

# Deforestation Effect on Climate Change

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**ABSTRACT:** *Forests have been interacting with the atmosphere of the Earth ever since their evolution. In several countries, deforestation and forest destruction have led to forest fragmentation with an impact on increasingly insular zed and fragile forest habitat patches. Further extinctions can occur in cascading ways if forest fragments become too small to sustain essential keystone species, and the structure and composition of the vegetation can ultimately collapse. To date, relatively few recorded cases of extinction of organisms have been directly due to climate change. However, in conjunction with habitat loss, degradation, and fragmentation, climate change will contribute to new waves of species extinctions in the near future as species are set on the move, but due to changed, obstructing environments, they are unable to meet cooler refuges. Huge efforts should be made to safeguard intact large areas of forests and restore wildlife corridors in order to reduce potential threats of extinction as well as climate change.*

**KEYWORDS:** *Climate, Deforestation, Environment, Forest, Plant, Environment.*

## INTRODUCTION

Our neighborhoods have followed the goals of economic development and material change for several decades. These goals were partially fulfilled in that a longer life, higher wages, more leisure time, etc., can be predicted today. Adverse effects, on the other hand, were also produced, the consequences of which one still has to pay dearly for. Environmental issues, the quality of life impacted in certain ways and the increase in inequality are some of the many reasons why economic development no longer has a positive effect on life satisfaction. The greed of man attacks nature, the climate and ecosystem, and the wounded nature responds to the future of man [1]. Deforestation has risen to dangerous levels in recent years. Deforestation is the clearance of woods or trees from the ground. Many citizens may not even realize that this issue occurs, although it can occur in their own communities. The consequences on the ecosystem of deforestation are various. Reducing forests upsets the natural cycle as a whole. A variety of plants and animals are native to the forests. When a forest is cut down, the whole cycle suffers because; the forests act as a carbon "sink". That is, they enable the atmosphere to absorb carbon, a greenhouse gas, and offset its effects.

In a forest, trees and plants can also help to provide an alternative source of fossil fuels [2]. The evidence and agreement that deforestation is one of the main causes of climate change is overwhelming. The effects of climate change are currently happening faster than many scientists first expected. It is estimated that 75 to 80 percent of global emissions come from industrial sources, specifically fossil fuel burning. The remaining 20 to 25% can be sourced to deforestation emissions, predominantly in the tropics. To save the world's biodiversity and people from devastating climate change, both the burning of fossil fuels and deforestation must be tackled urgently and effectively. A new opportunity exists at this time to discuss the problem of deforestation in the light of climate change. The aim of this paper is to raise important questions about the relationship between deforestation and climate change. It analyses existing policy approaches, including those embodied in the Kyoto Protocol, on the grounds that they have unwittingly contributed to climate policy and growth being put in separate boxes [3].

## THE IMPORTANCE OF FORESTS

Forests purify our air, protect watersheds and enhance the quality and quantity of water, stabilize soil and prevent erosion, provide us with natural resources such as wood products and medicinal plants, and house many of the most endangered species of wildlife in the world. Moreover, an estimated 1.6 billion people around the world depend on forests for their livelihoods, with 60 million indigenous people dependent on forests for their livelihoods. Another critically important role now increasingly and

generally understood by forests is that they help protect the earth by removing carbon dioxide (CO<sub>2</sub>), a significant greenhouse gas, from climate change [4].

Rising concentrations of so-called greenhouse gases (GHGs) are now commonly recognized as driving changes in the climate patterns of the Planet, resulting in extreme weather events such as hurricanes, heat waves, droughts and floods, as well as endangering plant and animal life. In protecting the Planet from climate change and controlling climate patterns, forests play a critical role, as the trees, trunks, branches and roots and even the soil absorb and store CO<sub>2</sub>, providing this GHG<sub>2</sub> with a natural reservoir. In fact, the plants and soils of the Earth currently contain the equivalent of around 7500 gigatons (Gt) of CO<sub>2</sub>, which is more carbon than that found in all the remaining oil stocks on the planet and more than double the estimated amount of carbon in the atmosphere at present. However, as activities such as deforestation and turning forests into agricultural land kill or damage forests, they release vast amounts of CO<sub>2</sub> and other GHGs and become a major (and, for some developing countries, a primary) source of GHG emissions and a contributor to climate change [5].

### *Deforestation and Climate Change*

India is a massive developing country with a population of almost 700 million, dependent directly on climate-sensitive sectors (agriculture, forestry and fisheries) and natural resources (such as water, biodiversity, mangroves, coastal areas, grasslands) for livelihoods and subsistence purposes. In addition, there is a very low adaptive potential of dry land farmers, forest dwellers, fisher folk and nomadic shepherds. As shown by India's National Communications Study to the UNFCCC<sub>4</sub>, climate change is likely to affect all natural habitats as well as socio-economic structures. In the past two decades, the main environmental problems in India have been sharper. One of the effects of deforestation is the release into the atmosphere of carbon originally retained in forests, either immediately if the trees are burned, or more slowly as un-burned organic matter decays [6]. Just a small fraction of the biomass that was originally kept in a forest ends up being deposited in houses or other long-lasting structures. Most of the carbon is emitted into the atmosphere as carbon dioxide, but decomposition or burning may also release small quantities of methane and carbon monoxide. Cultivation also oxidizes 25-30% of the organic matter in the upper meter of soil and releases that to the atmosphere. Reforestation reverses these carbon sources [7]. They remove carbon from the atmosphere as forests are re-growing and store it again in trees and soil. While significant quantities of methane or nitrous oxide may not be released by deforestation itself, these gases are often released as a result of the use of cleared land for cattle or other ruminant livestock, paddy rice, or other crops, particularly those fertilized with nitrogen.

The estimates of the contribution of deforestation to carbon emissions differ, but approximately 19% of global emissions are generally considered to be higher than those produced by the entire global transport sector. When land is converted to agricultural production, the bulk of deforestation emissions occur, particularly if forests are first cleared by burning. Because of deforestation and destruction, the potential for forests to become even greater sources of carbon emissions is huge [8]. At an unprecedented pace, deforestation is continuing. Once more than half of the world has been dispersed, forests now cover only a quarter of its land surface and forest losses, particularly in the tropics, continue at an alarming pace. A major loss of old-growth forests and the substitution of natural forests and forests with single-species plantations has occurred beyond the tropics, offering little of the cultural, ecological and social advantages of indigenous forests. Although afforestation and reforestation are necessary and helpful in many places to promote reduced pollution, from a climate perspective, stopping deforestation is more urgent. Sapling takes decades to grow and consume the quantity of carbon that is emitted when a mature tree decays [9].

The principle of "compensated reduction," i.e. tropical countries, under a historical baseline, could minimize national deforestation and allow globally tradable carbon offsets, having demonstrated reductions, the polemical debates concerning forests between the approval of Kyoto and the Marrakech agreements arose. Both viewpoints in this debate have led to significant growth and progress in our understanding and study of the relationships between forest environments and, most importantly, the diverse list of respected foreign scientists and experts who have contributed to it. On some previously controversial or ambiguous topics, there is now strong consensus. As distinct from the sequestration of carbon in "sinks," the value of addressing pollution from tropical deforestation is generally recognized.

Scientists, policy makers and environmentalists agree that reducing tropical deforestation is a crucial part of any system for reducing international emissions, particularly if atmospheric CO<sub>2</sub> concentrations are to stay below the 450 ppm figure often cited [10]. There is broad consensus that, in order to reduce deforestation, tropical nations need some sort of economic incentive and that developed countries should pay countries that manage deforestation. Most of the dispute after Kyoto over forests and sinks emerged from the fact that in Kyoto, quantitative reduction goals were agreed before consensus was reached on the means by which targets could be met. Thus, the addition of sinks and agricultural land meant that the goals already decided were effectively reduced. In comparison, addressing tropical deforestation in the form of the post-2012 carbon reduction goals will add to the overall reduction of pollution and benefit the environment.

### CONCLUSION & DISCUSSION

In conclusion, global rates of deforestation and forest destruction have a direct effect on greenhouse gas (GHG) concentration in the atmosphere. The Food and Agriculture Organization has reported that deforestation affected 16.1 million hectares per year during the 1990s, most of them in the tropics. The Intergovernmental Panel on Climate Change (IPCC) estimated that the contribution of land-use changes to the atmospheric accumulation of GHGs was 25% of the overall annual global GHG emissions for the same period. In acknowledging climate change as a serious danger, the United Nations Framework Convention on Climate Change urged countries to take steps to strengthen and preserve habitats such as forests that act as reservoirs and sinks of GHGs. The Kyoto Protocol, introduced in 1997, complements the UNFCCC by providing quantitative goals for reducing GHG emissions with an enforceable agreement. Industrialized countries may use land-based practices to meet their emission-limitation commitments, such as minimizing deforestation, developing new forests and other forms of vegetation, maintaining agricultural and forest land in a way that maximizes the "carbon sink."

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