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Exploring Forest Dynamics In Mughal India: Economy, Culture And Ecology

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Abstract:

Forests play a vital role of our planet's ecosystem and have played a very crucial role in the development of human civilization. They provide a wide range of natural resources. Forest has cultural, spiritual and recreational significance also. From the ancient times, forest is the main part of the human life. The medieval historical sources also provide ample information about the Indian forest and the covered area. Forest as symbols of power for the different states and authorities, so that rules and regulation for promoting agriculture to enhance economic resources are majorly defined by the historical sources. The present paper is based on majorly on the primary sources of the Mughal empire. In the Mughal period forests played a significant role in the economy, cultural and ecology.

Keywords: Terai forest, sarkar, suba, Doab

The relationship between humans and environmental resources has been a pivotal factor in the development of civilizations throughout history. The utilization of resources and the pursuit of new opportunities for economic growth have been recurring themes across different eras. As civilizations have progressed, the utilization of land, deforestation, and advancements in agriculture have been consistent features, reflecting the evolving needs and development of societies. Huges comments that the history of agriculture holds a significant position in environmental history, as it has been practiced for thousands of years and has been a primary source of sustenance for human populations.¹ However, the increasing human population has placed growing pressure on the land, leading to the expansion of human settlements and agricultural activities at the expense of natural habitats such as forests, woodlands, and wetlands. This expansion has resulted in a reduction in vegetation quantity and diversity, impacting biomass and biodiversity. It is evident that agriculture has been and continues to be the most significant factor in altering the world's landscape and natural system.²

Forest, the prime source of medicinal, herbs, woods and foods are the main resources of human development. The forest of Bengal, Agra Allahabad, Sind, Lahore, the Western and Eastern Ghats supplied the raw material. The need of the land for the crop and agriculture, the environmental aspects basically, many environmentalist and environmental historians viewed forest clearing as unfortunate and mourn the loss of wide expanses of forest cover. The advent of agriculture marked a significant shift in human interaction with the environment. Early historical sources depict a strong bond between humans and nature, particularly with forests or *Vanais*. In Indian tradition, trees hold a place of reverence and are revered as *Vriksha Devta*. Romila Thapar observably comments, there are multiple perceptions of the forest and its inhabitants in Indian history, it is evident that there was little understanding of ecology and the devastating impact of deforestation.³ Religious practices surrounding sacred plants and trees reflect the importance placed on environmental conservation. Globally, tree plantation is a widely accepted practice, and cutting down green trees is strictly prohibited and punishable. This highlights the value placed on trees in various cultural and religious contexts.

The development and regional variations of agriculture in early India were significantly influenced by the geographical conditions of the Indian Sub-Continent. Over the course of human activity, the vegetation cover has been extensively altered, with only about one fifth of the total area now classified as protected forest. Half of this protected forest area has been designated as reserved forest, where degrading activities are prohibited. Throughout history, the boundaries of forests and deserts have played a crucial role alongside political and military boundaries.

Before Mughal period it is hard to find the exact extent of forests on the India's map. There is comparatively good evidences for the extensive of forests in Mughal times.⁴ Babur specifically noted the presence of thorn forests in many parts of the plains, providing shelter for peasants resisting tax-collectors.⁵ However the geography of forest cover during these centuries largely depends on the statistical information on extent of cultivation in the *Ain-i Akbari*⁶ with the provincial area under the Akbar and other documents. Despite changes in the boundaries of the Mughal Empire, sources such as *Khulasat ut-Tawarikh* and *Chahar Gulshan* provide statistical data on village-wise forest areas during Aurangzeb's reign⁷, indicating a significant forest cover until the eighteenth century.⁸

During the medieval period, there was an increasing demand for forest produce, yet land was plentiful. Moreland points out that there were no methods of conservation and scientific exploitation comparable to those introduced in modern times. To understand the condition of forests during the time of Akbar, we can draw on knowledge of the state of unregulated forests in present-day India, taking into account differences in means of transport. It is likely that inaccessible forests yielded little to no income, and inaccessibility was more common during that time than it is today.⁹

The northern hill region, Terai, is situated to the south of the outer foothills of the Himalayas, known as the Siwalik Hills, and to the north of the fertile Indo-Gangetic plains of the Ganges–Brahmaputra and their tributaries. It is evident that due to extensive deforestation, the region has experienced a significant reduction in forest cover, resulting in a rapid drainage of water and loss of moisture in the sub-montane tract. This has raised concerns about the ecological environment and the availability of water resources in the region. Historical accounts indicate that areas such as Mughal *suba* Bengal, *Sundanbans*, Chittagong, Sylhet, were dense forested and covered with trees in wider area.¹⁰ In Bihar the *Terai* forest was an undisturbed sway, some areas under the hills in Nepal were apparently under forest covers. Large tracts have been cleared that lay then is wilderness, but there have been clearing too in the past which in late nineteenth century were overrun by the jungle.¹¹ This highlights the significant impact of deforestation on the landscape and ecosystems of the northern hill region and Terai.

The historical accounts of the provinces of Allahabad and Awadh provide valuable insights into the significant forest cover that once existed in the region. Stretching from both sides of the Ganges and extending into Bundelkhand the lower portions of Ganges-Yamuna *Doab*, and Ganges-Ghaghara *Doab*, the area was characterized by extensive forests. Till the sixteenth-eighteenth centuries, there was a large forest cover in the region of Awadh. The Terai Forest spread between the city of Gorakhpur and the Himalayan range. Tavernier comments that it would appear that all was forest north of the town Gorakhpur.¹² Francis Buchanan's estimation in 1807-11 indicated that approximately 1450 sq. miles out of the total area of 7438 sq. miles in the district of Awadh were covered with forest.¹³ The region remained under the domain of forests until the early nineteenth century, when a widespread process of heavy reclamation began.¹⁴ Sleeman's records from 1850 listed twenty our belts of forests in the kingdom of Awadh, covering an estimated 882 ½ sq. miles. This represented a significant reduction in forest cover over a span of just 40 years, amounting to approximately 40 percent.¹⁵ Clearly during the small spam of 40 years forest depletion in the region amounted to approximately 40 percent. In order to increase revenue and to remove the *zamindars* hideouts the clearing of the forests for the purpose of cultivation was generally encouraged by the government. The destruction of the forest, adversely affected the produce and the wild life. It may be assumed, that by 1885-86 such extensive tracts of forest comprising about half a million acres had come under cultivation.¹⁶

Across the Ghaghara to the south, Abul Fazl' s records indicate the existence of a dense forest along the Tons River in the eastern parts of the Azamgarh district, where no traces of jungle remain today.¹⁷ The historical accounts of the forest cover in Allahabad and Awadh provide valuable insights into the environmental changes that have taken place in the region over time. They serve as a reminder of the importance of sustainable land use practices and conservation efforts to preserve natural habitats and biodiversity for future generations.

There were extensive forests, again between Jaunpur and Allahabad and stretches of forest lay too between Allahabad Banaras as recorded by Finch and Peter Mundy.¹⁸ It is worth noting that the Agra *suba* encompassed the central Doab and a significant area of land along the Yamuna and Chambal rivers. Regarding Pelsaert's observation about the shortage of firewood in the Agra region and the sale of woods by weight, it is important to consider that the zone near the Yamuna and Chambal rivers may have still maintained forests for wilderness purposes.¹⁹ This indicates that while there may have been a scarcity of firewood in certain areas, there were likely regions where forests were preserved for ecological and environmental reasons.

The geographical division of the *suba* Delhi into Upper Doab, Haryana tract, and Rohilkhand is evident from historical accounts. The Doab in the thirteenth century almost certainly had pockets of jungle and forests, connected with the Yamuna and Ganges, forests extended along the Aravalli out spurs southwest of Delhi, Doab, Badaun, (Katehr, modern Rohilkhand). By the seventeenth century the Doab was well cleared; and extensive deforestation took place in Katehr.²⁰ However, by the seventeenth century, significant deforestation had occurred in the Doab and Katehr. In the north-west of the Delhi province, a ring of forest existed, which had completely disappeared by the early twentieth century. The Rampur territory had been largely cleared, while dense forests still existed in the upper hills of Nainital until the eighteenth century.²¹ The expansion of cultivated land in this region was supported by the role of canal irrigation.

The Lahore *suba* covered the northern portion of the Panjab in its strict geographical sense. In the region of Dipalpur *sarkar*, area got created by the uncontrolled river as wasteland, when in flood the Indus basin created large stretches of jungle. The most noticeable forest belt was the Lakhi jungle around Dipalpur, situated between the two arms of the Sutlej-Beas Rivers. It has now been obliterated by the canal colonies.²² Moving towards Gujarat *suba*, the region was not heavily covered with forests, although historical references indicate the presence of elephants in the seventeenth century, particularly around the territorial area of the forests of Rajpipla.²³ On the other hand, Malwa and Khandesh, along with the large tracts of Narmada land, were known for their fertility.²⁴ The central Indian forest is believed to have covered most of the eastern area and extended along the Narmada River, particularly to the south of it²⁵. Historical chronicles from the Mughal period provide evidence of the forest tract in the area and its rich wildlife.

During the Mughal Empire, taxes were imposed on agricultural production, and significant official efforts were made to increase revenue by expanding the cultivated area. Peasants were encouraged to bring more land under cultivation. This trend continued into the British rule, where local officers tended to classify only the waste land on the margin of existing cultivation as cultivable, rather than considering other potentially cultivable land. The demand for timber, wood, bamboo, and pasture land increased rapidly, driven by demographic variations and economic needs. This led to a focus on maximizing agricultural production and utilizing available natural resources.

Clearing the forests for escape from the wild animals was also main aspect for human settlements. With the advent of the colonial rule an element developed as exploitation of forests that altered of a man-forest relationship. Demand of Indian teak and commercialization of forest production became the centre of profit. The present geographical scenario of forests is the matter of debate among the modern scholars. The forest policy of the British was based on imperial policy of exploitation. Mahesh Rangarajan describes that forestry regulation in pre-British India was nothing and Mughals also encouraged clearing in a number of forests.²⁶ While Guha and Gadgil argued, “Mughal state claimed only the surplus from grain production in agriculture. The Mughals did not tax horticulture, sheep-raising or fisheries. Nor did they tax forest holdings. The state had no direct claims over lands other than hunting preserves.”²⁷ Sumit Guha comments that “kingship would of course, be available to only a few, and the remaining pastoralists would gradually integrate themselves into the renewed agrarian political and natural environment. In the semi-arid and arid tracts that occupy the greatest part of the Indian sub-continent, herdsmen would have to move from monsoon grazing on the seasonal grasses of the open lands to the foliage and herbage of the forest tracts.”²⁸ The herdsmen also known as *banjaras* and traders also, played significant role in socio-cultural compositions. The clearance of jungle also for in warfare, as recorded in Persian chronicle about Gujarat, that a Mughal official made such successful efforts to subdue the rebel Haj that the latter came out of the forest in person ‘ with chopper and axe in hand for cutting the jungle.’²⁹ Richard Grove, Satpal Sangwan and Vineeta Damodaran, emphasizes, “it is an open question, however, as to whether the continuation of supposed customary land uses would have been more successful than the Company forest departments and their post-1857 successors in arresting deforestation for timber and arable cultivation.”³⁰

The export of Indian teak to Britain had a significant impact on the ship-building industry, as it was a major source of supply for the construction of ships. Additionally, the demand for forest wood by the railways for tracks, wagons, and fuel further exacerbated the destruction of the sub-Himalayan forests in Garhwal and Kumaon. This exploitation of natural resources by the British colonial administration has been widely criticized for its detrimental effects on the environment and local communities. The Mughal state, while not primarily governed by environmental concerns and ecological awareness, did not experience the same level of massive deforestation as occurred under British rule. Traditional methods of forest conservation and the interrelation between socio-economic factors were employed, contributing to a largely sustainable balance in the forests.

The maintenance of sacred groves in India serves as an exemplary traditional practice that has significantly contributed to forest conservation. Throughout history, certain trees such as the Pipal and Banyan trees have been revered and worshipped, leading to their protection from being cut down. This cultural reverence extends to over a hundred species of trees and plants in India, with various communities and religious faiths considering them sacred. While rooted in religious beliefs, these traditional cultural attitudes have played a crucial role in safeguarding and promoting diverse species of trees and plants in the country. As noted by Abul Fazl, historical accounts also highlight the medicinal and practical uses of these revered trees, further emphasizing their significance in Indian culture and conservation efforts. Abul Fazl described, “a wonderful

old *nim* tree in the fort of *Shahgarha*. Its trunk had two branches, one sweet and the other bitter. The first was good for preserving health and in leprosy etc., its both portions were sent to court.”³¹

About the religious trees of India, travellers amazingly give their observations. Italian traveller Pietro Della Valle informs and even compares *Ber* with the Persian *Lul*, and gives reference of Indian Goddess *Parvati* wife of *Mahadev*. Thevenot and Careri describe the value of Banyan tree among the Hindus.³² Jahangir’s observation and remarks are important to know about those certain things which he saw as rare or he recorded, as banyan tree,³³ tamarind tree,³⁴ *shajaru-i-haya*,³⁵ [the plant of modesty, *chui-mui*] in 1620, Kashmir he observed a tree, “in the village Rawalpur, 2 ½ koss from the city towards Hindustan, there was a plane-tree, burnt in the inside. Twenty –five years before this, when I myself was riding on a horse, with five other saddled horses and two eunuchs, we went inside it. When I had handed to mention this people were surprised. This time I again ordered some of the men to go inside, and what I had in my mind came to pass in the same manner. It has been noted in the *Akbarnama* that my father took thirty-four people inside and made them stand close to each other.”³⁶

Forests essentially are the provider of wood. Good quality of timber such as teak, *sal* and *anjeli* wood were available in abundance in India. *Ain-i Akbari* gives information about seventy two types of timber with their qualities in the chapter on building construction.³⁷ Pelsaert mentions, firewood wood very dear and was sold by weight, 60lb. for from 12 to 18 pice (or 5 strives) making a serious expense for a large household it seems that it is highly exaggerated and inflated price.³⁸ It appears that Pelsaert’s observation is connected with those towns where supply of fire wood was scarce because of transport difficulties.³⁹ Abul Fazl mentions the consumption of firewood in the royal kitchen was 150,000 *mans*.⁴⁰ Abul Fazl mentions different kinds of woods and records that *khanjak* wood had been found to be the heaviest and *Safidar* was the lightest wood.⁴¹ Jahangir encamped at Surkhab, Jagdalak and comments, “at this stage I saw many ballut trees (oak or chestnut), which are the best wood for burning.”⁴² The historical references provided highlight the significance of forests in India as a source of timber and firewood.

Trees were associated with the important socio-economic activities in Mughal India and used more prominently than previous centuries. The Mughal artists showed special preference for Persian flora such as cypress, chinar, almond triangular shaped tree on the hillocks, flowering as well as grassy tufts, blossoming shrubs, grassy fields, etc., are all borrowed from Persian paintings to emphasize the decorative aspect of landscape composition.⁴³ Mughal gardens and their architecture possess a splendid and fragrant proud history. Overall, these historical accounts offer valuable insights into the significance of forests and wood resources in India, reflecting their crucial roles in construction, household fuel supply, and even royal settings. The detailed descriptions and observations serve as important records of the historical use and value of forests and wood in the region. The Mughals practiced some forest management as some areas were protected for timber and game. But, agriculture expansion, urbanization, wood harvesting and destruction over the times were the big challenges in the 18th and 19th centuries.

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- ³ Thapar, Romila, 'Perceiving the Forest: Early India', *Studies in History*, 17, vol. xvii, Number 1, New Delhi: Sage Publications, 2001, pp.1-16.
- ⁴ Habib Irfan, *An Atlas of the Empire*, 1986 [1982] Delhi: Oxford University Press, see sheets 4 B,7 B,8 B, 9 B,10B, 11 B, 12 B.
- ⁵ Zahiru'd Din Muhammad Babur, *Baburnama*, eng. translation by A. S. Beveridge, Delhi: Low Price Publication, 1972, [1921], p. 488.
- ⁶ Abu'l-Fazl' Allami, *The Ain-i Akbari*, Translated from the original Persian by Blochmann, 1977 [1873], New Delhi: Oriental Books, vol. I, & Col. H.S. Jarrett, second edition corrected and further annotated by Jadunath Sarkar, New Delhi: Oriental Books, 1978, [1891], vol. II & III, Beames, J., 'On the Geography of India in the Reign of Akbar', *Journal of Asiatic Society Bengal*, LIII, 1884, pp. 215-32, for *Awadh*; LIV, 1885, pp. 162-82.
- ⁷ *Khulasat ut- Tawarikh & Chahar Gulshan*, translated by J. N. Sarkar, *India of Aurangzib, Topography, Statistics, and Roads compared with the India of Akbar with extracts from The Khulast u-Tawarikh and the Chahar Gulshan*, Calcutta: Sanyal & Co., 1901.
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- ⁹ Moreland, W.H., *India at the Death of Akbar an Economic Study*, Delhi: Atma Ram & Sons, 1962, pp. 134-135.
- ¹⁰ *Ain-i Akbari*, H. Blochmann, *op.cit.*, vol. I, p. 391.
- ¹¹ Beames, J., *Awadh*; LIV, *op.cit.* p. 177.
- ¹² Jean Baptiste Tavernier, *Travels in India*, Eng translation by V. Ball, Delhi: Low price publications, reprinted, 2007, vol. II, p. 205.
- ¹³ Buchanan, Francis, *Districts Reports, (1807-11)*, edited by Montgomery Martin, *The History, Antiquities, Topography, and Statistics of Eastern India's*, vol. II, London: H. Allen & Co., 1838, p. 512.
- ¹⁴ Cited in Irfan Habib, p. 12, Mufti Ghulam Hazarat in his Persian memoir of the Gorakhpur district, written in on before 1810, says that the city of Gorakhpur was surrounded on two sides by forest.
- ¹⁵ Sleeman, W.H., *A Journey through the Kingdom of Oudh during 1849-50*, vol. II, London: William Clowes & Sons, 1858, pp. 279-87.
- ¹⁶ Jafri, S.Z.H., *Studies in the Anatomy of a Transformation Awadh from Mughal to Colonial Rule*, New Delhi: Gyan Publishing House, 1998, p. 28.
- ¹⁷ *Abul Fazl, Akbarnama*, eng. translation by H. Beveridge, New Delhi: Atlantic Publishers, [1873-87], 1989, vol. III, pp. 266-67.
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- ¹⁹ Pelsaert, Francisco, *Jahangir's India*, eng. translation by W H Moreland and P Geyl, Delhi: Low price publications, [1925], 2011, p. 48.
- ²⁰ Habib, Irfan, *Man and Environment the Ecological History of India*, New Delhi: Tulika Books, 2010, p.94.
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- ²² Raychoudhuri, Tapan, & Irfan Habib, (ed.) *The Cambridge Economic History of India, c. 1200- c.1750*, vol. I, Cambridge: Cambridge University Press, 1982, pp. 4-5.
- ²³ Khan, Inayat, *The Shah Jahan Nama*, edited by W. E. Begley and Z.A. Desai, Delhi: Oxford University Press, 1990, p. 301,
- ²⁴ *AbulFazl, Ain-i Akbari*, Translated from the original Persian by H. Blochmann, 1977 [1873], New Delhi: Oriental Books, vol. I, p. 455, Tavernier, *op.cit.*, vol. I, p. 47, Mundy, *op.cit.*, pp. 54-57.
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- ³² Pietro Della Velle, *The Travels of Pietro Della Valle in India*, edited with a life of the author an introduction and notes by Edward Grey, vol. I, New Delhi: Asian Educational Services, 1991, p. 35, Thevenot and Careri, Sen, Surenderanath, (ed.), *Indian Travels of Thevenot and Careri*, Delhi: published by National Achieves of India, 1949, p. 36, p. 164.
- ³³ Jahangir, *The Tuzuk-i Jahangiri or Memoirs of Jahangir*, translated by Rogers Alexander and edited by Henery Beveridge, 2006 [1909-1914], New Delhi: Low Price Publications, vol. I, p. 351, Jahangir saw a garden of mango tree where nearly hundred trees of mangoes and a banyan tree were exceedingly large in Malwa. He ordered to measure its length, breadth, and height branch was 74 cubits, the circumference of its trunk was 44½ cubits and breadth 175 ½ measured, and it was recorded unusual. *Khulastut-Tawarikh*, *op.cit.*, p. 27. In Allahabad a banyan tree was in the fort, called "Akhay Bar" that was imperishable. It is

narrated in Hindu books that this tree has been always there and will remain undestroyed till the end of the world. Jahangir commended to cut down it and a cauldron of iron firmly placed over [the stump.] But by the will of God, the tree again raised its head from under this iron and grew high.”

³⁴ *Tuzuk-i- Jahangiri, op.cit.*, vol. I, pp. 353-54. About the tamarind tree in the *suba* Malwa, Jahangir comments that original tree had one trunk; and then he further gives all the details about its growth, as he writes, “when it had grown 10 and other 9 ½ *gaz*. He ordered to depict it in the illustrations of the *Jahangir-nama*.

³⁵ *Ibid.*, p. 444. Jahangir gives reference a very sensitive plant in the province of Gujarat, on the bank Mahi, he writes, “I noticed a plant which at approach of the finger or the end of a stick contracts its leaves. After a while it opens them out again. Its leaves resemble those of the tamarind and it is called in Arabic *Shajaru-i-haya*, the plant of modesty. In Hindi it is called *Lajvanti*. *Laj* means modesty. It is certainly not void of strangeness. They also call it *naghzak*, and say that it also grows on dry land”.

³⁶ *Tuzuk-i- Jahangiri, op.cit.*, vol. II, p. 154.

³⁷ *Ain-i Akbari, op.cit.*, vol. I, p. 387.

³⁸ Palsaert, *op.cit.*, p. 48.

³⁹ Mohammed, Jigar, *op.cit.*, p. 331.

⁴⁰ *Ain-i Akbari, op.cit.*, vol. I, p. 159.

⁴¹ *Ibid.*, pp. 237-239.

⁴² *Tuzuk-i- Jahangiri, op.cit.*, vol. II, p. 104.

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