Deforestation: Facts, Causes & Effects

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ABSTRACT

Deforestation and degradation of forests create ecological problems in every part of the world. Deforestation is occurring at a rapid pace, especially in tropical regions where millions of acres are clear cut every year. Remaining forests also suffer from pollution and selective logging operations that degrade the integrity of local ecosystems. Destruction of forests also affects the soil and water quality in the immediate area and can have an adverse effect on biodiversity over a range of connected. ***Forest degradation*** *is a process in which the biological wealth of a forest area is permanently diminished by some factor or by a combination of factors. "This does not involve a reduction of the forest area, but rather a quality decrease in its condition."The forest is still there, but with less number of trees, or less species of trees, plants or animals, or some of them affected by plagues. This degradation makes the forest less valuable and may lead to deforestation. Forest degradation is a type of the more general issue of land degradation.*

Keywords: Forest Degradation Monitoring, Climate change, Carbon, Deforestation

INTRODUCTION

Deforestation or clearance occurs due to several reasons, to get an overview we could include the need of money, both in terms of profitability as well as providing for one's family in most scenarios, along with lack of or no forest laws, need for land space for housing etc among a long list of other uses. Mainly blamed on agricultural or pastoral use, farmers fell trees for increasing space for cultivation and/or as fodder land for grazing and surviving live stock Deforestation can also be seen as removal of forests leading to several imbalances ecologically and environmentally. What makes deforestation alarming is the immediate and long term effects it is bound to inflict if continued at the current pace. Some predictions state that the rainforests of the world will be destroyed completely if deforestation continues at its current pace. The unfortunate truth is that the negative impacts of industrial palm oil are far worse than most consumers realize. Mass deforestation, corporate land grabbing, human rights abuses, iconic wildlife endangerment, and unchecked pollution are just a few of the conflicts surrounding industrial palm oil production, an industry fueled in large part by consumer demand. Trees are one of the most important aspects of the planet we live in. Trees are vitally important to the environment, animals, and of course for us humans. They are important for the climate of the Earth, as they act as filters of carbon dioxide. Forests are known as habitats and shelters to millions of species. However, the trees on our planet are being depleted at a very fast rate. According to some estimates, more than 50 percent of the tree cover has disappeared due to human activity.

OBJECTIVES

Deforestation is the permanent destruction of indigenous forests and woodlands. Deforestation has resulted in the reduction of indigenous forests to four fifths of their pre-agricultural area. Indigenous forests now cover 21% of the earth's land surface.

>To quantify the extent of tropical deforestation.

>To examine some causes and consequences of tropical deforestation.

>To introduce some forest management practices that may reduce the impact of deforestation.

>To create awareness to public about the illegal deforestation that become one of the major problems in our country.

METHODOLOGY

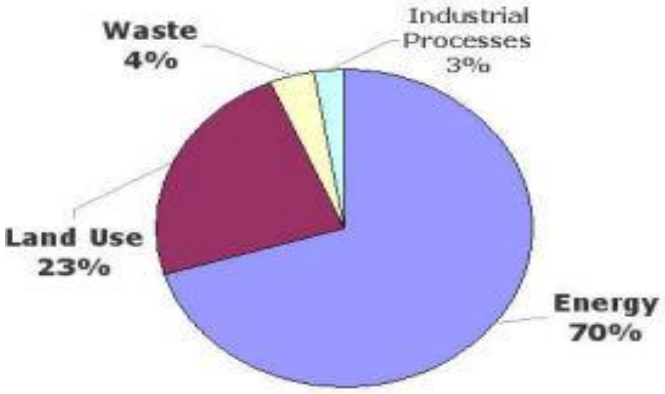
Climate change mitigation would benefit from Reduced Emissions from Deforestation and Degradation (REDD) in developing countries. The REDD mechanism is in charge of distilling the right incentives for fostering forest conservation with appropriate compensation of foregone revenues, which in turn is related to avoided deforestation (how many hectares of forests are saved). Although any prediction of deforestation rates (i.e. business-as-usual scenarios) is challenging, and any negotiated target is subject to political influence, these two ways have been prioritirized so far. In other words, proposals have focused on a baseline (or cap)-and-trade approach, which relevance is questionable because resulting financial compensations are subject to unfairness if estimations of avoided deforestation are not reliable. Rather than considering overall deforestation (predicted and observed), we argue that a REDD mechanism would gain from linking compensations to real efforts that developing countries implement for slowing deforestation rates. This would provide more efficient incentives to design and enforce suitable policies and measures. The methodology we present to measure these efforts (labeled Compensated Successful Efforts) is based on the rationale that overall deforestation is due partly to structural factors, and partly to domestic policies and measures. This typology differs from others presented in the literature such as proximate / underlying causes, or economic / institutional factors. Using an econometric model, our approach estimates efforts that are (i) independent of structural factors (economic development, population, initial forest area, agricultural export prices), (ii) estimated ex post at the end of the crediting period, and (iii) relative to other countries. In order to illustrate the methodology we apply the model to a panel of 48 countries (Asia, Latin America, Africa) We conclude on the feasibility to estimate avoided deforestation using the Compensated Successful Efforts approach. In addition to being conservative from an environmental perspective, this approach guarantees fairness by accounting for dramatic changes during the commitment period.

DEFORESTATION CAUSE GLOBAL WARMING

Deforestation in tropical rainforests adds more carbon dioxide to the atmosphere than the sum total of cars and trucks on the world's roads. According to the World Carfree Network (WCN), cars and trucks account for about 14 percent of global carbon emissions, while most analysts attribute upwards of 15 percent to deforestation.

The reason that logging is so bad for the climate is that when trees are felled they release the carbon they are storing into the atmosphere, where it mingles with greenhouse gases from other sources and contributes to global warming accordingly. The upshot is that we should be doing as much to prevent deforestation as we are to increase fuel efficiency and reduce automobile usage.[1]

The pie chart below shows the shares of each sector in the total amount of global greenhouse gas emissions (weighed by their *global warming potential*).



Total Greenhouse Gas Emissions by Sector, as of 2000, Tg

Energy	28,642
Land Use	9,628
Waste	1,539
Ind. Processes	1,049
Total:	40,858

The energy sector is by far the largest emitter of greenhouse gases (70%) followed by the land use sector (23%), waste management (4%) and industrial processes (3%).

Burning forests to clear land for agriculture releases huge amounts of greenhouse gases.As our understanding of the role forests play in stabilising global climate increases, it is becoming clear that their destruction is only exacerbating climate change. If we're serious about tackling this, then preserving our remaining ancient forests has to be a priority. Deforestation, current and past, is a serious problem around the world, particularly in tropical areas. Countries with significant deforestation include Thailand, Brazil, the Congo and Indonesia, as well as parts of Eastern Europe, according to GRID-Arendal, a UN Environment Programme collaborating center. eforestation affects the earth's physical environment by causing soil erosion, poor water quality, reduced food security and impaired flood protection, according to a report from the World Resources Institute. Because forests are the source of employment and food for many people, their destruction can cause mass migration to cities. With the influence that tropical forests have on weather, particularly rain, deforestation can cause altered weather patterns. Deforestation is a main cause of the higher concentrations of greenhouse gases in the atmosphere. In particular, deforestation causes high levels of carbon dioxide: it is released when forests are burned or when they decompose, and when trees that used to take in this carbon dioxide are cut down, levels rise. Greenhouse gases are trapped in the atmosphere and act as a barrier for heat that would normally be released into space; as a result, temperatures across the globe rise and change rainfall patterns, ice cover and sea levels.[2]

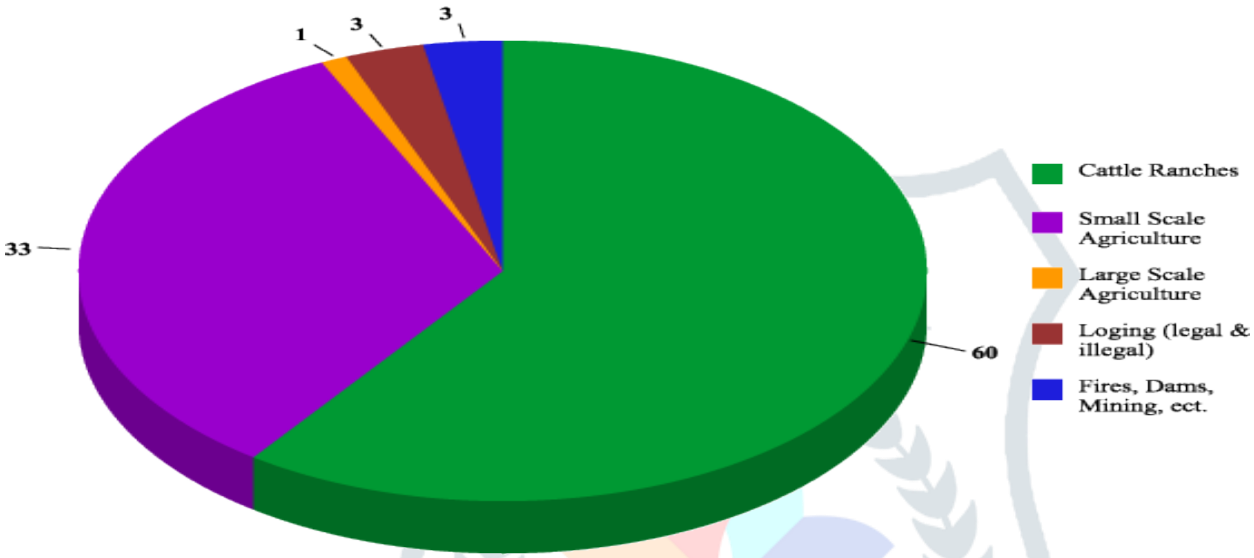
DEFORESTATION AND CLIMATE CHANGE

Deforestation is one of the main contributors to climate change. It is the second largest anthropogenic source of carbon dioxide to the atmosphere, after fossil fuel combustion. Deforestation and forest degradation contribute to atmospheric greenhouse gas emissions through combustion of forest biomass and decomposition of remaining plant material and soil carbon. It used to account for more than 20% of carbon dioxide emissions, but it's currently somewhere around the 10% mark. By 2008, deforestation was 12% of total CO_2, or 15% if peatlands are included. These proportions are likely to have fallen since given the continued rise of fossil fuel use.[3]Averaged over all land and ocean surfaces, temperatures warmed roughly 1.53 °F (0.85 °C) between 1880 and 2012, according to the Intergovernmental Panel on Climate Change. In the Northern Hemisphere, 1983 to 2012 were the warmest 30-year period of the last 1400 years.[3]

THE CONSEQUENCES OF DEFORESTATION

Illegal Logging

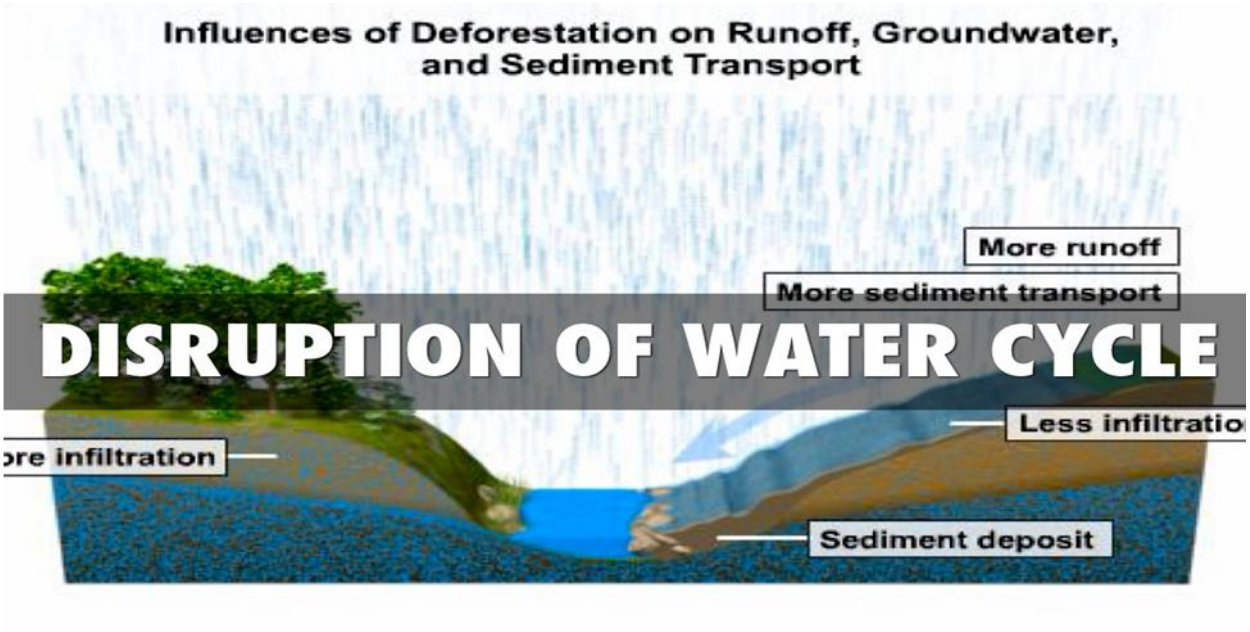
Many government agencies are fighting illegal logging to protect the forests. However, any type of logging legal or illegal leads to deforestation. Trees are cut down indiscriminately by logging companies, to fulfill the demands of the wood market. This does not give a chance to the local wildlife and trees to regenerate and sustain themselves. Thus, leading to loss of wildlife forever.



Illegal logging and that makes 3% of the reasons why we deforestate. The other 3% is made up of Deforestation for mining, Dams, Fires etc.

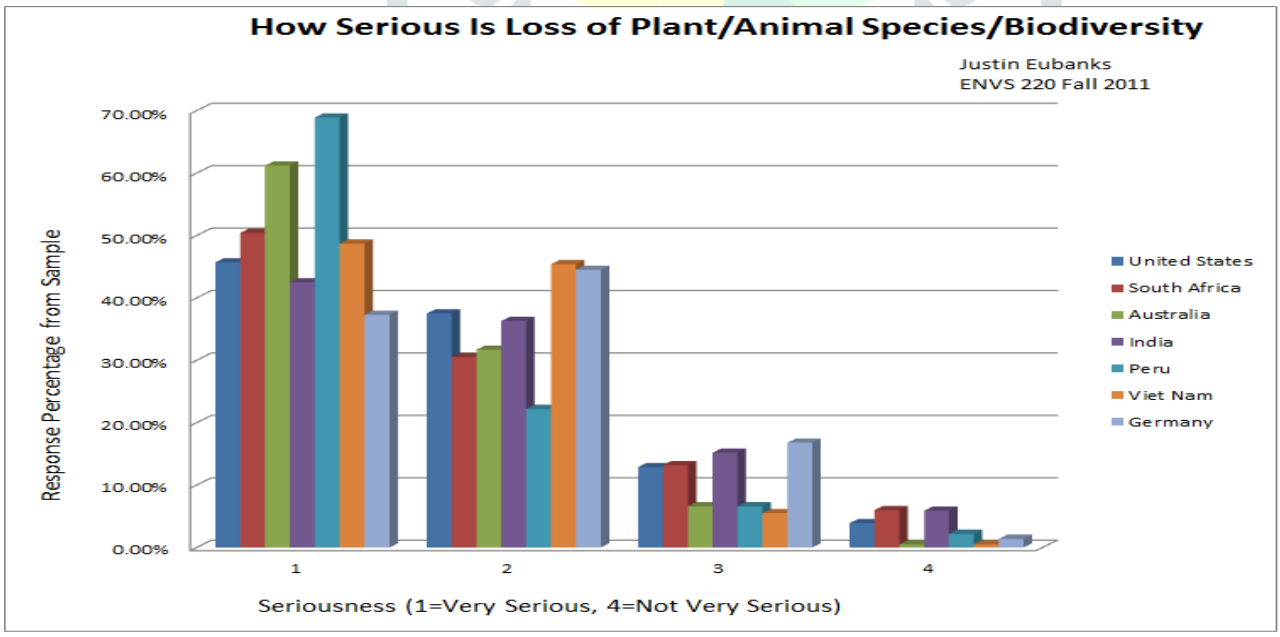
DISRUPTION OF THE WATER CYCLE

Trees contribute in a large way in maintaining the water cycle. They draw up water via their roots, which is then released into the atmosphere. A large part of the water that circulates in the ecosystem of rainforests, for instance, remains inside the plants. When these trees are cut down it results in the climate getting drier in that area. The groundwater tables are affected and soon get depleted. The trees help in prevention of running off of water and help the soil absorb the flowing water. When there are no trees, water just runs off, leaving no chance for the groundwater tables to absorb more water. Thus, ultimately leading to reduction in water resources.



LOSS OF BIODIVERSITY

The unique biodiversity of various geographical areas is being lost on a scale that is quite unprecedented. Even though tropical rainforest make up just 6 percent of the surface area of the Earth, about 80-90 percent of the entire species of the world exist here. Due to massive felling of trees, about 50 to 100 species of animals are being lost each day. The outcome of which is the extinction of animals and plants on a massive scale. The effects on animals is very heartbreaking. They not only lose their habitat and protective cover, they are pushed to extinction. Many beautiful creatures, both plants and animals have vanished from the face of the earth.



Biodiversity is extremely important to species because animal and plant species are an essential source of food, materials, shelter and survival.

FLOODING AND DROUGHT

One of the vital functions of forests is to absorb and store great amounts of water quickly when there are heavy rains. When forests are cut down, this regulation of the flow of water is disrupted, which leads to alternating periods of flood and then drought in the affected area. Thus, leading to disruption of human settlements and loss of life in thousands.

The y-axis, rather than just showing the lake level (ft above sea level), I just show that value for the normal level (216 ft), and then I label tickmarks & reference lines each +/- 5 ft above and below. I think it's much more informative to know that the lake is 5 ft above normal, rather than 221 ft above sea level. (Note that this is a change/improvement from the previous graph!)

ENVIRONMENTAL

1. Extinctions (loss of biodiversity of microbes (bacteria), plants, insects, animals, indigenous peoples, etc.
2. Habitat fragmentation. This disturbs the animals' habitat and may force them to enter habitats which are already occupied. This can pose many problems such as territorial conflicts, homelessness (loss of habitat), lack of food availability, migration disturbances, etc.
3. Soil erosion occurs when trees and plants are removed; the rain water washes the nutrients in the top soil away.
4. Changes in watershed geomorphology.
5. Desertification (dry, hot, arid conditions).
6. Edge effects can change *microclimates* (small climates) which affect *endemic species* (native species which can only live in specific environmental and habitat conditions).
7. Climate change (more carbon dioxide is released into the atmosphere, thus increasing the effects of global warming).
8. Pollution (ground, water and air pollution from oil extraction and mining chemicals).

SOCIAL IMPACTS

1. Loss of culture (indigenous peoples subsistence living in the rainforest). People who live in the rainforest depend on the natural environment for food, shelter, materials for cooking, clothing, etc. If the forest is cut down or if their environment becomes polluted from oil extraction and mining, they are forced to move or risk starvation and sickness.
2. Displacement of people (loss of farmland, forest resources, etc).
3. Social conflicts and struggles over land and natural resources.
4. Conflicts over racial and ethnic rights.
5. Poisoning from oil and mining waste.
6. Economic uncertainty (price fluctuations and high interest rates on outstanding international loans with The World Bank and International Monetary Fund.

The amount of deforestation and conserve our own use of natural resources such as wood, oil and gas, electricity, minerals and elements, and water.

- Always use both sides of paper when writing, drawing, photo-copying, faxing, etc.
- Recycle paper, cans, glass, and plastic.
- Read the newspaper on-line.
- Buy paper products made from recycled paper: notebook paper, paper towels, toilet paper, books, etc.
- Use pencils until they are stubs! Think of pencils as gold (you'll never lose them if you do).
- Encourage your parents, relatives, and friends to buy furniture and wood that is ***Certified***. That means the wood was legally cut-down.
- If you buy a product and you notice they use wood chips to package it, write to the company and suggest they use another packaging material.
- Trees get cut down for cattle to graze. Instead of eating meat, think of eating other sources of protein such as fish, soy, beans, whole-wheat, and nuts.
- Buy organic fruits and vegetables. That means there are no insecticides or pesticides (poisonous chemicals) sprayed on the food. If these chemicals kill insects and pests that try and eat the vegetables, think about how harmful they can be to you and the environment.
- Instead of buying gold or diamonds, which are mined and cause environmental damage, consider jewelry that is made from materials that are not mined...such as glass.
- Encourage your parents, relatives, and friends to drive fuel efficient cars that get good gas mileage. Hybrid and bio-diesel cars get great mileage and use less or no gasoline.
- Even better, whenever possible, walk, bike, carpool or use mass transit (bus or train).
- Save electricity by turning off lights, t.v., radio, computer, etc when you are not using them.
- Save water by NOT taking baths; instead take quick showers (turning off the water while you soap up) and then turning it back on to rinse quickly.
- While washing your hands and brushing your teeth, turn off the water. You'll save gallons if you do.
- When washing the dishes or your parent's car, turn off the water while washing it with soap. Rinse quickly after washing.

CONCLUSION

National level governments also have a much wider array of financial incentives at their disposal including the creation of market access for non-timber forest products, the promotion of agro-forestry, the creation of payment for environmental services schemes, and the decentralization of management in the form of community based forest management.Countries will have the opportunity to consider how implementation of the Non-legally Binding Instrument and the use of sustainable forest management can help in reducing deforestation as well as in mitigating and adapting to the effects of climate change.Forests have tremendous potential to serve as a tool in combating climate change, protecting people and livelihoods, and creating a foundation for more s the framework for international and national level planning of how best to confront this ever changing and ever challenging obstacle that we all face ustainable economic and social development. Sustainable forest management provides together.

REFERENCE

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