

## **FAMINES AND EPIDEMICS IN INDIA FROM 1630-1947: A REVIEW OF LITERATURE**

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### **Abstract**

Famines and epidemics increased under colonial rule and have been studied. However, there is not much in-depth and extensive literature on causal relationships between these natural catastrophes and artificial factors, including the long-term factors. This article focuses on a detailed study of short-term and long-term factors which were responsible for increased appearance of famines and epidemics. The environmental degradation that began in the form of deforestation, and increased consumption of grasslands began since ancient times in India, and continued in the medieval era. Its continuation under colonial rule had drastic impacts. The environmental degradation resulted in poor soil, flooding, and droughts, thus, making man responsible for increased famines and epidemics. Moreover, colonial policies such as, lack of artificial irrigation, improper sanitation system, insufficient relief measures, increased taxation, railway development, and industrialization played a crucial role in determining reappearance of famines and epidemics. The article also demonstrates the consequences of the policies in the form of the outcome of famines and epidemics, and their impacts on India, and the British efforts to overcome the drastic impacts. This article traces the artificial factors responsible for increased catastrophes under British rule in India.

**Keywords:** *Famines, Epidemics, Artificial factors, and Colonial India*

**Introduction:**

The environmental deterioration that began in ancient times and continued under the Sultans and Mughuls led to a permanent damage to the land and climate and its impact were highly visible during the colonial era. More importantly poor sanitation system and lack of artificial irrigation was also a feature of colonial rule initially, and until it was improved, famines and epidemics continued to ravage India. The colonial era records more famines and epidemics than the ancient or medieval era. Specific factors and theories have emerged over time that explains the causes behind the recurrence of famines and epidemics in colonial India. Famines and epidemics existed in India since ancient times, their effects worsened due to man-made causes under colonial rule.<sup>1</sup> Though environmental change was there, it was also a result of man-made factors and combined with colonial rule, artificial factors overshadowed natural factors and increased famines and epidemics.

**Recordkeeping of Famines in India:**

The comprehensive recordkeeping of famines began around the mid-nineteenth century<sup>2</sup> when the East India Company took over India's control.<sup>3</sup> Before the mid-nineteenth century, one could find scattered records of natural calamities. There is a misconception surrounding the appearance of famines and epidemics, as it is thought that these catastrophes occurred at fewer instances in ancient and medieval India. However, in certain epics, hymns, and other tales, one can see references to famines and epidemics. Though famines and epidemics increased in colonial India, the ancient and medieval eras were no exception to these catastrophes. The famines and epidemics before the colonial era lack in the record but not in actuality, as they have not been recorded in detail,<sup>4</sup> and one can only get a glimpse of these disasters. The absence of comprehensive records of famines and epidemics in ancient and medieval India explains why an impression prevails that there were fewer instances of famines and epidemics.

**Natural and Artificial Factors:**

There are two basic ways to analyse the causes of famines: famines were either natural or artificial.<sup>5</sup> Natural factors included overpopulation, geographical features and climate. Whereas, artificial factors include political factors, such as the relief measures taken by the state that the politicians or leaders could manipulate.<sup>6</sup> Relief measures played a major role in providing ease during the famine days, and when the relief was weak, it worsened the situation of the suffering people. In contrast, efficient relief during famine and epidemics saved the society

from high mortality. Furthermore, failure of government policies, war time considerations, political instability, mishandling of food distribution, and corruption, etc., are the factors that give way to famines and epidemics.<sup>7</sup> The East India Company and its successor, the British Raj, like all Western colonial regimes, attempted to ensure that all the people, regardless of class, had access to food.<sup>8</sup> In India's case, the expansion of the population, urbanization, and resulting poor sanitation closely associated with British rule, together with climate change, resulted in poor South Asians, especially those in already marginalized groups on the subcontinent becoming more exposed to famines and diseases.<sup>9</sup> Not only South Asia, but since ancient times other civilizations such as the Egyptian civilization faced many famines and epidemics due to the dependence on water.<sup>10</sup> Variations in the Nile flow resulted in floods and even forced people to eat their children.<sup>11</sup> Moreover, just like epidemics accompanied famines in India, Ethiopia shares a history of relation between Malaria and regional occurrences and how over time people develop immunity against it.<sup>12</sup> There were multiple factors behind famines and epidemics under colonial rule, and specific theories have developed over time to explain these causes.

**Artificial Factors:**

Artificial factors are those resulting from colonial rule in India and including political shortcomings in different forms. These artificial factors had a major role to play in colonial India as under colonialism, man's actions were more responsible than nature as natural factors were also triggered by human actions.

**The Cultural Theory of Famines:**

Charity or almsgiving played a significant role in providing relief to the poverty-stricken people.<sup>13</sup> B.M. Bhatia believes that colonialism in India destroyed the concept of mutual help.<sup>14</sup> Charity and almsgiving reduced with time and worsened people's sufferings. Private charities were functional during the colonial era,<sup>15</sup> but were limited and had no deep impact on the sufferings of the people.

**Political Theory of Famines in India:**

The colonial state's short-sighted policies, administrative failure, and other such political factors had a dominant role in the appearance of famines and epidemics in India. Amartya Sen believes that famine occurred due to inflation, and not due to a short supply of food in the market.<sup>16</sup> He supports his view by taking the example of the 1943 famine in Bengal.<sup>17</sup> It occurred during the war days, and the great demand for

food for the military resulted in demand shock and gave way to the Bengal famine.<sup>18</sup> Most of the food was diverted to the camps or military, and it created food shortages for the local people. During this war, trade between India and Burma was disturbed due to Japan's occupation of Burma.<sup>19</sup> Thus, the price of grain rose very high and resulted in famine. Moreover, the famine of 1943 was the result of the policy failure of the British Prime Minister, Winston Churchill, as it was hardly the result of crop failure or soil changes.<sup>20</sup> The government's policies of taxation, and relief works increased the impact of famines and epidemics.

### **International Integration of India and Famines and Epidemics:**

India suffered from recurrent famines in the 19th century because the British included India in the world economy in a subordinate position.<sup>21</sup> It exported raw materials at low prices, and the industry of Britain flourished, but on the other hand, it exposed India to famines and epidemics. Moreover, the free trade policy was also promulgated in India and had a negative impact on the Indian economy.<sup>22</sup> Domestic industries suffered, and thousands of people lost their livelihood, and thus, it was impossible for them to feed themselves during the inflation or famine days.

### **Inflation and Famines and Epidemics:**

Inflation took place when there was grain scarcity in the market due to natural factors, such as droughts, floods, or man-made factors such as wars, free trade, and policy failures. Tirthankar Roy believes that the primary cause of famine was inflation.<sup>23</sup> The increased rate of commodities decreased wages, and resulted in famines or food scarcity. This was because inflation reduced real wages and people were unable to buy food.<sup>24</sup> One of the major factors behind increased grain prices was the excessive export of grains by the colonial rulers.<sup>25</sup> Famines in the nineteenth century diverted people towards contaminated food and water that resulted in certain epidemics of plague, cholera, and malaria.<sup>26</sup>

Furthermore, wars also resulted in increased prices of food.<sup>27</sup> Poor people suffered the most from these famines and epidemics.<sup>28</sup> Hence, poverty, contaminated food, and overpopulation played a crucial role in giving way to famines and epidemics. Epidemics were more responsible than famines for high mortality.<sup>29</sup>

### **Industrial Development and Famines and Epidemics:**

The Indian economy faced a revolutionary situation 1858-1914 in the form of railroads, the opening of the Suez Canal; that increased

foreign trade.<sup>30</sup> These increased the demand for machine-made cloth instead of handmade, and thus the weavers suffered.<sup>31</sup> Landless wage labourers also increased during the nineteenth and twentieth centuries as these unemployed people had no source of income.<sup>32</sup> In the urban centres they got employment on daily wages, but the condition of rural labourers deteriorated with time.<sup>33</sup> With the advent of industries, field workers also decreased in Bombay, and less labour meant less fieldwork, fewer grains, and consequently, famines.<sup>34</sup> Wages were high in Bengal, Punjab, and Bombay, due to which labourers from neighbouring areas migrated to these urban centres in search of work.<sup>35</sup> When these labourers left for urban centres, wages in other metropolitan areas such as U.P and Madras also increased due to high demand.<sup>36</sup>

Donald Attwood believes that industrialization in 1920 decreased famines and promoted development and market had a great role to play as it controlled famines from emerging in several districts of India.<sup>37</sup> Industrial development brought other side effects, as it exposed people to one another as workers transferred contagious diseases easily from one another and it resulted in epidemics.

### **Famines and Epidemics Due to Unemployment:**

Unemployment was another factor that gave way to famines and epidemics in India. Droughts resulted in crop failure, which eventually gave way to famines, and the labourers had nothing to do except work in the fields.<sup>38</sup> They could not feed their families and relied upon contaminated food that became the cause of several epidemics. Employment was given to people in the villages so that they do not migrate to other areas during hardships.<sup>39</sup> The government then decided to carry work from the labourers in urban areas, but it had several drawbacks, such as the poor hygienic conditions, and crowding resulted in epidemics.<sup>40</sup> In 1860, the government decided to employ labourers at low wages as it would only lead needy people to seek employment.<sup>41</sup> This method had certain defects, such as the labourers being unable to complete their work due to starvation which led to a deduction of money from their wages.<sup>42</sup> Famine codes devised also failed during the famines of 1896-1897 and 1899-1900 as 4.5 million people lost their lives during the famine of 1896-1897 and 3.25 million during 1899-1900.<sup>43</sup>

In the Bombay Presidency, the famine codes were applied, but they turned out to be oppressive. The codes compelled the British government to provide relief, but it proved of no help. As demand for hand-made cloth was replaced with industrial cloth, weavers suffered.<sup>44</sup> They indulged in relief works and even the stones that they broke down

in the sun's heat were not utilized to construct anything, but the government realized this only later.<sup>45</sup> Thus, these codes were again revised in the twentieth century but likewise failed in 1943 when the famine in Bengal took place.<sup>46</sup>

The Great Depression of the 1930s also had a deep impact on health conditions worldwide. It resulted in malnutrition, poverty, and mass unemployment which exposed people to certain diseases and health conditions deteriorated.<sup>47</sup>

Secondly, the work that the labourers carried out was temporary, such as it was related to roads mostly, and the work vanished with rainfall.<sup>48</sup> This shows that employment provided by the British government did not overcome the food problem, but it even put starving people at higher risks.

### **Railways, Famines, and Epidemics:**

The modernization in India also enhanced famines and epidemics. Railways increased famines, but the economists, Robin Burgess and Dave Donaldson, believe that famines decreased with the advent of railways.<sup>49</sup> According to them, grain was exported easily to the areas with food scarcity and prevented famines.<sup>50</sup> Whereas, grains were imported from these areas and taken to the urban centres and other places where the grain price was high owing to droughts, famines, or food shortages.<sup>51</sup> In pre-colonial India, it was difficult to move large quantities of grain from one area to another. The rulers also prohibited any such action during the days of food scarcity.<sup>52</sup> The railway expansion enhanced the appearance of malaria and mortality increased. The construction sites became a hub and the disease of these people spread.<sup>53</sup> David Arnold also believes that the Europeans carried diseases from one region and spread them wherever they ruled.<sup>54</sup>

The Indian nationalists such as Mahatma Gandhi believed that the free food movement promoted famines<sup>55</sup> and reduced famine relief.<sup>56</sup> In the view of the German philosopher, Karl Marx, railway extension in India helped the British export raw materials at low prices to England.<sup>57</sup> It accelerated industrialization in Britain and left India with an agricultural economy.<sup>58</sup> Raw cotton was exported to England, due to which the domestic cotton industries vanished.<sup>59</sup> Export of food grains increased with the expansion of railways in India.<sup>60</sup>

William Harrison Moreland held that railways decreased the instances of famines in colonial India. In 1860, a drought emerged in Northern Provinces, but famine was avoided due to timely transportation

of grains by train.<sup>61</sup> Similarly, a famine also emerged in Orissa 1866 and Rajputana in 1868 due to absence of railways in these regions and the famines increased in 1890's enhancing the economic burden.<sup>62</sup> It showed that the relief commission had failed to avoid famines due to which the commission policies were revived too.<sup>63</sup> The relief measures later on proved effective as evident from lesser mortality during the 1918 famine.<sup>64</sup> He also believed that the monsoon failure and increase in population were two of the major factors behind the emergence of famines and epidemics in colonial India as food consumption overtook productivity.<sup>65</sup> Less productivity and more consumption also resulted in food shortages in Bengal in 1943 leading to a famine and epidemic which resulted in 1.5 million deaths.<sup>66</sup> McAlpin also believes that the invention of Indian railways and the changed economic system decreased famines under colonial rule.<sup>67</sup>

However, even during these famine years, when millions of people died, the export of grain and rice continued.<sup>68</sup> Railroads could have aided in food transportation and distribution to famine-stricken areas, but they used rails to export food grains and raw materials to Britain.<sup>69</sup> This shows that, on the whole, railways caused more harm than benefit to the Indian economy as it aided the rulers and not the ruled.

Along with the famines, epidemics also increased with railroads in India. Railways had a major role as people from different regions and castes travelled in the same train cabin. The poor people who were vulnerable to famines and diseases travelled along with the healthy people. These people carried diseases to other places and spread them to other people in the trains they travelled. The caste system that prevailed in India prevented such overpopulation of people of different castes as they were aware that eating and sitting with the low caste can transmit diseases easily.

#### **Sanitation during the Colonial era:**

The colonial government did not focus much on sanitation as it failed to control unnecessary urban expansion and the development of slums, and funding and focusing was on urban governments.<sup>70</sup> In 1898 and 1912, trusts for sanitation were made in Bombay and Calcutta, which built houses for the poor, but the rents were so high that the people living in slums moved to other slums that were not to be demolished.<sup>71</sup>

The government focused on clearing slums and making the cities beautiful whereas the poor people were forced to live in the crowded areas.<sup>72</sup> The sanitation system was not carried out properly before the 20th century due to which India remained a hub of epidemics. Thus, poor

sanitation during the colonial era as compared to ancient and medieval resulted in increased epidemics.

#### **Long-term Causes of Famines and Epidemics:**

Apart from climate, there were other long-term causes that made the soil infertile. Such as the deforestation and clearing of grasslands that began under the ancient era had long-term impacts which were not visible during the medieval but also the colonial era. Over- cultivation on a soil takes away its impurities and the land gradually become barren. As the permanent settlements emerged in ancient India, people started to practice multi-cropping, thus, over the years it must have affected the land. Secondly, deforestation began centuries ago and increased with time which must have adversely affected colonial India, as deforestation continued during the Mughul era and the climate change and crop destruction due to rain scarcity or floods was an evident outcome during the colonial rule.

#### **Poverty Leading to Famines and Epidemics:**

The British journalists Vaughan Nash and William Digby agreed with the nationalists that colonial rule increased poverty in India.<sup>73</sup> The Indian political leader Dadabhai Naoroji also believed that the British created poverty in India, since industrial development in England resulted from plundering India's wealth.<sup>74</sup> Brijesh K. Mishra and Siddhartha Rastogi also agree that The British could have changed the economic conditions of the country but they drained the country to some extent.<sup>75</sup> The British government imposed heavy land revenues on the peasantry.<sup>76</sup> As a result, the peasants were left with no surplus for crop failure years and became a major factor behind poverty, famines, high mortality, and debt.<sup>77</sup> In addition to this, the British imposed high duties on the export of goods from India.<sup>78</sup> Living expenditure also increased with an increase in grain prices and thus worsened the conditions of the peasantry instead of growing prosperity.<sup>79</sup> Pre-colonial India was also no different in terms of inequality and under British rule, landlords, traders benefitted and the inequality further increased, resulting in more people becoming poor.<sup>80</sup> Thus, poverty was directly linked with famines and epidemics as poor people suffered the most during famines.

#### **Laissez-faire and Famines and Epidemics:**

In the nineteenth century, almost 1243 villages were deserted out of 4032 villages that show the peasantry's poor condition.<sup>81</sup> Usury also increased under colonial rule, and so did the moneylenders.<sup>82</sup> In the view of the Scottish economist, Adam Smith, too much intervention by the



government in the markets resulted in famines.<sup>83</sup> The British applied this policy in India only during the days of famine.<sup>84</sup> Particularly, during the famine years from 1876-1878 in Madras and Bombay, the government followed the basic principle of *laissez-faire*.<sup>85</sup> The government under the *laissez-faire* policy remained aloof from interfering in grain trade and provided limited relief so that people do not become too much dependent on state's help.<sup>86</sup> Apart from all this, the relief policy by the colonial government in India was also malfunctioning.<sup>87</sup> Even when famine struck India under the British, they continued to receive revenue from the peasants.<sup>88</sup> These harsh policies worsened famines and people suffered even more than before.

### **British Short-sighted Policies and Famines and Epidemics:**

One of the reasons for famines in India was the British's short-sighted policies. The British export policies also contributed towards famines in India to a great extent.<sup>89</sup> They imposed heavy land taxes on people that worsened the situation of the peasantry when drought took place as the peasants were unable to pay the heavy revenue.<sup>90</sup> Famines were absent in Malwa before colonialism, and it turned into a region of deprivation.<sup>91</sup> The colonial states remained backward in infrastructure, and development and the industrial societies made the condition of these states worse through plundering.<sup>92</sup> Imperial and colonial literature only focuses on short-term natural causes that led to famines, such as drought that created food dearth and turned into famines.<sup>93</sup> Even the Famine Commission of India under the British tried to destroy the records of famine and the factors that went against the government.<sup>94</sup> This is because these policies blamed the administration and held the colonial policies responsible for the reoccurrence of famines and epidemics.

### **Famines and Epidemics:**

In India, the famine of 1630-1631 had recorded the highest casualties.<sup>95</sup> Bengal was devastated for the first time severely in 1770 under the East India Company.<sup>96</sup> Fourteen million people lost their lives from the early to the mid-nineteenth century.<sup>97</sup> Famine occurred in different regions at different times and took millions of lives.<sup>98</sup> However, the famine from 1896-1897 affected almost the whole of India.<sup>99</sup> Followed by the famine, plague also appeared in 1896 to 1899 in Bombay and it travelled from Arabian or Persian Gulf to India.<sup>100</sup> The plague also reached Bengal, Madras and N.W.F.P., and Punjab.<sup>101</sup> The greatest famine occurred in India from 1899-1900.<sup>102</sup> According to the official figures, one million people breathed their last, but Indian Special Correspondent believed that India lost almost nineteen million people

owing to the famine.<sup>103</sup> The industrial societies met the need for grains at home through trade.<sup>104</sup> The grain shortfall in Britain was 40%, and Britain did not face any famine as the imports satisfied the needed grains.<sup>105</sup>

Grains were exported from India to Europe and faced famines at home.<sup>106</sup> Even during the Irish famine in 1845-1849, food was imported from India and contributed to worsening India's situation.<sup>107</sup>

Indian people have always suffered for the political gains whether it was under the pre-colonial era, colonial era, or post-colonial era.<sup>108</sup> The British allowed Kumbh Mela even if there was a chance of widespread epidemic but it was for political gains and the history was repeated in the Covid-19 times.

#### **Relief Measures by the Colonial Government:**

Free food distribution in the form of *langars* helped the poor survive famines in the pre-colonial era. Prasanna Parthasarathi has suggested that during the pre-colonial era, food was distributed on a large scale in Bengal in 1769-1770.<sup>109</sup> Furthermore, the Indian economic historian, Dharma Kumar, postulates that the pre-colonial governments provided famines relief in loans, grains, and the rich also supported the poor.<sup>110</sup>

Mike Davis also believes that the insufficient response of the colonial rulers was one of the major factors which resulted in famines in the 1870s and 1890's as it turned harvest failures into famines.<sup>111</sup> The Scottish historian Niall Ferguson also holds the same view and blames the British poor response as a primary factor behind the emergence of famines.<sup>112</sup> According to Mike Davis, the colonial rule damaged the politics and economy of India which ultimately created famines.<sup>113</sup>

According to Tirthankar Roy, delayed action or relief was the reason that increased the intensity of famines, and the British did not provide famine relief intentionally.<sup>114</sup> The state had limited data on the harvest of many regions, and much of the state's resources were drained by the military in the colonial era.<sup>115</sup> The officers only visited a few villages near their stations, and the monsoon rains even made it more difficult for them to travel.<sup>116</sup> Famine relief was there, but it hardly reached the victims on time.<sup>117</sup> However, these famines and the conditions prepared the state and the government to cope better with successive disasters.<sup>118</sup>

Arup Maharatna believes that apart from population increase, exploitation by the colonial rulers, monsoon failure was the primary

factor behind the reappearance of famines in India.<sup>119</sup> Furthermore he divides relief measures into two categories; direct relief measures included work on daily wages and the indirect relief measures included land, agricultural and other tax remissions.<sup>120</sup> Epidemics also followed these famines due to mal- nutrition and unsanitary conditions during the famines.<sup>121</sup>

### **Hospitals in India under the British:**

In 1679 the first hospital in India was opened in Madras and was known as Madras General Hospital.<sup>122</sup> The British opened four hospitals in Madras from 1800-1820.<sup>123</sup> In addition to this, in 1796, the Presidency General Hospital was also opened in Calcutta.<sup>124</sup> From 1854 onwards, the government also began distributing medicine to other dispensaries and hospitals in India that operated on a minor scale.<sup>125</sup> The All-India Institute of Hygiene and Public Health was also inaugurated in 1930 in Calcutta.<sup>126</sup> After every 330 square miles, a hospital was operating in India in 1902.<sup>127</sup> Though there were hospitals, these improved in the twentieth century, and only in the twentieth century epidemics decreased.

### **Sanitary Conditions in India under the British:**

The Military Cantonments Act of 1864 formed sanitary police. The police had to look after the sanitary conditions in the military camps to improve the hygiene of the military.<sup>128</sup> Furthermore, the Act formed civil boards to take care of the hygiene of civilians. Sanitary departments were formed in every province from 1870-1879.<sup>129</sup> In central provinces, sanitary engineers were also recruited but due to insufficient money they were unable to carry out the sanitation process in the initial years.<sup>130</sup> It was not before the end of the nineteenth century that the British tried to maintain the drainage system that was built by Shah Jahan.<sup>131</sup> There was certain neglect on the part of the colonial government regarding improving sanitation as it failed to control unnecessary urban expansion and the development of slums, and remained funding and focusing on urban governments.<sup>132</sup> The British developed cantonment areas separate from the cities, when they realized that sanitation had a direct impact on health.<sup>133</sup>

In 1898 and 1912 trusts for sanitation were made in Bombay and Calcutta which built houses for the poor but the rents were so high that the people living in slums moved to other slums that were not to be demolished.<sup>134</sup> The government focused on clearing slums and making the cities beautiful whereas the poor people were forced to live in the crowded areas.<sup>135</sup> Thus the sanitation system was not carried out properly before the 20th century due to which India remained a hub of epidemics.

**Plague Control under British Rule:**

A plague broke out in 1812 in Kutch and spread to Gujarat and Sindh.<sup>136</sup> This plague epidemic lasted for almost ten years.<sup>137</sup> In the Hisar district of Punjab also, a plague also emerged in 1828 and 1929.<sup>138</sup> Similarly, a plague occurred in 1836 in Marwar.<sup>139</sup> However, these were not officially recorded, and the first official record is of the Bubonic Plague in 1896 and was recorded in Bombay.<sup>140</sup> From Bombay, it spread to Bengal, Madras, Hyderabad, Punjab, Kashmir within one year, and in 1899, almost the entire India was under the spell of plague.<sup>141</sup> According to state records, nearly 2 million people died up to 1903 due to this plague epidemic.<sup>142</sup> A Plague Commission was formed in 1896 to control this disastrous disease.<sup>143</sup> According to the Plague Commission there were several reasons behind the appearance of plague such as the overcrowding in houses, small dark houses, reluctance of people to go to hospitals, and destroying their plague clothes.<sup>144</sup> In 1897, the Epidemic Diseases Act was also passed and gave power to local authorities to take the necessary precautionary measures.<sup>145</sup> This also resulted in riots as people were not ready to allow any inspection of their homes by the state officials.<sup>146</sup> Even they had the power to remove any person from a train or ship if they suspected any symptom of the disease.<sup>147</sup> The military controlled these riots.<sup>148</sup> Many plague committees and hospitals were established to get rid of this plague, as it was necessary to continue trade with India.<sup>149</sup>

Plague also claimed many lives from 1917-1921 and imported grains played a leading role as these grains were contaminated.<sup>150</sup> Though the British government tried to control it but highest death tolls were recorded in 1921 and it only decreased after 1922. There were certain environmental and social factors responsible for the spread of plague in India under the British and the real decline in plague spread was witnessed after the partition.

Furthermore, the 1918 Influenza Pandemic took twelve to thirteen million lives of the Indians and one of the major factors towards increased mortality was famine.<sup>151</sup> Famine in India had made people weak and they became victims of Influenza easily. The British did focus on the Famine Codes and tried to control the destruction caused by famines but their policies were not sufficiently beneficial for the poor people.<sup>152</sup>

**Cholera, Malaria, and Kala-Azar under the British era and its Control:**

Cholera was not unknown to India before colonialism, but the cholera epidemic from 1817-1821 ravaged entire India.<sup>153</sup> Before this outbreak, cholera only emerged in Bengal.<sup>154</sup> Industrial development, such as ease in transportation and trade, played a major role in spreading cholera from one place to another.<sup>155</sup> From 1817-1821, cholera also attacked the military and Company's officers, so the Company became cautious.<sup>156</sup> A Cholera committee was also established after the 1868 cholera epidemic to find out the causes for the occurrence of cholera.<sup>157</sup> According to the Committee, cholera occurred more during the festivities and was brought by travellers, pilgrims, and troops.<sup>158</sup> Hence, the solution was to provide proper sanitation and hygiene to religious festivities, jails, camps, and hospitals.<sup>159</sup> After the 1890s, instances of the cholera epidemic decreased due to the availability of new treatments.<sup>160</sup> At first, the remedial measures were taken only in those areas where military or other government officers were affected.

In addition to cholera, malaria also ravaged India in the colonial era. Malaria is a water-borne disease, and the British ignored the drainage system during the establishment of railroads and irrigation works.<sup>161</sup> These developments resulted in water accumulation and became a house to the mosquitoes causing malaria.<sup>162</sup> After the officers became malaria victims in Punjab and other areas in the 1840s, the British began proper drainage.<sup>163</sup> Malaria mainly emerged in Punjab and continued to occur till 1918.<sup>164</sup> During the drought days, malaria did not appear as droughts stopped the breeding of mosquitoes but poor sanitation resulted in it.<sup>165</sup> Environmental factors such as flooding, water-logging also spread malaria.<sup>166</sup>

Similarly, another contagious epidemic was Kala-azar that emerged in Assam in 1898.<sup>167</sup> The symptoms were similar to malaria with the enlargement of the liver and spleen.<sup>168</sup> Epidemics were not studied in India on a greater level because of the inadequate funds from the British government.<sup>169</sup> In 1884, a laboratory was established in Simla.<sup>170</sup> The indigenous Arabic and Indian medical systems were replaced by Allopathy. The medical system outgrew as people served in the British administrative system in the nineteenth and twentieth centuries.<sup>171</sup> Towards the end of colonialism, few diseases were left and eradicated most.<sup>172</sup> Sanitation was also improved under the British eradicating cholera and other disease epidemics in the late twentieth and early twenty first century.<sup>173</sup> Though the condition of the poor remained the same for many years, diseases were controlled and better handled later on to a large

extent.<sup>174</sup> Thus, most of the diseases were a result of a poor health system and improved towards the twentieth century with the improvement of health and sanitation.

### **Smallpox in the Nineteenth Century:**

Smallpox was a dominant disease in India in the nineteenth century, and at the beginning of the nineteenth century, almost 80% of the population was vulnerable to smallpox.<sup>175</sup> In the early nineteenth century, many people died of smallpox in India.<sup>176</sup> In the 1860s, the British started birth and death registration, but it was initially difficult as the village *kotwals* (watchmen) were illiterate.<sup>177</sup> Smallpox vaccination began in 1802 in India, but it was not before the 1880s that its effects were visible.<sup>178</sup> The Compulsory Vaccination Act was introduced in Madras and Bombay, after which most of the people got vaccinated, and smallpox decreased.<sup>179</sup>

Smallpox epidemics emerged in colonial India every four to seven years.<sup>180</sup> It usually appeared in early spring, reached a maximum in midsummer, and disappeared when the rains began.<sup>181</sup> Famines also resulted in smallpox epidemics as people migrated to other areas, and the overpopulation spread this disease.<sup>182</sup> After vaccination smallpox did not occur in Berar or Oudh during the famine of 1897 and 1908.<sup>183</sup> Few people got smallpox compared to the ratio of people who contracted smallpox before vaccination.<sup>184</sup> Mortality in India was high in the 1870s, 1880s, and 1890s due to famines followed by epidemics, but smallpox vaccination had a profound impact on lowering mortality rates in India.<sup>185</sup>

Inoculation was performed to save people from Shitala throughout the process of inoculation.<sup>186</sup> The Shitala goddess can be found in the medical literature of the sixteenth century.<sup>187</sup> People believed that the goddess Shitala could end the smallpox epidemic.<sup>188</sup> Excavation of a goddess from the tenth to the twelfth-century site in eastern Bengal reflects the Shitala goddess.<sup>189</sup> Her temple is also situated in Banaras.<sup>190</sup> Drought in 1769 resulted in a famine in Bengal and Bihar in 1770 that was followed by a smallpox epidemic.<sup>191</sup> The smallpox epidemic reappeared in Bengal from time to time in the eighteenth century.<sup>192</sup>

In the twentieth-century smallpox epidemic ravaged Bengal three times, in 1915, 1919-1920, and 1928.<sup>193</sup> Several factors were responsible for the smallpox epidemic in Midnapur, Murshidabad, and Mymensingh, such as the movement of people between urban areas and rural areas carrying smallpox and the cultural resistance of people to get vaccinated, rainfall, and food dearth.<sup>194</sup> Certain pilgrimage sites in Bengal became a centre of epidemics, and these people carried smallpox to other areas.<sup>195</sup>

The resistance of people to vaccination was the result of the transformation of indigenous medicine system. Indian people had a medicinal system which focused on preventive and curative measures, but the European system focused mostly on the curative part which made people more vulnerable to diseases and they were not ready to accept a foreign system that was also not much suitable to the Indian environment and people.

### **Goddess Shitala and Smallpox:**

Smallpox epidemics usually appeared in summers in the middle of June in Bengal in the twentieth century.<sup>196</sup> When the humidity increased, the smallpox epidemic usually disappeared.<sup>197</sup> Thus, the failure of rain brought famines and smallpox epidemic.<sup>198</sup> The people worshiped the goddess Shitala to avoid smallpox.<sup>199</sup> The goddess Shitala was worshiped in the beginning by the villagers of Bengal.<sup>200</sup> In spring, people began to worship Shitala Devi and continued until the monsoon disappeared.<sup>201</sup> The goddess Shitala emerged in the twelfth century in India.<sup>202</sup> In the wake of the Mughul Empire's downfall, plundering by the Marathas and the take-over by the British government resulted in the displacement of many people and increased the spread of smallpox.<sup>203</sup> Thus, the famine of 1770 was followed by a smallpox epidemic and cost the lives of millions of people.<sup>204</sup>

### **Conclusion**

Famines and epidemics shared a long cycle of interdependence in India from ancient to colonial times. The instances of famines and epidemics increased in India during the colonial era. Though climate and geography impacted the occurrence of famines and epidemics, the weather almost remained the same in colonial rule, but the intensity of famines and epidemics increased. Colonial records hold climate fluctuations as the significant cause of famines, but the development in India by the British had a dominant role to play. The advent of railroads increased the export to Britain and made India scarce of grains. In addition to that, the position shared by India in the global economy was inferior and became a reason for economic depression at home. However, most of the deaths due to famine were attributed by the colonial government to other causes as it showed the failure of government policies. Similarly, more stress was laid upon the climate than the development program brought to India, as it also reflected the weaknesses and bias of the British government. Man-made factors were more responsible for famines and epidemics in India. The sanitation did not improve until the 20<sup>th</sup> century and was a primary factor behind the

reappearance of epidemics under British rule. Poor sanitation and a transformation of the medicinal system of India also increased epidemics as hygiene was poor and people were reluctant to accept the European medicine system. However, long-term factors also played a role which has not been recognized. Environmental degradation occurred over decades and had adverse impacts in the form of frequent famines and epidemics during colonial rule in India.

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