
DEFORESTATION IN INDIA: A REVIEW

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ABSTRACT

India's forest resources are rapidly diminishing. A number of studies on the loss of tropical rain forests in third-world nations have recently been published. Because there are few thorough and holistic research on long-term forest cover change, there is still a lot of ambiguity about the state of global forest cover. The purpose of this study is to create a multi-date forest cover database that characterizes and quantifies historical and current changes in India's natural forests. This study made it easier to figure out how the condition of Indian forest cover has changed over the past eight decades. We mapped the total area covered by forest cover, assessed the spatial tracking of changes in natural forests, estimated the rate of deforestation and afforestation, examined forest cover change by biogeographic zone and state, existing land use in deforested areas, the impact of environmental factors such as terrain on deforestation, and the implications of different definitions of forested areas.

KEYWORDS: *Deforestation Terrain, Fuel wood, Encroachment, Environmental Impacts.*

1. INTRODUCTION

In India, forest resources are rapidly disappearing. A majority of researches on the loss of tropical forests in third-world nations have recently been published. The loss of tropical forests may become our Eco crisis, i.e., a disaster resulting in significant, perhaps irreversible ecological harm. At the ecological level, forest ecosystems provide protective, regulatory, and productive roles. This research examines the main causes of deforestation in India, as well as their connection with economic growth(1). Deforestation is caused by a variety of causes including the diversion of forest area for agricultural, irrigation and power projects, industrial establishments, highways, tribal colonies, and the settlement of evicted people, as well as indiscriminate private encroachments. The study provides a thorough overview of the developmental connections caused by the loss of forest resources. The majority of development activities have a negative impact on forests(2).

1.1 Patterns of Ownership:

In India, the government owns about 96 percent of the entire forest land. The National Forest Policy Resolution of 1953 stated that the forest area percentage of total land area should be raised to 33%, while the forest area is presently at 23%(3). The forest area per capita is just 0.14 hectares. In its report on forestry, the Parliament's Estimates Committee expressed concern that, rather than increasing the country's forest area to the proportion set out in the National Forest Policy Resolution, continuous inroads into the forest area have occurred, resulting in a contraction of 3 million hectares of forest area since the resolution was passed(4). This clearly demonstrates that even when the woods are under government authority, destruction occurs. The Indian Forest Act was established in 1865 and has been amended many times since then(5). The Indian Forest Legislation of 1927, which contains regulatory and penal measures, is the only surviving all-India act. A handful of state legislatures have enacted their own legislation. Deforestation is caused by

non-implementation of rules, not by a lack of enactments. Instead of revising the 1927 Act, the Commission on Agriculture has suggested that a new all-India Act be drafted. Furthermore, the Act must be written in such a manner that states are allowed to create subsidiary laws and regulations under it to address any unique circumstances. International and local conservation organizations must exert pressure on governments to protect both the area and the quality of forests.(6,7)

Part of the reason for deforestation is a lack of investment in the forest industry. Productivity suffers as a consequence of poor investment. India's forest productivity is 0.33 tonnes per hectare per year, compared to the United States' forest productivity of 3.2 tonnes per hectare(8). Despite the fact that forestry contributed 31% to GDP and 2.2 percent to national income in 1976-77, forestry investments accounted for just 0.26 percent of overall investments. Furthermore, since 1970-71, when the percentage of investment in the forest sector was 0.33, there has been a decrease in the proportion of investment in the forest sector. Investment as a proportion of GDP must undoubtedly be increased to 1.2 to 1.3 percent. i.e., a fourfold increase in forest sector investment is required. Furthermore, just raising investments would not help the forest industry(9). The forest sector's overall management has to be improved. If management is to be successful, both forest conservation and production duties should be delegated to independent organizations. Existing forests may be managed by a conservation department, while new plantings must be managed by a production-oriented organization. In summary, despite the fact that the government controls the bulk of the forest land, this sector is plagued by poor investment, abuse, misuse, and mismanagement(10). This is due to the fact that forest departments lack expertise with intensive agro forestry and are instead focused on exploitative forestry.

1.2 Corruption and Pricing Policy:

The government's pricing of forestry products is not based on any economic principles. The price is done via auctioning, which has been found to be inefficient due to bidder cartel development. State governments have provided low-cost timber, firewood, and logs to industrialists in a number of instances to encourage them to establish new businesses based on forest products(11). For extended periods of time—on the order of 15 years—large amounts of qualitatively excellent wood have been sold at extremely minimal rates. This is legally correct, but it is not economically feasible. The forest industry has become a losing business due to market manipulation. Private investment in the forestry industry is extremely low due to the uneconomic pricing regime.(12,13)

1.3 Fuelwood Crisis:

The majority of wood harvest in developing nations is used as fuelwood. In India, for example, about 90% of the wood harvested is utilized as fuel. Domestic gasoline accounts for a significant portion of this. Fuelwood meets 68.5 percent of the rural population's home energy requirements and 45.5 percent of the urban sector's domestic energy needs in India. Private collections and illegal fellings provided 87.3 percent of the fuelwood used in rural regions, while private collections and illegal fellings provided 27 percent of the fuelwood used in urban areas. In rural regions, wood is still the most common household cooking fuel. The poorest parts of society still rely on firewood in metropolitan settings(14).

1.4 Encroachments:

In India, illegal encroachment of forest areas is a major issue. Forest areas are being encroached upon as the tribal population grows and building sites become scarce. Encroachers also clear fallen areas for agriculture following invasion. This clear felling accelerates erosion, and when it gets severe, they move to another location, exposing additional forest that had previously been sheltered from wind or rain erosion. Crop cultivation has caused erosion in certain places and is the most powerful foe of afforestation(15). Due to political pressure, governments have legalized

the encroachments. Maharashtra is home to about 40 lakh tribal people. Ninety-six percent of them live in rural regions, and agriculture is their primary source of income. Except in the heart of forests, the state government standardized all intrusions on government waste property, government forest lands, and other forest areas. Despite the fact that a government decree from 1978 stated that any encroachments created in the middle of a forest would not be regularized, this portion of the order was never enforced due to political considerations. Furthermore, the encroachments were retroactively regularized provided that the forest service had not turned the encroachment lands to any other use.(16,17)

1.5 Transportation:

Deforestation is caused by transportation both directly and indirectly. Sleepers constructed of high-quality teak wood are used on the railway. Teak trees that are thick and ancient are being deliberately destroyed for this reason. The forest quality suffers as a result of such selective felling. Teak plantations in Kerala and Karnataka that are hundreds of years old have been totally depleted for railway sleepers. State governments have provided free teak sleepers to railroads to help them establish new lines where there is underdevelopment. Despite the fact that new plantations are being established, it will take 40 to 50 years to get these hardwood plantations to an economically viable level. According to Howe, the only method to promote degeneration and extend the optimal rotation time is to boost the price. Forest products should never be given away for free, since this represents a loss of the societal cost of raising them to the point of use. New roads, forest development, railway lines, and communication all contribute to deforestation and soil erosion, which accelerates the pace of deforestation. Transportation planning must be done in such a manner that forest damage is minimized. Agencies in charge of road infrastructure planning and construction must be required to monitor soil erosion caused by top soil removal on a regular basis and take measures to prevent it.

1.6 Agricultural Businesses:

Agricultural activities are another significant activity that has accelerated India's deforestation pace. Irrigation canals, reservoirs, and dams, in addition to direct conversion of forest area to agricultural land, are consuming an increasing amount of forest land. When the need for food rises due to population pressure, more land must be cultivated, and forest area is the simplest to divert. Agricultural activities in close proximity to forests have far-reaching effects. The condition of the forest continues to deteriorate as a result of livestock grazing. When grazing occurs in young generation forests, the forest is completely degraded. Despite the fact that the National Forest Policy of 1953 recognized the necessity for forest grazing regulation, little substantial has been accomplished in this regard. The demand for grazing grounds has risen as the number of cattle has increased, but the available grazing space has reduced, increasing grazing in the existing woods. Grazing occurs often even in protected forests. India possesses 19 percent of the world's cattle, 50% of the world's buffaloes, and approximately 18 percent of the world's goats, while having a geographical area that is just 2.2 percent of the world's. It was also stated that between 1956 and 1972, the number of animals grazing in the woods grew by 50%, while the real cattle population expanded by 18%.(18,19)

2. REVIEW OF LITERATURE

Tropical wet forests, which are thought to hold more than half of the world's biodiversity, are disappearing at an alarming pace. Myers, 1984, 1986, 1991; Sayer and Whitmore, 1991). Laurance et al., 2001; Myers, 1984, 1986, 1991; Sayer and Whitmore, 1991). Understanding the processes of forest loss is important for biodiversity management and conservation. The data required to assess deforestation, on the other hand, is often flawed: published figures are not always standardized. The findings may change depending on the size of the research and how the forest kinds are identified (Laurance et al., 2001; Myers, 1984, 1986, 1991; Sayer and Whitmore, 1991).

2.1 Projects in Irrigation and Power:

Irrigation and electricity projects can contribute to deforestation by sinking trees and using canal networks to transport water. The movement of a large number of employees to the project site, rather than the submerge of trees, is the primary cause of deforestation. Deforestation is used to build hutments, and subsequently livestock grazing and other associated activities accelerate the pace of deforestation. Due to environmental considerations, hydroelectric power projects are preferred over coal-fired power plants. The majority of significant hydroelectric projects have been completed in the past 30 years. The prospective ones are in forest regions, and they are more likely to devastate the environment. Large forest tracts are clear cut in the name of electricity projects, which may be readily prevented with careful monitoring and attention.(20,21)

2.2 Paper Manufacturing:

Literacy rates in India are about 30% of the entire population. More trees must be deforested to satisfy the increasing requirements of education, particularly for newspaper, white paper, and printing paper. The total consumption of paper and pulp in 1970 was 1,043,000 tonnes. It is predicted that by the year 2000, it will be on the order of 20 million tonnes per year⁴⁶, and that alone would need approximately 50 million tonnes of wood if there is no recycling, as stated. In 1950, per capita printing and writing paper consumption was just 0.223 kg per year, but by 1970, it had risen to 0.749 kg per year, and by the end of the century, it may be as high as 2.0 kg to 4 kg per year. In 1970-71, 59.2 million children attended school, while 2.2 million students attended university. By the year 2000, these figures will have risen to 115 million and 13 million, respectively.

3. DISCUSSION

In India, deforestation is getting more serious. The condition of the woods has deteriorated dramatically, despite the fact that the area covered by forests has not reduced much, according to official data. Plantations, clean felled coupes, areas depleted by departmental or public overexploitation, highways, and other similar structures are all classified as forests, and official statistics make no difference between natural forests and denuded or substantially changed vegetation. As a result, current forest statistics are extremely deceptive and qualitatively worthless. Not only have four million hectares of forest land been officially transferred to encroachers, but 20% of the remaining forests are so badly degraded that they are practically worthless, and 55% of the forests are so heavily encumbered by local rights that they are virtually incapable of any scientific development.

Soil erosion, landslides, and flash floods have become common in one of the districts, Nilgiris (Blue Mountains of Western Ghats), a region containing mountain ranges, since the 1970s. Between 1970 and 1980, the population grew from 0.3 million to 0.673 million. Increased potato production has resulted in intentional tampering of bench terraces by potato farmers, which has been compounded by significant deforestation as a result of population growth. Soil erosion has increased as a result of all of this. The inward slope of the bench terraces resulted in water logging during rainstorms. The stagnant water exacerbated a potato disease known as ring rot, and farmers, desperate to preserve their crop, chopped the slopes outward to drain water, causing soil erosion to worsen. Despite the fact that soil conservation specialists warned about significant soil erosion, farmers who were eager to expand their planted area and drain water went through with their plan. This has increased the expense of potato production while also reducing the area beneath the crop, resulting in water erosion, landslips, and siltation. The cumulative impacts of deforestation, ignoring soil protection, expanding plantation crops, and exposing up new soils to wind and water on a regular basis have resulted in recurrent flash floods and catastrophes. To summarize,

deforestation will have a variety of additional negative effects that will worsen in severity and scale beyond a certain point.

If forest resources are not to become non-renewable, investment in forestry must be significantly expanded. Plantations of fast-growing species should be established on wastelands. To minimize extraction waste, existing cutting methods must be modified. In India, there is a lack of connection between forestry and the forest industries, resulting in poorly designed strategies and plans for these sectors. Long-range state-by-state analysis. Production—extraction strategies must be devised. Parties harvesting timber should be required to plant trees, and forest regulations should make this mandatory for contractors as well.

Forest products must be priced in a remunerative and cost-effective manner. Fixing higher processes would encourage forestry investment while also acting as a deterrent to deforestation. Increasing the relative price of forest product causes the optimal rotation to gradually extend, resulting in conservation. 39 Forest products should not be subsidized, and the prices set must cover the expenses of extraction, replanting, leveling, and a fair profit margin. The development of novel plantation crop strains will go a long way toward improving output in current plantations. Agricultural education, forestry education, and rural development must be officially connected so that integrated planning in these areas is feasible. The forest service has to be reinforced, and the monitoring systems need to be updated. Forest regeneration and extraction must be handled by different departments. To combat corruption in the forest departments, a high-powered set-up must be established. Forest regulations must be changed. Executed with rigor and ruthlessness Forests must be regarded as a scarce resource, and future destruction must be halted with strict restrictions.

4. CONCLUSION

All encroachments on forests must be banned, and harsh penalties must be imposed on those who do so. Remote sensing, aerial monitoring, and electronic monitoring devices must be used to improve the forest monitoring system. A new regeneration section in charge of new forests has to be added to the forest service. Forests are a state issue in India, therefore there is a lot of political pressure on local governments to use them. The transfer of forest cutting rights to private parties must be regulated, with current regulations being strictly enforced. Under no circumstances can large-scale deforestation be allowed. Non-governmental and volunteer groups should encourage agroforestry in communities and rural regions. It is necessary to develop seed distribution networks for distributing seeds and seedlings of fast-growing species and wild shrubs (such as *Prosopis*). These programs will fail if the rural poor do not participate voluntarily. Most of the aforementioned measures will fail unless administrators, bureaucrats, and policymakers are inspired to take up the cause of forest preservation. This is the most important stage, and conservation organizations, ecologists, and academics must take urgent effort to increase the aforementioned groups' commitment to forest quality preservation. Because all development activities have a negative impact on forest area, only intentional attempts to expand area will result in forest preservation.

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