TROPICAL RAINFORESTS OF INDIA AND WORLD

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ABSTRACT

Tropical lowland rainforests are increasingly threatened by the expansion of agriculture and the extraction of natural resources. Our data confirm that rainforest transformation and land use intensification lead to substantial losses in biodiversity and related ecosystem functions, such as decreased above- and below-ground carbon stocks. Owing to rapid step-wise transformation from forests to agroforests to monoculture plantations and renewal of each plantation type every few decades, the converted land use systems are continuously dynamic, thus hampering the adaptation of animal and plant communities. On the other hand, agricultural rainforest transformation systems provide increased income and access to education, especially for migrant smallholders. Conservation preserves the ecological diversity and our life support systems-water,air and soil. It helps reserve the genetic diversity of plants and animals for better growth of species. The need for conservation of the environment and the forests has exercised the minds of Indian rulers from the earliest of times. In recent times, it was the administrators and princely rulers who demarcated and reserved forests as private preserves.

Keywords: **Tropical rainforests**

I INTRODUCTION

Tropical rainforests of India are found in the Andaman and Nicobar Islands, Western Ghats, which fringe the Arabian Sea, the coastline of peninsular India, and the greater Assam region in the north-east. Small remnants of rainforest are found in Odisha state.Semi-evergreen rainforest is more extensive than the evergreen formation partly because evergreen forests tend to degrade to semi-evergreen with human interference. There are substantial differences in both the flora and fauna between the three major rainforest regions.The Western Ghats monsoon forests occur both on the western (coastal) margins of the ghats and on the eastern side where there is less rainfall. These forests contain several tree species of great commercial significance (e.g. Indian rosewood *(Dalbergia latifolia)*, Malabar Kino *(Pterocarpus marsupium)*, teak *(Tectona grandis)* and Indian laurel *(Terminalia*

crenulata)), but they have now been cleared from many areas. In the rainforests, there is an enormous number of tree species; at least 60 percent of the trees of the upper canopy are of species which individually contribute not more than one percent of the total number. Clumps of bamboo occur along streams or in poorly drained hollows throughout the evergreen and semi-evergreen forests of south-west India, probably in areas once cleared for transporting agriculture.

II TROPICAL

Tropical rainforests are characterized by a warm and wet climate with no substantial dry season: typically found within 10 degrees north and south of the equator. Mean monthly temperatures exceed 18 °C (64 °F) during all months of the year. Average annual rainfall is no less than 168 cm (66 in) and can exceed 1,000 cm (390 in) although it typically lies between 175 cm (69 in) and 200 cm (79 in).

Many of the world's tropical forests are associated with the location of the monsoon trough, also known as the intertropical convergence zone. The broader category of tropical moist forests are located in the equatorial zone between the Tropic of Cancer and Tropic of Capricorn. Tropical rainforests exist in Southeast Asia (from Myanmar (Burma) to the Philippines, Malaysia, Indonesia, Papua New Guinea and Sri Lanka; also in Sub-Saharan Africa from the Cameroon to the Congo (Congo Rainforest), South America (e.g. the Amazon rainforest), Central America (e.g. Bosawás, the southern Yucatán Peninsula-El Peten-Belize-Calakmul), Australia, and on Pacific Islands (such as Hawai‘i). Tropical forests have been called the "Earth's lungs", although it is now known that rainforests contribute little net oxygen addition to the atmosphere through photosynthesis

III EFFECT ON GLOBAL CLIMATE

A natural rainforest emits and absorbs vast quantities of carbon dioxide. On a global scale, long-term fluxes are approximately in balance, so that an undisturbed rainforest would have a small net impact on atmospheric carbon dioxide levels, though they may have other climatic effects (on cloud formation, for example, by recycling water vapour). No rainforest today can be considered to be undisturbed. Human-induced deforestation plays a significant role in causing rainforests to release carbon dioxide, as do other factors, whether human-induced or natural, which result in tree death, such as burning and drought.Some climate models operating with interactive vegetation predict a large loss of Amazonian rainforest around 2050 due to drought, forest dieback and the subsequent release of more carbon dioxide. Five million years from now, the Amazon rainforest may long since have dried and transformed itself into savannah, killing itself in the progress (changes such as this may happen even if all human

deforestation activity ceases overnight). The descendants of our known animals may adapt to the dry savannah of the former Amazonian rainforest and thrive in the new, warmer temperatures.

VI EVERGREEN AND SEMI-EVERGREEN RAINFORESTS IN INDIA

The tropical vegetation of north-east India (which includes the states of Assam, Nagaland, Manipur, Mizoram, Tripura and Meghalaya as well as the plain regions of Arunachal Pradesh) typically occurs at elevations up to 900 metres (3,000 ft). It embraces evergreen and semi-evergreen rainforests, moist deciduous monsoon forests, riparian forests, swamps and grasslands. Evergreen rainforests are found in the Assam Valley, the foothills of the eastern Himalayas and the lower parts of the Naga Hills, Meghalaya, Mizoram and Manipur, where the rain fall exceeds 2,300 mm (91 in) per annum. In the Assam Valley the giant Hollong *(Dipterocarpus macrocarpus)* and *Shorea assamica* occur singly, occasionally attaining a girth of up to 7 metres (23 ft) and a height of up to 50 metres (160 ft). The monsoon forests are mainly moist sal *(Shorea robusta)* forests, which occur widely in this region.

The Andaman and Nicobar islands have tropical evergreen rainforests and tropical semi-evergreen rainforests as well as tropical monsoon forests.The dominant species of Keruing wood is *Dipterocarpus grandiflorus* in hilly areas, while *Dipterocarpus kerrii* is dominant on some islands in the southern parts of the archipelago. The monsoon forests of the Andamans are dominated by the Andaman Redwood *(Pterocarpus dalbergioides)* and *Terminalia spp*.

Tropical forests in India's east present a total contrast with the pine and coniferous woodland of the Western Himalayas. The natural cover of India varies with altitude; these evergreen forests are bounded with high alpine meadows nearer to the snowline and temperate forests of short stout trees at lower elevations. In the Himalayan foothills are deciduous trees, with shrubs, bamboo, ferns and grass.

India's northern plains, the course of the holy rivers Ganges and Yamuna; the Thar Desert in the west; the Sundarbans, the marshy swamplands, in the delta of the Ganges and the Brahmaputra, in the east; the Deccan Plateau, lying in the rain shadow of the hills and the Western Ghats with their dense; luxuriant forests – all provide fascinating variations in habitats. These forests sustain 350 species of mammals, 2,100 kinds of birds (both local and migratory), nearly 350 species of reptile and countless insects. Conservation preserves the ecological diversity and our life support systems-water,air and soil. It helps reserve the genetic diversity of plants and animals for better growth of species. The need for conservation of the environment and the forests has exercised the minds of

Indian rulers from the earliest of times. In recent times, it was the administrators and princely rulers who demarcated and reserved forests as private preserves.

V THE IMPACT OF HUMANS ON THE TROPICAL RAINFOREST

SLASH AND BURN

Most clearances are still by the local people and tribes needing land on which to grow crops. They clear the forest by 'slash and burn'. Vegetation is cut down and then burned. The ash acts like a fertiliser adder nutrients to the soil. When the soil begins to turn infertile (usually after 3-5 years) the people move on. This is called shifting cultivation. It is a sustainable method of farming in the rainforest. It ensures the forest will recover.

ROAD BUILDING

The Transamazon Highway has allowed increased access to the Amazon Rainforest.

LOGGING

Commercial logging is the major cause of primary rainforest destruction in South East Asia and Africa. World wide, it is responsible for the destruction of 5 million ha. per year. Logging roads enable landless people to enter the forest. In Africa, 75% of land being cleared by peasant farmers is land that has been previously logged.

FARMING

There are nearly 3 million landless people in Brazil alone. The government has cleared large areas of the Amazon Rainforest and encouraged people to move there. The scheme has not been successful. Farmers stay on the same land and attempt to farm it year after year. Nutrients in the soil are quickly exhausted as there is no longer a humus layer to provide nutrients. The soil becomes infertile and nothing will grow.

MINING

The mining of iron ore, bauxite , gold, oil and other minerals have benefited many LEDCs. However, it has also devastated large areas of rainforest.

VI DEFORESTATION IS CAUSING MANY PROBLEMS AT A RANGE OF SCALES

ECOSYSTEM

- About 80% of the rainforests nutrients comes from trees and plants. That leaves 20% of the nutrients in the soil. The nutrients from the leaves that fall are instantly recycled back up into the plants and trees. When a rainforest is clear-cut, conditions change very quickly. The soil dries up in the sun. When it rains, it washes the soil away. The rainforest never fully recovers. Wildlife and plant life is reduced.
- Elimination of Indian groups and their way of life
- Estimates suggest that 80% of forest Indians have died since the arrival of Europeans in the sixteenth century. Most have died from western diseases such as malaria to which they have no immunity. Those remaining have been forced away by the construction of roads, ranches, mines and reservoirs

SOIL EROSION

- When vegetation is removed soil is left exposed to the heavy equatorial rainfall. It is rapidly eroded. The removal of top soil means little vegetation will grow. Also, soil erosion leads to flooding as soil is deposited on river beds.

NATIONAL:

Deforestation can consume a country's only natural resource. If deforestation is not managed in a sustainable manner a country's only natural resource could be lost forever.

GLOBAL WARMING

Rainforest canopies absorb carbon dioxide which is a gas in the atmosphere. When the rainforests are burned and cleared, the carbon is released. Also, when trees are cut down they can no longer absorb carbon dioxide. This means more carbon dioxide is in the atmosphere. Carbon dioxide allows heat through the atmosphere (suns rays). However, it will not allow reflected energy to escape from the atmosphere. This is called the greenhouse effect and causes global warming.

VII THE FUTURE FOR THE TROPICAL RAINFOREST

If development in the rainforest is to be sustainable (e.g. although the resources are used to aid development, it/they will still exist for future generations to use) a number of measures must be taken. These include:

AFFORESTATION - Trees should be replanted in areas of deforestation.

SHIFTING CULTIVATION - Farmers should move on after 2-3 years to allow the rainforest to recover.

RUBBER TAPPING - More sustainable methods of exploiting the rainforest should be pursued e.g. rubber tapping

MEASURING TREES - Trees should only be cut down when they reach a certain size. This will ensure younger trees survive longer and will encourage careful management of the rainforest.

VIII CONCULSION

Over thousands of years, jungle people have become especially adapted to life in the rainforest. This has made tribes relatively venerable to outside dieses like common colds and measles.In the future I think the rainforest should be more sustainable by both tourists, logging companies, mining companies an dam companies.It should also be a fair decision so the logging companies have to agree with the government and the tribal people. At the present rate of tropical deforestation, the worlds remaining tropical rainforests will be gone in just 30 years!As the worlds population increases the competition for land, food and recourses also increase, it appears that the worlds rainforests will continue to fall at an increasingly fast rate. Past extinctions have shown it takes at least 5 million years to restore biodiversity to the level equal to that before the extinction event event. Our actions today will determine whether Earth will be biologically impoverished for the 500 trillion or more humans that will inhabit the Earth during that future period.The extinction event that is occurring as you read these words rivals the extinctions caused by natural disasters of global ice ages, planetary collisions, atmospheric poisoning, and variations in solar radiation. The difference is that this extinction was conceived by humans and subject to human decisions. We are the last, best hope for life as we prefer it on this planet.

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