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Deforestation- Its Effect and Cause

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Abstract:

Government has been focusing on forest since 2011, the year which was known as "The year of Forests" this act has brought huge attention of world towards the forest. Also it was of sheer importance to do so, as constant deforestation has been hampering the condition of mother earth as a whole, the reason for this act is purely materialistic and human dependent but it has been the reason for chaos around the world from long time.

In this study our focus is to bring in the light, that what are the reasons for this process, and its direct and indirect impact on world as a whole.

Keywords: *Tropical Forest, Forestation, Deforestation, Soil Erosion, Effect, Cause.*

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Introduction

Forest are essential part of life. They are not merely collection of trees, it is home of 80% of world's terrestial bio variety. There are many kind of forest such as:

- Tropical
- Temperate
- Boreal

Fig: 1 Shows forest cover in world. Pic Credit (NASA Earth Obsevatory)

Forests are supposed to be environmental as well as socio-economic resources. More or less 1/3rd of the earth's entire land is enclosed by forests. Forests are rich in resources, it provides various fuels, drugs etc. It is beneficial indirectly too, it checks soil erosion and facilitate groundwater recharge. It also plays a vital role in nitrogen and carbon cycle.

Discussing type of forest in detail

Tropical Forest

Tropics typically lies between 23°N and 23° S Latitude it is the area where the sunlight hits the ground at 90° angel. Due to this high flux of solar energy water evaporation of Tropical Ocean increases which results in increase in process of evapotranspiration of tropical lands, which eventually gives rise in column of warm and moist air over tropical latitudes. Once this air goes under adiabatic cooling. Once the water gets condense, it generates rainfall.

According to Pipa Elias –"the ecosystem is the reason for hale and hearty functioning of earth, they also believe that tropical forests holds richest biodiversity of the world.

Tropical forests varies on the basis of rainfall, its types are:

- Lowland evergreen rain forests
- Semi evergreen rain forest
- Montane rain forest
- Tropical dry deciduous forests
- Health forests
- Mangroves
- Freshwater and peat swamp forests
- Tropical landmasses

Below given is a chart of key physiognomic features that is required in formation of tropical forest. Courtesy to Richard, 1996: Whitmore, 1998.)

Forest type	Canopy height	Emergent trees	Typical leaf size	Tree buttresses	Lianas	Vascular epiphytes	Non-vascular epiphytes
Lowland evergreen rain forest	25–45 m	Common	45–180 cm^2	Common	Common	Common	Occasional
Semi-evergreen rain forest	20–30 m	Common	45–180 cm^2	Common	Abundant	Occasional to common	Occasional
Dry deciduous forest	3–25 m*	Absent	2–180 cm^2	Occasional	Common to abundant	Absent to occasional	Absent to occasional
Lower montane forest	15–33 m	Occasional	45–180 cm^2	Occasional	Rare	Common	Occasional to common
Upper montane forest	3–18 m	Absent	2–20 cm^2	Absent	Absent	Common	Abundant
Heath forest	3–30 m*	Absent	20–45 cm^2	Occasional	Rare	Common	Occasional
Mangrove (mangal)	3–30 m*	Absent	45–180 cm^2	Prop roots and pneumatophores common	Rare	Occasional	Occasional
Freshwater swamp Forest	3–35 m*	Absent - comon	2–180 cm^2	Prop roots common	Common to abundant	Occasional to abundant	Common
Peat swamp forest	12–55 m*	Absent - common	2–180 cm^2	Prop roots common	Rare to abundant	Rare to abundant	Occasional to common

Fig: 2 Key physiognomic features

Deforestation World Wide

It is a very broad term one can define deforestation as a process of converting forested land or area into no-forest land, it could be for arable land, urban use, or as a wasteland. When asked Food and Agriculture Organization of the United Nations (FAO) according to the organization deforestation means conversion forestland into a land for another use, if scientifically speaking it is cutting down of tree canopy to almost 10% threshold.

Fig: 3 Deforestation in Meghalaya Region; Pic Credit: Google Earth

It is found that in many countries, enormous level of deforestation is taking place which is influencing the climate and geography of that area. Mother earth has been witnessing this progression since 1800s. European forests has been badly affected by rigorous acid rain also a very huge area of Siberia has been mowed in the meantime after the failure of Soviet Union.

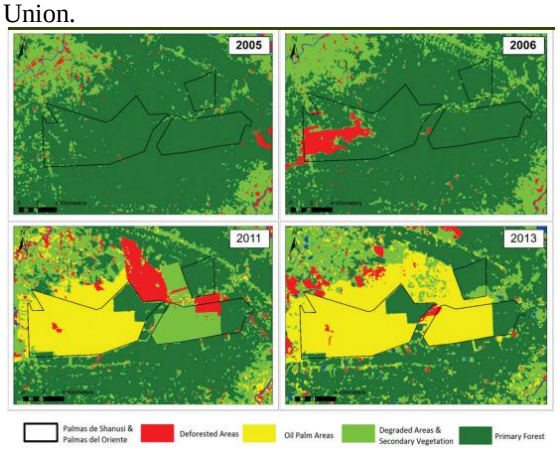

Fig: 4 Land-satellite based time series of deforestation analysis of Palmas de Shanusi area (Picture is taken from a report by EIA under heading "Deforestation by Definition")

When talking about the countries likes Afghanistan they have lost 70% of the forests throughout the country. On believing over the given data Packiam says that the forests are being destroyed with an accelerating rate, which is directly proportional to population growth of human being.

In 1990-1995 it was observed that the speed of deforestation was rapid in countries like Brazil, Mexico, Malaysia and Indonesia because of increasing rate of tourism. Indonesia leading the other countries in percentage.

Following tables indicates past and current status of tropical forests respectively:

Ecoregion	Past area	Deforested		Current area	
Boreal	1,425	-42	-3%	1,383	97%
Temperate	1,299	-518	-40%	781	60%
Sub-tropical	984	-450	-46%	534	54%
Tropical	3,646	-1,055	-29%	2,591	71%
Desert and Polar	64	-13	-20%	51	80%
Total	**7,419**	**-2,078**	**-28%**	**5,341**	**72%**

Fig: 5 Previous and present forest area by Eco region, (Picture is an excerpt from a world of opportunities for forest and landscape restoration, 2011).

Ecoregion	Intact		Fragmented		Degraded	
Boreal	431	31%	744	54%	208	15%
Temperate	42	5%	493	63%	246	31%
Sub-tropical	9	2%	311	58%	214	40%
Tropical	616	24%	1,194	46%	781	30%
Desert and Polar	10	20%	40	78%	1	2%
Total	**1,108**	**21%**	**2,783**	**52%**	**1,450**	**27%**

Fig: 6 Condition of Present Forests, (Picture is an excerpt from a world of opportunities for forest and landscape restoration, 2011).

Agents of Deforestation

It is of utmost importance to differentiate between agents of deforestation and the causes. Agents of deforestation would be people or organizations who are responsible for cutting down the trees.

Following are the list of agent of deforestation:

- Individuals
- Corporations
- Government agencies

AGENTS	LINKS TO DEFORESTATION
Slash-and-bum farmers	To cash crops cultivations.
Commercial Farmers	To plant commercial cash crops
Cattle ranchers	To plant pasture
Livestock herders	Intensification of herding leads to deforestation
Loggers	Remove timbers, logging road provides access to other land users
Mining and petroleum	Seismic lines provide acess to other land users
Infrastructure developers	Formation of road or highway.

Fig: 7 Clear Cutting for slash and burn agriculture

Causes of Deforestation

According to Hance deforestation is a process that has been into the practice from more than ten of thousands of years by human being, one can say that is in the practice from the beginning of the civilizations. Homo-erectus discovered fire as the first tool that allowed humans to modify the land.

Following are the few points mentioned by Giri Tejaswi in his work "Manual on deforestation, degradation, and fragmentation using remote sensing and GIS" which he indicates as interesting findings of deforestation:

- It can be result of socio-economic processes.
- Tropical deforestation occurs in diverse circumstances, which unclears the patterns of deforestation
- Reason of deforestation differs from place to place

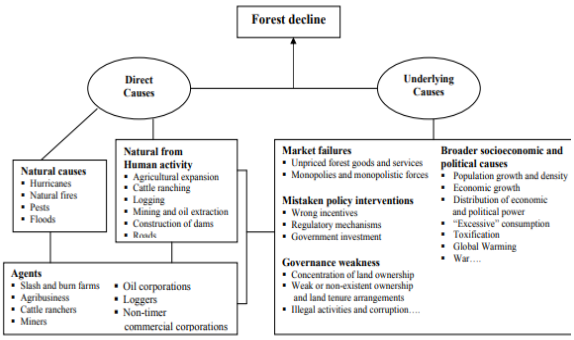

Fig: 8 Flow chart of direct and indirect causes of forest decline, (Pic credit: Picture had been taken from Contreras-Hermosilla (2000), Underlying causes, CIFOR, p. 5)

Direct cause of deforestation, according to Kanninen *et al.*:

- Agricultural Expansion
- Wood Extraction
- Infrastructure Extension

Effects of Deforestation

Deforestation put effects on many attributes of nature

But all the researchers agree to one common result that is:

- Impact on Environment
- Loss in water and soil resources
- Decrease in biodiversity due to loss of habitat.
- Economic Losses
- Social consequences
- Risk for agriculture

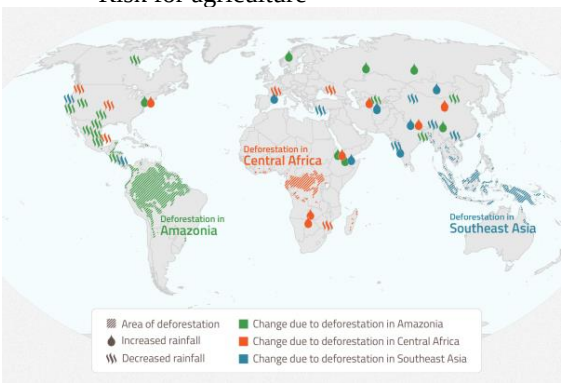

Fig: 9 Impact of Deforestation over the world, (Pic credit: Deborah Lawrence http://eorder.sheridan.com/3_0/display/index.php?flashprint=4415

Conclusion

In this paper, the deforestation: causes and impacts are analyzed from the awareness of a linkage exists between the increase in population and change in the cover of forest. The paper concludes that the current scenario of the population-deforestation relationships or linkages in countries which are developing were prevailing. FAO Forest Area Change Model is applied for the explanation of deforestation of a small geographical unit. With the increase in population growth rate, the deforestation is occurring at considerably a high rate which suggests that along with the factor of increase in population other factors are also contributing such as demographic and socio economic factors. These factors contributes towards the process of deforestation which is considered necessary for the better understanding of causes of deforestation and some measures should be adopted in order to control deforestation.

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