinces up to the middle of the seventeenth century.²⁰³ When famines and other calamities took place, government as a rule had to remit the revenue, and would import food grains from surplus zones to open government shops and free kitchens for the afflicted people. And these measures were sometimes emulated by *zamindars* and other local magnates as well. Nevertheless, they were recurring curses to the people of the medieval Deccan.

Thus, we noticed that during the course of famine in Mughal India it always endowed as a curse for living creatures and led towards imbalances of ecosystem and hampered the normal life of environmental elements. Human beings, animals and biodiversity abruptly lost their stable condition. The major effects in famine of Mughal India were high rate of mortality, changes in human settlement and migration, changes in landscapes, social crimes, changes in wildlife, and spread of epidemics. The serious aftermath was the heavy loss of lives of human beings and animals which made sudden changes in demographical structure. People started migrating from affected places to safer places. Thus, the process of migration sometime increased the population of a particular city or place which hampered the environment of the place because for re-settlement they started cutting of trees which led to deforestation of the natural habitation. The one of the most dangerous effects of the famine was spread of various epidemics like plague, cholera, diarrhoea and different types of fever etc.

RIVERS AND CANALS IN THE 17th CENTURY



Map.4.I: Rivers and Canals in the 17th Century, (Source: Irfan Habib, Agrarian System of Mughal India)

Visitations of Famine in 16th and 17th Centuries Mughal India

Year	Affected Areas	Cause	Source
1526	Gujarat	-	<i>Mirat-i Ahmadi,</i>
1540	Vijayanagar	-	<i>India at the Death of Akbar An Economic Study,</i>
1554-55	Delhi, Agra and Bayana	Rain	<i>Muntakhab-utTawarikh, Vol. II.</i>
1556	Delhi and Agra	Scarcity of food grains	<i>Akbarnama, Vol. II.</i>
1574	Gujarat	-	<i>Muntakhab-utTawarikh, Vol.,II.</i>
1576	Kashmir	Heavy Snowfall	<i>Kings of Kashmir, III.</i>
1577	Kutch	-	<i>Ain-i Akbari, Vol., III.</i>
1583-84	Kashmir	Failure of rain	<i>Ain-i Akbari, Vol.,III.</i>
1595	Kashmir	Failure of rain	<i>Ain-i Akbari, Vol. III.</i>
1598	Kashmir and Lahore	Failure of rain	<i>Zubdat-utTawarikh, Vol. VI.</i>
1613-15	Punjab, Sirhind, Dekhi, Doab, Mewar	Drought	<i>Tuzuk-i-Jahangiri.</i>
1618-19	Deccan particularly Coromondal Coast	-	<i>From Akbar to Aurangzeb,</i>
1622	Some part of Vijayanagar	Drought	<i>From Akbar to Aurangzeb,</i>
1623	Some part of Hindustan	Scarcity of rainfall	<i>Zubdat-utTawarikh, Vol. VI.</i>
1630-32	Gujarat, Sindh, Deccan and Coromondel	Drought followed by unseasonal rains and accentuated by attack on crops by mice and locusts	<i>Mirat-i Ahmadi, Lahori's Padshahnamah, Vol. I.</i>
1634	Parganah Jalor and Marwar	-	<i>Jalor-re Rekh-ri Vigat, Bahi No.1</i>
1636-37	Punjab	-	<i>Lahori's Padshahnamah, Vol. II.</i>
1641-42	Kashmir	Excessive rain	<i>Lahori's Padshahnamah, Vol. II.</i>
1646	Punjab	Scarcity of rainfall	<i>Lahori's Padshahnamah, Vol. II.</i>
1647	Marwar	scarcity of rain	<i>The English Factories in India, 1646-50,</i>
1648	Agra	Failure of rain	<i>The English Factories in India, 1646-50,</i>
1650	Almost every part of Hindustan	Failure of rain	<i>The English Factories in India, 1646-50,</i>

Year	Affected Areas	Cause	Source
1651	Punjab	drought followed by excessive rain	<i>Agrarian System of Mughal India,</i>
1657-58	Marwar	-	<i>Marwar-raPargana-riVigat,</i> Vol. I.
1658-60	Some parts of Rajasthan	Scarcity of food grain	<i>Saiki,</i>
1659-60	Sind and Masulipatnam	-	<i>The English Factories in India 1655-60,</i>
1661	Delhi and Lahor	-	<i>Maasir-iAlamgiri,</i>
1662-63	Dhaka	-	<i>Fathiya-ilbriya,</i>
1664	Sojhat (Rajasthan)	Scarcity of rain	<i>Saiki,</i>
1670-71	Bihar	Scarcity of rain	
1681-82	Gujarat and Marwar	Failure of rain	<i>Mirat-i Ahmadi,</i>
1694	Marwar	Excessive rain	<i>Saiki,</i>
1695	Orissa	-	<i>Early Annals of Bengal,</i> Vol. I.
1697	Marwar	-	<i>Mirat-i Ahmadi,</i>
1702	Deccan	-	<i>Akhbarat,</i> 46/123
1705	Marwar region	-	<i>Saiki,</i>
1717-18	Gujarat	-	<i>Mirat-i Ahmadi,</i>
1730-31	Gujarat	-	<i>Mirat-i Ahmadi,</i>
1748	Gujarat	-	<i>Mirat-i Ahmadi,</i>

Table.4.I: Visitations of famines in 16th and 17th century.**Notes and References :**

1. Susan Cotts Watkins and Jane Menken, 'Famines in Historical Perspective', *PDR*, Vol. 11, No. 4 (December 1985), p. 647
2. Lucile F. Newman, *Hunger in History Food Shortage, Poverty, and Deprivation*, Blackwell, Oxford, 1990, p. 27.
3. On famine a large number of modern works has been published which deal with the famines of 19th and 20th centuries but in this chapter I mainly focus on the famines of 16th and 17th century in Mughal India. Some important works are as follows: Hari Shankar Shrivastava, *The History of Indian Famines 1858-1918*, Shri Ram Mehra & Co, Agra, 1968; M. Alamgir, *Famine in South Asia: The Political Economy of Mass Starvation*, Oelgeschlager, Gunn and Hain, Cambridge, Massachusetts, 1980; Charles Blair, *Indian Famine*, Agricole Reprints Corporation, New Delhi, 1986; Vaughan Nash, *The Great Famine and its Causes*, Agricole Reprints Corporation, New Delhi, 1986; B. M. Bhatia, *Famines in India A Study in Some Aspects of the Economic History of India 1860-1965*, Asia Publishing House, Bombay, 1967; Morris D. Morris, 'What is Famine', *Economic and Political Weekly*, Vol.9, 1974, p. 1855-1864; Morris D. Morris, 'Needed- A new famine policy', *Economic and Political Weekly*, Vol. 10, 1975, p. 283-294; G. B. Masefield, *Famine: Its Prevention and Relief*, Oxford University Press, 1963; G. W. Cox, 'The Ecology of Famine: An overview', In Robson, J. K. (ed.), *Famine :Its Causes, Effects and Management*, Gordon and Breach Science Publications, New York, 1981, p. 5-18; B. Currey, *World Famine: A First Bibliography*,

- Resource Systems Institute, East- West Centre, Honolulu, 1980; W. A. Dando, *The Geography of Famine*, V. H. Winston and Sons, New York, 1980; R. W. Franke and B. H. Chasin, *Seeds of Famine: Ecological Destruction and the Development Dilemma in the West African Sahel*, Allanheld, Osmun, Montclair; New Jersey, 1980.
4. Among these the most fatal were the Irish famine of 1840, the Brazilian famine of 1877, the Moroccan famine of 1877, the Egyptian famine of 1897, the Chinese famine of 1877, (Regarded as 'one of the worst drought famines of modern times' affected four provinces of Northern China, Henan, Shanxi, Shaanxi, and Habei estimated that between nine and thirteen million would have died. See Susan Cotts Watkins and Jane Menken, 'Famines in Historical Perspective', *PDR*, Vol. 11, No. 4 (December 1985), pp. 650, 1919 and 1922;
 5. Famine occurred in 917-18 A.D in Kashmir.
 6. Among them the famines of 1783, 1860-61, 1877-78, and 1896-97 and the Bengal famine of 1943 (had which claimed about more than two million lives) are prominent. The 1877-78 famine's data suggest the confluence of two major epidemics, cholera and malaria. See Alan Macfarlane, *The Dimensions of Famine*, 2002, p. 3; See Report, 'Pestilence And Famine In India', *BMJ*, Vol. 2, No. 1973 (Oct 22, 1898), p. 1265;
 7. Morris David Morris, 'What is Famine', *EPW*, Vol. 9, No. 44 (Nov. 2, 1974), p. 1855
 8. Muhammad Akbar, *The Punjab under the Mughals*, p. 246.
 9. Lucile F. Newman, *Hunger in History Food Shortage, Poverty, and Deprivation*, p. 3
 10. See H. D. Sankalia, *The Prehistory and proto history of India and Pakistan*, Poona, 1974; D. D. Kosambi, *Ancient India: A History of its Culture and Civilization*, New York, Pantheon Book, 1965; Romila Thapar, *A History of India*, Vol. I, Penguin Books, London, 1990; D. N. Jha, *Ancient India in Historical Outline*, Manohar, New Delhi, 1998; R. S. Sharma, *Indian Feudalism circa A.D. 300- 1200*, Delhi, 1980; Irfan Habib, *The Agrarian System of Mughal India 1556- 1707*, Oxford University Press, Bombay, 1963.
 11. Sumit Guha, *Environment and Ethnicity in India, 1200-1991*, Cambridge University Press, Cambridge, 1999.
 12. David Hardiman, 'Small-Dam Systems of the Sahyadris', in David Arnold and Ramchandra Guha, (eds.), *Nature, Culture, and Imperialism: Essays on the Environmental History of South Asia*, Oxford University Press, New Delhi, 1998.
 13. W. H. Moreland, *From Akbar to Aurangzeb A Study in Indian Economic History*, Oriental Books Reprint Corporation, reprinted, New Delhi, 1972, p. 206.
 14. Peter Garnsey, *Famine and Food Supply in the Graeco-Roman World Responses to Risk and Crisis*, Cambridge University Press, Cambridge, 1988, p. ix.
 15. Persian Envoy, AbdurRazaq's observation who visited Vijayanagar.
 16. A European traveller, Paes observed that the whole country was thickly populated with cities and towns and villages.
 17. W. H. Moreland, *India at the Death of Akbar An Economic Study*, Low Price Publications, Delhi, Reprinted, 1990, p. 11
 18. Ali Mohammad Khan, *Mirat-i-Ahmadi*, (ed.), Syed Nawab Ali, Oriental Institute, Baroda, 1928, p. 69
 19. Abdul Qadir Badauni, *Muntakhab- utTawarikh*, Vol. I, p. 429
 20. AbulFazl, *Akbarnama*, Vol. II, p. 35
 21. AbulFazl, *Akbarnama*, Vol. II, p. 35
 22. AbulFazl, *Ain-i Akbari*, Vol. III, p. 265
 23. Abdul Qadir Badauni, *Muntakhab- utTawarikh*, Vol. I, p. 429

24. S. S. Kulsheshta, p. 32.
25. Muhammad Arif Qandhari, *Tarikh-i Akbar Shahi*, pp. 319-321; Inayat Khan, also recorded that the famine condition occurred due to war or seizure of the particular region. See Inayat Khan, *Shah Jahan Nama*, p. 80
26. Abdul Qadir Badauni, *Muntakhab-utTawarikh*, Vol. II, p. 186
27. Shukra & Prajabhatta, *Rjavalipatrika*, transl., Y. C. Dutta, *Kings of Kashmir*, Vol. III, pp. 394-5.
28. Abdul Qadir Badauni, *Muntakhab-utTawarikh*, Vol. II, p. 324
29. AbulFazl, *Akbarnama*, p. 714. In this year there was little rain, and the price of rice rose high. Celestial influences were unpropitious, and those learned in the stars announced dearth and scarcity. The kind hearted Emperor sent experienced officers in every direction, to supply food very day to the poor and destitute. So, under the Imperial orders, the necessitous received daily relief to their satisfaction, and every class of the indigent was entrusted to the care of those who were able to care for them.
30. Mutamid Khan, *Iqbalnama-iJahangiri*, pp. 453-54; AbulFazl, *Akbarnama*, Vol. III, p. 714; Kamal Khan bin Jalal, *Zubdat-utTawarikh*, VI, p.192. Cf. Muhammad Akbar, *The Punjab Under the Mughals*, p. 104; Akbar Conquer Kashmir in 1586 and he visited Kashmir in 1589, 1592 and in 1598.
31. Vincent. A. Smith, *Akbar The Great Mughal 1542- 1605*, S. Chand Co., Delhi, 1958, pp. 396-98.
32. Kamal Khan bin Jalal, *Zubdat-utTawarikh*, VI, p.192. Cf. Muhammad Akbar, *The Punjab Under the Mughals*, p. 104
33. William Foster, *The English Factories in India 1630-1633*
34. According to *Iqbalnama-iJahangiri*, AbulFazl was made responsible for providing relief work. See Mutamid Khan, *Iqbalnama-iJahangiri*, pp. 453-54; Shireen Moosvi, *People, Taxation, and Trade in Mughal India*, p. 187.
35. Kamal Khan bin Jalal, *Zubdat-utTawarikh*, VI, p. 192. Cf. Muhammad Akbar, *The Punjab nder the Mughals*, p.104.
36. AbulFazl, *Akbarnama*, p. 71
37. Jahangir, *Tuzuk-iJahangiri*, pp. 160-61
38. S. M. Edwards and H. L. O. Garrett, *Mughal Rule in India*, Oxford University Press, London, 1930, pp. 240-1; W. H. Moreland, *From Akbar to Aurangzeb A Study in Indian Economic History*, p. 207.
39. W. H. Moreland, *From Akbar to Aurangzeb A Study in Indian Economic History*, p. 207.
40. A kind of plague also added to the horrors of this period, and depopulated whole houses and cities, to say nothing of hamlets and villages.
41. H. M. Elliot & John Dowson, *The History of India as told by its own Historians*, Vol. VI, Low Price Publication, Delhi, 2008, p. 193
42. Abdul Hamid Lahori mentioned that there was scarcity of rainfall in the Mughal province of the Deccan and Gujarat and deficient rainfall was also noticed in the bordering areas. See Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part., I, pp. 362-364
43. Tapan Raychaudhri and Irfan Habib, (eds.), p. 476
44. Ali Mohammad Khan, *Mirat-i-Ahmadi*, (ed.), p. 205; See also in Peter Mundy, *The Travels of Petre Mundy in Europe and Asia 1608-1667*, Vol. II., (ed.), Sir Richard Carnac Temple, The Hakluyt Society, London, 1914; the contemporary accounts show the complete collapse of the industrial organisation. By November 1630, the weavers and other artisans had abandoned their homes in such numbers that cargo for the English ships could not be procured.
45. Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part., I, pp. 362-364; *Mirat-iSikandari*, f. 83b; Banarsi

- Prasad Saksena, *History Of Shahjahan of Delhi*, Central Book Depot, Allahabad, 1976, p. 292.
46. William Foster, *The English Factories in India 1630-1633*, pp. 134-5, 158, 165, 181, 193; Peter Mundy, *The Travels of Peter Mundy in Europe and Asia, 1608-1667*, Vol. II, p. 38; Irfan Habib, *The Agrarian System of Mughal India 1556- 1707*, Oxford University Press, Bombay, 1963, p. 115.
 47. The famine of 1630-31 hit the English trade and it is noticed that they had to close all their factories in the Deccan except Surat. See *English Factories in India, 1634-36*, Introduction, p. xv.
 48. Ali Mohammad Khan, *Mirat-i-Ahmadi*, p. 205; See Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part., I, pp. 362-364.
 49. Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part., I, p. 363
 50. Ali Mohammad Khan, *Mirat-i-Ahmadi*, p. 205; Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part., I, p. 363. A terrible accounts of famine of 1630-31 of Gujarat is also depicted in Van Twist's *Generale Beschrijvinge van Indien* (1648); in H. T. Colenbrander's edition of the *Batavia Dag Register*, 1631-34, p. 33;
 51. Ali Mohammad Khan, *Mirat-i-Ahmadi*, p. 205
 52. William Foster, *The English Factories in India 1630-1633, A Calendar of Documents in th India Office, Bombay Record Office, etc.*, p. 45; Peter Mundy, *The Travels of Petre Mundy in Europe and Asia 1608-1667*, Vol. II., p. 339.
 53. Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part., I, pp. 363-64
 54. Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part., I, p. 364
 55. Ali Mohammad Khan, *Mirat-i-Ahmadi*, p. 205
 56. William Foster, *The English Factories in India 1630-1633*, pp. 118-19.
 57. William Foster, *The English Factories in India 1630-1633*, pp. 134-35 and 145.
 58. William Foster, *The English Factories in India 1630-1633*, p. 166; Peter Mundy, *The Travels of Petre Mundy in Europe and Asia 1608-1667*, Vol. II. p. 343.
 59. William Foster, *The English Factories in India 1630-1633*, p. 173; It is noticed that due to famine the garden of the world is turned into a wilderness, having few or no men left to manure their ground nor a labour in any profession; so that places here that have yielded 15 bayles cloth made three in a day , hardly yields now three in a month, and at Ahmadabad that likewise yielded 3,000 bayles indigo year or more, now hardly yields 300. (*The English Factories in India 1630-1633*. p.178.)
 60. Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part., I, pp. 444-5
 61. Peter Mundy, *The Travels of Petre Mundy in Europe and Asia 1608-1667*, Vol. II., p. 343.
 62. William Foster, *The English Factories in India 1630-1633*, pp. 180-81.
 63. Ali Mohammad Khan, *Mirat-i-Ahmadi*, p. 205
 64. Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part, I, p. 363
 65. William Foster, *The English Factories in India 1630-1633*, p. xxi
 66. William Foster, *The English Factories in India 1630-1633*, p. 180; In December 1631 only "10 or 11 families" were left out of 260 formerly inhabiting the village of Swally.
 67. Peter Mundy, *The Travels of Petre Mundy in Europe and Asia 1608-1667*, Vol. II. pp. 65-66; Inayat Khan, *Shah Jahan Nama*, p. 61
 68. Peter Mundy, *The Travels of Peter Mundy in Europe and Asia 1608-1667*, Vol. II, p. xlvi. Peter Mundy felt joyous and fortunate on his safe return from Ahmadabad because fourteen out of twenty one whom he left alive in 1630 were dead.
 69. William Foster, *The English Factories in India 1655-60*, p. 210.

70. Abdul Hamid Lahori, *Padshahnama*, Vol. II, Part, II., p. 711-12
71. Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part, I, pp. 363-64; Inayat Khan, *Shah Jahan Nama*, p. 62
72. Cf. B. L. Bhadani, *Peasants, Artisans and Entrepreneurs*, Rawat Publication, Jaipur, 1999, p. 54
73. Marwar is lies on the fringe of the Great Desert, which is more prone to famines as compare to other parts of the empire. According to AbulFazl, it was one hundred kurohs (about 250 miles) in length and sixty kurohs (about 150 miles) in breadth and it comprise Mughal sarkars of Jodhpur, Sirohi, Nagaur and Bikaner.
74. Abdul Hamid Lahori, *Padshahnama*, Vol., II, Part, I., p. 29
75. W. H. Moreland, 'Some Side- lights on Life in Agra 1637-39', *JUPHS*, Lucknow, Vol. III, (1), 1923, pp. 146-61
76. Khafi Khan, *Muntakhabul- Lubab*, Vol. I, Part, I, (ed.), MaulviKabiruddin Ahmad, College Press, Calcutta, 1869, p. 444
77. Inayat Khan, *Shah Jahan Nama*, p. 292; Khafi Khan, *Muntakhabul- Lubab*, Vol. I, Part, I, pp. 587-88.
78. Abdul Hamid Lahori, *Padshahnama*, Vol. II, Part, I., p. 282; Inayat Khan, *Shah Jahan Nama*, p. 291
79. Abdul Hamid Lahori, *Padshahnama*, Vol. II, Part, I., p. 282; Khafi Khan, *Muntakhabul- Lubab*, Vol. I, Part, I, pp. 587-88.; Inayat Khan, *Shah Jahan Nama*, p. 292
80. Khafi Khan a contemporary writer mentioned in his accounts that the Emperor sanctioned one lakh rupees for the relief work with the instruction of the establishment of two or three *langerkhana* and rupees 30, 000 were given for the distribution among the needy to Tarbiyat Khan.
81. Khafi Khan, *Muntakhabul- Lubab*, Vol. I, Part, I, pp. 587-88; Abdul Hamid Lahori, *Padshahnama*, Vol. II, Part, I., p. 282.
82. *English Factories in India, 1642-45*, p. 202. An 'arzdastof Khan Jahan Barha, sent to the court in the month of Jumada I, refers to the collection of revenue from the *rabiharvest* in *jagir* in Gwalior and adds that during the current year "the calamity of drought was so heavy that the yield (*hasil*) was very much lower than in the previous year's".
83. William Foster, *The English Factories in India 1646-1650*, pp. 50, 62, 99; Irfan Habib, *The Agrarian System of Mughal India 1556- 1707*, p. 118
84. Abdul Hamid Lahori, *Padshahnama*, Vol. II, Part, I, and II, pp. 289 and 632; Md. Sadiq, f.116.
85. Abdul Hamid Lahori, *Padshahnama*, Vol. II, Part, I, and II, pp. 289 and 632
86. William Foster, *The English Factories in India 1646-1650*, pp. 70 and 163; All the painters and weavers were dead which affected the production of cloth in the factories.
87. William Foster, *The English Factories in India 1646-1650*, pp. 74, 114
88. William Foster, *The English Factories in India 1646-1650*, pp. 192-3, 157
89. In Europe between 1315 and 1317 major harvest failures occurred due to prolonged wet weather which led to wider spread European famine. And then crisis was doubled in 1347 due to bubonic-plague which reached France and by 1351 had reached west of Ireland and north of Sweden. See David Grigg, *Population Growth and Agrarian Change An Historical Perspective*, Cambridge University Press, Cambridge, 1980, p. 65
90. B. L. Bhadani, *Peasants Artisans and Entrepreneurs*, Rawat Publications, Jaipur, 1999, p. 30.
91. William Foster, *The English Factories in India 1646-1650*, p. 219
92. TapanRaychaudhri and Irfan Habib (eds.), p.179
93. William Foster, *The English Factories in India 1646-1650*, pp. 192-3.
94. William Foster, *The English Factories in India 1646-1650*, p. 322.
95. William Foster, *The English Factories in India 1651-1654*, pp. 9-10

96. William Foster, *The English Factories in India 1651-1654*, p. 26
97. Munhta Nainsi, *Marwar-ra-Pargana-ri-Vigat*, (ed.), Narain Singh Bhati, Vol. I, Jodhpur, 1968, p. 27. See also B. L. Bhadani, *Peasants, Artisans and Entrepreneurs*, p. 54.
98. Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p.118
99. AbulFathQabil Khan, *Adab-iAlamgiri*, Vol. II, (ed.), Abdul GhafurChaudhri, Lahor, 1971, pp. 801 and 804; Aurangzeb, *Ruqat-iAlamgiri*, Vol. I, (ed.), SaiyadNajib Ashraf Nadvi, Azamgarh, 1930, p. 227-28; See also Irfan Habib, *The Agrarian System of MughalIndia 1556- 1707*, p. 118
100. Ali Mohammad Khan, *Mirat-i-Ahmadi*, p. 242
101. AbulFathQabil Khan, *Adab-iAlamgiri*, Vol. II, pp. 213, 217; Aurangzeb, *Ruqat-iAlamgiri*, Vol. I, p.140-1 and 166-7; See also Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p.118
102. Munhta Nainsi, *Marwar-ra-Pargana-ri-Vigat*, Vol. I, p. 166; See also B. L. Bhadani, *Peasants, Artisans and Entrepreneurs*, p. 54
103. Jai Chand, *Saiki*, (ed.), Muni KantiSagar, Jaipur, n.d.p.11
104. Jai Chand, *Saiki*, p.11
105. Jai Chand, *Saiki*, p.11; See also B.L. Bhadani, p. 54.
106. Muhammad Kazim, *Alamgirnama*, (ed.), Khadim Hussain and Abdul Hai, Bib. Ind., Calcutta, 1865-73, pp. 609-11; Khafi Khan, *Muntakhabul- Lubab*, Vol., II, Part, I, p. 87; Bihisti Shirazi in his *Ashob-i Hindustan*, quoted by Durga Prasad , *Gulistan-i Hind*, II (Supplement), p. 105, speaks of famine and pestilence ravaging the whole of India , after the imprisonment of Prince Murad Bakhsh. Cf. Irfan Habib, *The Agrarian System ofMughal India 1556-1707*, p.119
107. William Foster, *The English Factories in India 1655-60*, p. 210 &n., 307; Thomas Bowry, *A Geographical Account of the Countries Round the Bay Of Bengal 1669-1679*, (ed.) Richard Carnac Temple, The Hakluyt Society, Cambridge, 1903, p. 226.
108. William Foster, *The English Factories in India 1655-60*, pp. 262-63, 403.
109. William Foster, *The English Factories in India 1655-60*, p. 307.
110. William Foster, *The English Factories in India 1661-1664*, p. 24
111. Saqi Mustad Khan, *Maasir-iAlamgiri*, (ed.), Aga Ahmad Ali, Baptist Mission Press, Calcutta, 1871, p. 32
112. Shihabuddin Talish, *Fathiya-iBriya*, ff. 79b-80a. 110b-111a. Cf. Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p. 119
113. Jai Chand, *Saiki*, p.12.
114. Jai Chand, *Saiki*, p.12.
115. William Foster, *The English Factories in India 1661-1664*, p. 259.
116. Jai Chand, *Saiki*, p.12.
117. Jai Chand, *Saiki*, p.18 and 51; See also B. L. Bhadani, p.54
118. William Foster, *The English Factories in India 1668-1669*, p. 152.
119. We get very few references of visitation of famines in Bihar.
120. Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p. 119
121. During the total duration of the famine which was about 14th months, there are variation of total mortality, one of the source inform us about 1, 35,400 persons died in Patna and suburbs whereas Johan Marshal is of the view that about 1, 03,000 death in which 50,000 were Muslim and 53,000 were Hindus.
122. John Marshall, 'Notes and Observations on East India', (ed.), S. A. Khan, *John Marshallin India – Notes and Observations in Bengal, 1668-72*, London, 1927, pp. 125-7, 138, 149
123. Abbe Carre, *The Travels of the Abbe Carre in India and near East, 1672-74*, Vol. I, (ed.), Sir Charles

- Faweett, London, 1947, pp. 233, 264
124. Jai Chand, *Saiki*, p.17.
 125. Jai Chand, *Saiki*, p.18.
 126. Jai Chand, *Saiki*, p.19.
 127. Jai Chand, *Saiki*, p.19.
 128. After the death of Maharaja Jaswant Singh, Emperor Aurangzeb tried to convert the *parganas* of Marwar into *Khalisa*.
 129. Jai Chand, *Saiki*, p.20, 24, 25 and 27
 130. Jai Chand, *Saiki*, p.37-40.
 131. Ali Mohammad Khan, *Mirat-i-Ahmadi*, p. 300
 132. Ali Mohammad Khan, *Mirat-i-Ahmadi*, p. 300
 133. Ali Mohammad Khan, *Mirat-i-Ahmadi*, pp. 300-301
 134. Jadunath Sarkar, *History of Aurangzeb*, Vol. IV, M. C. Sarkar & Sons, Calcutta, 1919, p. 263
 135. Khafi Khan, *Muntakhabul- Lubab*, Vol. II, Part, I, pp. 236-7
 136. Ali Sher Qani, *Tuhfatu-l Kiram*, Vol. III, p. 97. Cf. Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p.120
 137. Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p.120
 138. Jai Chand, *Saiki*, p. 40 and 49.
 139. Jai Chand, *Saiki*, p. 50-51.
 140. Jai Chand, *Saiki*, p. 50.
 141. Jai Chand, *Saiki*, p. 51.
 142. Yahya Khan, *Tazkiratu-l Muluk*, f. 409, f.108a-b. Cf. Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p.120; He says that they first came to Delhi and then moved onwards Ujjain. Are the present settlements of Bagaris in eastern Malwa the result of this migration?
 143. ¹*Chitthi VS 1753/1694*, Cf. S. P. Gupta, *The Agrarian System of Eastern Rajasthan*, p. 139.
 144. C. R. Wilson, (ed.), *The Early Annals of the English in Bengal*, Vol. I, Calcutta, 1911, p. 401
 145. Munhta Nainsi, *Marwar-ra-Pargana-ri-Vigat*, Vol. II, (ed.), Narain Singh Bhati, p. 368
 146. Jai Chand, *Saiki*, p.58. Cf. B.L. Bhadani, *Peasants, Artisans and Entrepreneurs*, p. 56
 147. Ali Mohammad Khan, *Mirat-i-Ahmadi*, p. 335-6; Jai Chand, *Saiki*, p. 58
 148. Alexander Hamilton, *A New Account of the East Indies from the Year 1688- 1723*, (ed.), W. Foster, Vol. I, photo reprint, New Delhi, 1995, p. 122. Hamilton says the drought had begun three years before he came to Thatta, which was in 1699.
 149. *Akhbarat*, 46/123. Checked in Microfilm, preserved in Centre of Advanced Study, Department of History, Aligarh Muslim University, Aligarh
 150. Bhimsen, *Nuskha-iDilkusha*, f.146a; See also Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p. 121
 151. Bhimsen, *Nuskha-iDilkusha*, f.146a; See also Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p. 121
 152. See *Akhbarat A*, 245 (22, July 1704) for reference to “scarcity of grain and lack of rain” throughout the Dakhin. Irfan Habib, *The Agrarian System of Mughal India 1556- 1707*,
 153. Nicolao Manucci, *Storia do Mongor, 1656-1712*, transl. with introduction and notes by W. Irvine, Vol. IV, Indian Text Series, 1907-8, p. 97
 154. Jai Chand, *Saiki*, p. 66-67.

155. Ali Mohammad Khan, *Mirat-i-Ahmadi*, p. 273
156. Ali Mohammad Khan, *Mirat-i-Ahmadi*, pp. 270-72
157. Ali Mohammad Khan, *Mirat-i-Ahmadi*, p. 272
158. Abbas Sarwani, *Tarikh-i-Shershahi*, pp. 64, 70.
159. AbulFazl, *Ain-i Akbari*, Vol. II, p. 158
160. AbulFazl, *Ain-i Akbari*, Vol. I, p. 268
161. The Tax was firstly introduced by Sher Shah on cash, but Akbar levied it on kind. From this tax the seed-grains were made available to the poor cultivator for sowing purposes and poor people could buy grains in cheap prices from these grain houses maintained by *Dahsaritax*, in the times of calamities.
162. Abdul QadirBadauni, *Muntakhab- utTawarikh*, Vol. II, p. 324
163. Shaikh NurulHaq, *Zubdat-utTawarikh*, H. M. Elliot & John Dowson, *The History of India as told by its own Historians*, Vol. VI, Low Price Publication, Delhi, 2008, p. 193
164. Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part., I, p. 362
165. Abdul Hamid Lahori, *Padshahanama*, Vol. I, Part., I, p. 364
166. William Foster, *The English Factories in India 1655-60*, pp. 210 and 257
167. Comprising two circles of ropes long enough to suit the depth of the well, fixed strips of wood between them and on these fastened pitchers. The ropes with the wood and attached pitchers are put over the well wheel. At one end of the wheel-axle a second wheel is fixed, and close to it another on an upright axle. This is last wheel turned by the bullock; its teeth are caught in the teeth of the second, and thus the wheel with pitchers is rotated. Mohibbul Hasan, *Babur Founder of the Mughal Empire in India*, Manohar, New Delhi, 1985, p. 131
168. At the well-edge set up a fork of wood, having a roller adjusted between the forks, a rope is tied to a large bucket; the rope is put over the roller and tied on the other end to the bullock. One person drives the bullock, another empties the bucket. Mohibbul Hasan, *Babur Founder of the Mughal Empire in India*, p. 131
169. Babur, *Baburnama*, p. 486; See also Sheikh Zainuddin, *Tarikh-i-Baburi*, pp. 253-4. See Mohibbul Hasan, *Babur Founder of the Mughal Empire in India*, p. 131
170. Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p. 28.
171. Mir Masum, *Tarikh-i Sind*, (ed.), U. M. Daudpota, Poona, 1938, p.110; *Mazhar-i-Shahjahani*, p. 64. Cf. Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p. 28
172. MunhtaNainsi, *Marwar-ra-Pargana-ri-Vigat*, (ed.), Narain Singh Bhati, Vol. I, pp. 262-72.
173. Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p. 28.
174. Irfan Habib, *The Agrarian System of Mughal India 1556-1707*, p. 28.
175. John Fryer, *A New Account of East India and Persia being Nine Years' Travels 1672-81*, Vol. II, p. 94
176. S. S. Kulshreshtha, *Development of Trade and Industry under the Mughals*, p. 183
177. AbulFazl, *Akbarnama*, Vol. III, p. 320
178. Jean Baptiste Tavernier, *Travels in India*, Vol. I, p. 121.
179. Abha Singh, 'Irrigating Haryana: The Pre-Modern History of the Western Yamuna Canal', in Irfan Habib (ed.), *Medieval India I :Researches in the History of India 1200-1750*, Oxford University Press, New Delhi, 2009, p. 54
180. Abdul QadirBadauni, *Muntakhab- utTawarikh*, Vol. III, p. 198; Abha Singh, 'Irrigating Haryana: The Pre-Modern History of the Western Yamuna Canal', in Irfan Habib (ed.), *Medieval India I :Researches in the History of India 1200-1750*, Oxford University Press, New Delhi, 2009. p. 54.
181. Firoz Shah Tughlaq built the city of Ferozabad in 1354-55 on the banks of the river Jumna. Then he

- marched on a hunting expedition to Depalpur and constructed a large canal, forty eight kos in length from Sutlej to the Kugur. He also constructed another canal in the year 1356 from the hills of Munder and Surmore to Jumna, in which seven other minor streams were connected.
182. According to Badauni See Abdul Qadir Badauni, *Muntakhab- utTawarikh*, Vol. III, p. 198; Irfan Habib is of the view that probably he repaired or re-excavated the bed of the canal, and named Shaikhu- Ni after Prince Salim, was cut from the Yamuna and ran for 50 kurohs in the direction of Karnal and beyond.
 183. Akbar's *farman* of 1570-71, translation by H. Yule published in W. E. Baker, *Memoranda on the Western Jumna Canals*, London, 1849, pp. 95-102. Cf. Irfan Habib, *Agrarian System of the Mughal India 1556-1707*, p. 34.
 184. Abdu Qadir Badauni, *Muntakhab-utTawarikh*, Vol., I, p. 197
 185. B. N. Goswami and J. S. Grewal, *The Mughals and Sikh Rulers and The Vaishnavas of Pindari*, Simla, 1969, Documents No. III. p.94-95; See Ali Nadeem Rezavi, *FathpurSikri Revisited*, Oxford University Press, New Delhi, 2013, p. 22.
 186. AbulFazl, *Ain-i Akbari*, Vol. I, p. 46
 187. Inayat Khan, *Shah Jahan Nama*, p. 26
 188. Sujan Rai Bhandari, *Khulasat-utTawarikh*, (ed.), Zafar Hasan, Delhi, 1918, p. 77; Abdul Hamid Lahori, *Padshahnama*, Vol. II, Part, II., p.169, mentions regarding the distance of *Nahr* was 48 ½ *KurohJaribi*; Khafi Khan, *Muntakhabul- Lubab*, (ed.), Maulvi Kabir Aldin Ahmad, Vol. I, Part, I, p. 570, have different measurements about the distance of the same *Nahr*, 49 *KurohJaribi*, So, about the exact distance of the *nahr*, the contemporary writes had recorded different measurements.
 189. H. M. Elliot & John Dowson, *The History of India as told by its own Historians*, Vol. VII, Low Price Publication, Delhi, 2008, 67-68; see Lahori *Padshanamah*,
 190. AbulFathQabil Khan, *Adab-iAlamgiri*, Vol. I (ed.), Abdul Ghafur Chaudhri, , Lahor, 1971, pp. 207-8; Aurangzeb, *Ruqat-iAlamgiri*, Vol. I, (ed.), SaiyadNajib Ashraf Nadvi, Azamgarh, 1930, p. 134
 191. Muhammad Sadiq Khan, *Shahjahan-nama*, Or. 174, ff. 60b-61a; Or. 1671, f. 34a. Cf. Irfan Habib, *Agrarian System of the Mughal India 1556-1707*, p. 33
 192. Royal Commission on Agricultural Report, London, 1928, p. 325. Cf. Irfan Habib, *Agrarian System of the Mughal India 1556-1707*, Oxford University Press, 1999, p. 33
 193. Sujan Rai Bhandari, *Khulasatu-t Tawarikh*, p. 53
 194. W. H. Moreland, *India at the Death of Akbar An Economic Study*, Low price Publication, Delhi, Reprinted, 1990, p.127.
 195. David Grigg, *Population Growth and Agrarian Change An Historical Perspective*, p. 65.
 196. B. L. Bhadani, *Peasants Artisans and Entrepreneurs*, p. 30.
 197. W. H. Moreland, *India at the Death of Akbar An Economic Study*, p.128.
 198. W. H. Moreland, *India at the Death of Akbar An Economic Study*, p. 266.
 199. Karl Marx disagreed vehemently with Malthus, finding the roots of hunger and other forms of human misery in relations oppression and exploitation tied to the organisation of production. Marx's theory of population is specific to the capitalist mode of production. Within such productive systems, the rapid accumulation of capital reduces the need for labour, creating a relative surplus of labour, an "industrial reserve army", condemned to unemployment or underemployment, low wages, miserable living conditions, and persistent hunger. Lucile. F. Newman, *Hunger in History Food Shortage, Poverty, and Deprivation*, p. 8
 200. Lucile. F. Newman, *Hunger in History Food Shortage, Poverty, and Deprivation*, p. 8.
 201. Peter Mundy, *The Travels of Petre Mundy in Europe and Asia 1608-1667*, Vol. II., (ed.), Sir Richard

- Carnac Temple, The Hakluyt Society, London, 1914, p. 345.
202. Peter Mundy, The Travels of Petre Mundy in Europe and Asia 1608-1667, Vol. II., p. 346
203. W. H. Moreland, From Akbar to Aurangzeb A Study in Indian Economic History, Oriental Books Reprint Corporation, reprinted, New Delhi, 1972, p. 218; Tapan Raychaudhuri and Irfan Habib, (eds.), *The Cambridge Economic History of India 1200-1750*, Vol. I, p. 476.

