

# Impact of Deforestation on Environment and achieving Sustainable Development

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## ABSTRACT

The aim of paper has been originated from the role of people in preservation of forest in and around our place by effective implementation policies and environmental laws existing in India The environment laws existing in India made illegal destruction of forest or deforestation a rigorous punishable offense that has to be kept in mind by every individual for ecological integrity and protection of Nature within the sustainable development. The key problem of contemporary environmental laws is their lack of effectiveness. Clear challenges exist to achieve the goals and objectives of protection of forest and stopping of deforestation so as to preserve the eco-friendly climate which gave rise to the modern and updated laws for which primary focus is on the forests and wild life protection to a greater extent which can become extinguish (or) a thing of past in near future

**Keywords:** Sustainable Development, Environmental Laws, Integrated Decision Making, Governance, National Environment Policy, Forest, Deforestation, Degradation, Industrialization

## Introduction

The main paper aims to focus on deforestation which is first and foremost among the main environmental Issues among others which are given below

1. Medical waste
2. Noise Pollution
3. Soil Waste Pollution
4. Air Pollution
5. Water Pollution

We will examine in detail the Deforestation by analyzing its effects and consequences on nature and presenting possible solutions to enable environmental law to reach full effectiveness and efficiency, thereby leading to satisfy the main goal of conservation and rational, sustainable and equitable use of environmental goods and services.

### Early Environmental Law

When compared to other laws environmental laws are relatively new which gained importance in 20th Century. The environmental laws evolved importance in 1960 thereafter environmental law regulations and rules came to light The property protection of owner's rights for a fair and eco-friendly has been the beginning of environmental laws . The Environment Protection Act, 1986 Has main aim of protecting and safeguarding the environment including wildlife and forests in India and which lays the foundation for all environmental laws as per Indian Constitution which has the prime responsibility of every citizen who has to play a vital role "to protect and improve the natural environment such as forests, water bodies and who have concern for living creatures" and wild life. The fundamental right to life according to Article 21 of the Constitution has been expanded by interpretation as per judiciary to include the right to a healthy, and clean pollution-free environment. As per the doctrine of Sustainable Development which says that the polluter pays for any sin committed against clean and green environment was first acknowledged by Judiciary in the process of recent legislation on environment. In 1986 an act came into effect for protection of Environment and it is called as the Environment Protection Act, 1986, it is for the protection and improvement of environment. This act establishes the outline

for long-term requirements of environmental safety studying, planning, and implementing by laying down a proper standard procedure of response to situations threatening the environment.

## 2. Methods

Forest-Deforest-Forest Degradation Deforestation is conversion of any forest to other uses e.g. croplands, pastures, or urban land. Degradation is a gradual process which often leads to deforest, here, the forest degrades but still it exists rather than in deforestation. In degradation, overall the productivity as well as diversity of the forest has been declined as it can't be used as forest in future. Forests are basically formed of trees, shrubs, and other vegetation with closed shades. They are one of the largest natural resources which are being used constantly to provide a range of facilities to mankind. They are extremely important to mankind as it helps to clean the air we breathe, help to maintain the water clean, and works as a natural habitat to numerous life forms, acts as a shelter to various animals, rare species of plants and human beings. Forest degradation has been occurring on the earth for many centuries and presently the immediate action to be taken to preserve and conserve the forests.

With Industrialization, there was an economic exploitation of poorer countries by the world's industrialized countries and this led to exploitation of forest resources either to pay the debts or to develop the industry. Hence, what are actually the causes of deforestation?

The reasons can be many, they are:

1. The slash and burn agricultural practice by landless indigenous people or tribal who cut the trees to grow their crops was one of the main reasons for deforestation in many Countries across the World.
2. Further, Mining, Industrial development and hydel projects are a significant cause of deforestation. Even construction of dams across the rivers has opened up accessibility to forests and thus damaged their ecosystem.
3. There are also various Government sponsored projects which aim at resettling landless farmers by giving them forest areas. This led to reduction in the forest land and was used for habitation and other purposes.
4. Cutting down of trees for commercial purposes like for sale of timber or pulp is also one of the main causes of deforestation.
5. There is growing need for rubber, fruit trees

and ornamental plants which has also led to forest degradation.

Now we come to one of the most important factors or by-products of Industrial revolution which is Pollution. We all know something about pollution but how severe is its impact on environment and society as a whole need to be understood in a broader perspective

The Forest Conservation Act 1980 is a landmark in the field of environmental legislation. Forests are the Common Property of all the citizens and as such their upkeep is of prime importance. The Act of 1980 is a significant movement in this direction. The common law of this country has been enriched through the judicial expositions based on this Act. The Act itself has seen numerous changes due to the introduction of new legislation from time to time. Further a number of rules have also been framed under the Act from time to time giving the Act contemporary relevance

### 3. Deforestation

How forests procure earth as spongy to absorb water and enrich the storage of ground water level Find the causes/justifications of cutting the trees in the name of developmental projects such as urban planning - residential purposes, roads, new buildings- hydro electric projects, tourism, Etc, Encroaching the forest areas- Munnar, Attappadi, Nelliampathy. case studies , Industrial purposes- News print, timber, Furniture business etc. are fully depended on cutting of woods

Now let us think about consequences of deforestation

**Deforestation:** - It is the process of being enemy to forests. Its consequences cannot be dealt with normal and natural ways of regaining the resources.

- It causes the loss of fertility of the surface soil. carbon emission through decreasing of carbon cycle in soil and atmosphere. resources

Each passing day the needs of human beings are also increasing for shelters, agricultural activities, furniture goods, infrastructures and for land.

**INDUSTRIALIZATION-** Forests are cleared down for making paper goods and medicinal products. Sports goods include cricket bats, baseball bats, hockey sticks.

**Paper Making-:** For making most of the goods like-notebooks, books, cardboard and sketch books

**ROADWAYS AND RAILWAYS-** In India network of roads and railways is becoming denser so, for this purpose deforestation is increasing day by day So, for making various infrastructures many trees are being cleared down. **GLOBALIZATION-** Globalization includes the depletion of forests by various means such as by increased global warming, greenhouse effect etc, which is occurring due presence of ChloroFluoro Carbons, Carbon Dioxide, Nitrogen Dioxide and other harmful greenhouse gases

#### **Advantages of Deforestation:**

1. It gives access to plantings which are using our daily use through using forest land as farming land.
  2. Without clear cutting of trees in forest, we can access paper and wood products.
  3. For living and economic benefit of some community people living in the forest areas it is necessary for their survival through import-export activities of forest spices, wood etc.
  4. As the population is growing all over world, deforestation gives a way for need of land for living of people.
  5. The high revenue resources like gas, oil, minerals, precious metals gold and silver etc. can get from forest lands a lot to generate revenue of the countries.
  6. There is an opportunity to discover new species during the process of deforestation or forest degradation. Recently our scientists explored so many latest animals and insects in forests.
  7. Indirectly our society benefits like infrastructure and social development through deforestation by providing income to government bodies by way of taxes from the companies or persons who getting revenue through deforestation process.

#### **Dis-Advantages of Deforestation:**

1. Due to increasing population, the greenhouse effect may raise and it can be control only through planting in turn growing of forests. This increas- ing deforestation for short-term profits will defi- nitely leads our lives in to danger.
2. The increasing global temperatures will not be reducing at all and it also effect human beings and all creatures in the world. It will also lead to develop more dangerous virus and infective bac- teria.
3. There would be an adverse effect on water supplies all over the world
4. By using the forest lands for farming, it may demands to use fertilizers and artificial stimulants for farming which possibly reduce the pH levels of the land.
5. Increase in revenue through forest related ac- tivities become temporary if in substance not do- ing planting and we should remember that it will take years to a plant to form as a tree which can be used by us for furniture and other.
6. Deforestation leads to species extinction due to non-availability of food for animals.
7. Soil erosion is another major disadvantage. After deforestation even the land using for farm- ing the soil will be sweep out to rivers when rain- fall occurs. So, the previous nutrient soil which helps the new plant with same root base is not there now. Then the forest land converted into farming is not beneficial.
8. Livelihood of entire cultures was disrupted.
  9. The rain forest which helps the soil to be with moisture for a long time not there. Then it could create ineffable climate impacts that may be overwhelm human population.
  10. Most of the forest medicinal plants we may lose which can't be replace with any artifi- cial chemicals.
  11. In searching for new resources people may become violent
12. Finally, deforestation leads a loss of diver- sity. If we didn't stop these activities at least now we may lost for generations by creating problems.

#### **Causes of deforestation are:**

All of these add to deforestation

- Forest fires-Forest fires burn all the forest without leaving anything left
- Droughts – Many animals in forests lives on tress only. Cutting trees these animals lost their shelter. Even the animals will have water too.
- Eròtic animals,
- Floods, Climate change, and
  - Overpopulation of foreign animals. Natural causes of deforestation are as under:
- First cause of natural deforestation is due to fire. Fire takes place in no. of forests and it leads burning of no. of trees.
- Second cause is droughts. when a drought occurs trees dies in no. of forests and it leads burning of no. of trees. cause is droughts. when a drought occurs ,tree won't have water to survive also one of the cause for deforesta- tion is floods.
- Third Cause is over population of foreign an- imals also causes deforestation and also cli- matic changes are responsible for deforesta- tion.

Man Made causes of deforestation:

- 1) one of the manmade causes of deforestation is population exploitation.
- 2) The forests and trees are cut down to obtain wood. which also causes deforestation.
- 3) The forests and trees are cut down to get o land for building houses, etc.
- 4) And the deforestation is also caused by due to other constructing purposes.

#### **New scientific innovativemethods:**

There are mainly 8 scientific innovations to pre- vent deforestation before it takes place.

1. **Tracking tree cover in real time (Global Forest Watch 2.0)** : Global Forest Watch (GFW) is a dynamic system as observing and alert systems of forests. The data is available to people or organizations as that can be used to identify any fires, illegal activities and also to monitor and manage the forests.

2. **Cloud-based land use analysis (FAO Sepal)**: This Food and Agriculture Organization (FAO) SEPAL is a platform developed by United Nations based on Chrome to recognize and monitor the movements in forests with higher resolution imagery with the help of google satellite data. It is most essential to spot the problem arising at this level itself.

**Audio Detection Devices (Rainforest Connection)**: Mr. Topher White discovered a new way to prevent the deforestation rather than above which is attaching mobile phones to trees as they can send an alert notification to nearby people if any chainsaw or truck sound listened to. For this, he made the mobile phones with several panels in any condition they can charge always. Now, in the forests located in Indonesia, Brazil and Cameroon the pilot tests are undertaking with this system.

**Stardust**: It is powder designed with the purpose to identify the origin of the wood even after it made into final product. This scannable powder is not visible to human eye and also non-toxic. Through spraying this powder on trees it is very easy to find from where the wood has been brought and assists to recognize it if any illegal activity taken place.

**Crowd Sourcing Applications**: These apps enable users to forward the send large amounts of data on illegal activities happening in forests by allowing uploading photos, videos, audible messages from smart mobile phones. With collaboration of this data and the other reports available the investigation process may simple on illegal logging. Most of the worldwide organizations such as World Wildlife Fund (WWF) and Oxfam are being used this technology.

**Block Chain and Crypto Currency Technology**: An application Terra Zero developed with instructions as a forest is owned forest itself that means the owner of forest is that forest itself. If the trees chopped in the forest they must pay the amount to the forest itself. So, here no chance to for illegal logging and in the same way licensed timber will only is allowed. The money collected is utilized again to regenerate the forest.

**Reforestation Drones**: Now-a-days, it is important not only to prevent deforestation, but, to plant more number of plants because our environment has been already in critical state due to this deforestation. Now the only thing to come out from this situation is to planting in forests in a wide range. But, it is difficult to plant in some places in the forests and as much as fast. For this purpose, only, a UK based company Bio Carbon Engineering came with the concept of Drone system that make possible to plant trees any place just by shooting the seedpods into soil from 2 to 3 meters' height. This seed pods not just filled with seed but with all the nutrients that necessary to grow plants in any climate conditions.

1. **Mimicking leaf litter**: As a solution to planting and maintenance of these plants in remote areas where it difficult, the new innovative concept has been found by Mr. Bruno Rutman. That is called "Biomimicry". The basic idea in this concept is **Nuclerio** as an all-in-one solution based on leaf litter process. By providing modern solutions, this process helps to tree saplings by preventing soil erosion and keeping moisture in high levels in the soil. It also makes possible the use of fertilizer down and easy to maintain the forests.

As said above, through the help of technology, the innovative modern science technologies are developed in helping to reduce cut down trees, prevention for deforestation. And also to increase trees through that forests all over global wide.

#### **Importance of innovations:**

To fight and protect ourselves from the growing global problematic situation of Deforestation, now, we need to stop the deforestation activities immediately and also to grow plants in millions per year. Then only we can survive on this earth and future generations are in safety. For this, in the modern era with the help of technology we can fulfill our needs as per our requirements. The above discussions proved this. So, to address the deforestation problems the modern scientific innovations plays vital role and it is so important to do more innovations in this way.

The innovative scientific technologies not only help to deforestation, for growth of forests also. Now, we are in the stage not to lose our forest eco system as well as there is need of the hour to increase the forest species along with that. For growing population and needs demand of forest needs will increase and increase in trees and species in forests will take more years. But, with the help new scientific innovations we can reduce the time period for growth of forests in various methods. Here, we will discuss some forest tree based applications of Biotechnology for quick growth of forests.

**Innovative Biotechnology applications for forest growth:**

Through the help of following biotechnology applications it is feasible to produce fast growing plants in large quantity. These specific technological innovations allow fast growing plants with low cost provisions and high quality products with less chemical and energy utilization.

**Clonal Propagation:** Through clonal propagation large number of plants can produce. The plants are also genetically identical. It enables to maintain planting stocks for future purpose. Further, researches to the extent of clonal propagation on production of plants from plant cells through ordinary plant tissue which is called somatic embryogenesis provides high multiplication rates of plant generation and also long storage of genetic lines also conceivable.

**Marker-Aided Selection:** Marker-Aided Selection technology involves that comprehensive genes and locating Quantitative Trait Loci (QTLs) which are stretches of DNA linked intimately to genes. Recently, in genes related improvement in forest plants the Marker-Aided selection is using significantly.

**Genetic Engineering:** In this process, one or more genes will be inserted in to cells. With this gene cloning and genomics technology the wood quality can be improved. In extent to this, there are more new biotechnological innovations are under process for increase of plants by improving their genetic features.

**Genomics:** This biotechnological application of Genomics is developed to improve sustainability productivity of the trees in forests.

**4. Mitigation measures to restrain deforestation:**

With the support of government incl. national, state and local bodies along with civil and private societies only it is possible to control deforestation. Growth rate in human population should be reduced which is the major cause for deforestation. A strategy to be developed as an alternate to slash-and-burn agriculture in the same way alternate cultivation facility for poor farmers also need to be implemented. Necessary changes to be adopted in Public policies and laws to increase food production and market the same by cultivators. Agroforestry practices can be benefited as a procedure for deforestation as well as reduction in production of CO<sub>2</sub>. It also helps to increase the soil fertility and conserving soil and water. Provision of protected areas is necessary action through biodiversity conservation. Another major cause for deforestation is certification of forest issuing to timber companies. The issue can addressed where the timber certifications found negatively related with deforestation.

**Laws and Rules made by Indian Govt. in forest conservation:**

Various measures taken by Indian government both state and central government for not only conservation of forest but also increasing the forests and tree cover all over the country. Some important rules and laws implemented for forest conservation:

**The Indian Forest Act, 1927:** As an amalgamation to the existing laws, this act defines the procedures of declaring a reserved forest and a protected or village forest by the state government. Another amendment made in this act, in 2012, is about prohibition of fresh clearings in the forest and fire safety setting in reserved forest areas.

**Forest Conservation Act, 1980 (amendment made in 1988):** Through this act, a prior approval from central government to be taken by anyone for any kind of diversion of forest area.

**National Forest Policy:** Framework of this policy includes various measures for to increase deforestation and forest development. It works on safeguard of forest environment, compensatory afforestation, ecological utilization etc.

**Wild life protection Act, 1972:** This act enacted towards protection of wild animals, birds, and plants

through this environmental safety of the nation.

**The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006:**

The main purpose of this act is to re- gionalize the rights of the people who living in forests from generations.

Apart from these, in India for Environmental protection various provisions and laws also made:

- The Constitution of India under Part IV (Art 48A-Directive Principles of State Policies)
- The Constitution under Part IVA (Art 51A- Fundamental Duties)
- **THE NATIONAL GREEN TRIBUNAL ACT, 2010**
- **THE AIR (PREVENTION AND CON- TROL OF POLLUTION) ACT, 1981**
- **THE WATER (PREVENTION AND CON- TROL OF POLLUTION) ACT, 1974**
- **THE ENVIRONMENT PROTECTION ACT, 1986** etc.

**Role of Environmental Laws to reduce De- forestation:**

As said above, in recent days, different kind of strategies have been implementing across world to prevent deforestation as well as to grow the forest land. For this, many countries framed new laws and made amendments to the existing laws and encouraged new innovative technological experi- ments towards forest growth.

[Figure 1 about here.]

[Figure 2 about here.]

By observing the above graphs, we can say that there are significant growth forest developments all over world. Major loss happened during 2016 which has been reduced 50% by 2019.

Here, because of major efforts by Brazil and In- donesia forests where the area of forest lands is majority in percentage globally are considerable. Forest law enforcement played a significant role in this success. Brazil followed a clear strategy in formation and implementation of forest law ac- tivities by utilizing technological innovations ef- fectively. Key elements includes: Using remote sensors to recognize any illegal deforestation ac- tivities observed with images and in time, con- fiscation of timber and machinery, impediments, penalties, disclosure of public for non-complaint behavior and majorly blacklisting of local gov- ernments that were not taking steps to reduce de- forestation. Indonesia also follows the same by adapting necessary changes as per their country's specific conditions.

According to REDD+ program, Deforestation activates are responsible up to 20% of green- house gas emission in environment. REDD refers Reducing Emissions from Deforestation and for- est Degradation. REDD+ as advanced program deals with forest carbon stocks and management of forests.

But, "in the concept of REDD+, attention on forest law enforcement is limited and more effec- tive and broader strategies to be framed to reduce deforestation significantly" stated in Nationally Determined Commitments to the UNFCCC. As illegal deforestation has significant share in total deforestation in most of the countries, there is an urge for renewed research attention through that can made new forest and environment laws for other countries too which helps in forest growth like in Brazil and Indonesia.

## **5. Environmental Laws Ineffectiveness Causes and Consequences:**

a. One among the most common stated reasons is that there is no independent environ- mental governance regulatory body. It is treated as part of Ministry of Environment Forest and global cli- mate change.

b. Poor implementation of environmental law because of unnecessary involvement of govern- ment on the governance of ministry

c. Most laws associated with environment con- sider the prevalence of human over ecosystems and nature There is also a scarcity of political will and public awareness.

d. It is better to initiate strong penalty measures if there is any negligence in taking necessary per- missions from pollution control panel in discharg- ing wastes

In this situation, both central and state level involvement and on regulating environmen- tal laws. At central

level some personal engagement is required to reform the state level PCBs.

e. The funds issue also is the cause of ineffective performance of the Pollution Control Boards and also lack of proper infrastructure or laboratories used for research purpose.

f. The situation in India is that laws which are old and suited to specific sorts or specific categories of hazardous substances.

g. The lack of coordination between people who make the laws and who implement the laws in present mechanism does not respond to accept the "polluter pay principle".

h. The Litigation involved over an issue of Environmental nature will prove to be costlier compared to other disputes that are easily accessible and pocket friendly as it involves expert testimony and technical evidences.

## 6. Solutions to bring Effectiveness

1 Public awareness and a rise in political will may be a must. NGO's can play an especially major role in this. There should be less political involvement within the independent regulatory body.

2 National Environment Protection Authority has been established as an independent authority for observing, regulation and execution of environmental governance.

3 The boards should have more decision-making power and need to establish a body of experts with like-minded people like civil services.

Laws give environmental values to the society including Courts and Tribunals should refrain from completing policy functions and must specialize in making a robust environmental jurisprudence in India. It is necessary to have a general legislation to protect our environment.

4 As per the National Environmental Policy 2006 there is a requirement to maneuver to a robust civil liability mechanism which is built on the polluter pay principle rather than a criminal penalty mechanism.

5 There is also a proposal for the govt to pass in the Environmental Amendment Bill, 2020. As per this bill, anybody cause for the substantial loss to the environs will be imposed a fine of Rs. 5.00 Cr. 7 These projects are in the energy efficiency and having Certified Emission Reductions (CERs), fuel switching, industrial processes, and municipal solid waste, renewable energy and forestry sectors and are spread across the country.

8 In *Almitra H. Patel v. Union of India*, (1998), the Supreme Court reiterated the observations made in *Wader's Case*-Historic city of Delhi, the Capital of India, is one of the most polluted cities in the world. The authorities, responsible for pollution control and environmental protection have not been able to provide the clean and healthy environment.

### 4.1. Regulations involve

Environmental laws cover a wide range of topics

I. Air Quality:- laws to protect quality of air that is being circulated in & around the globe including ozone depletion

### II. Water Quality:- Law regulating the supply of

good quality water which is free from pollution to all those who use it and who require it for daily needs, and it includes treating wastewater management by recycling it in order to reuse

III. Waste Management:- Laws also relate to municipal waste, hazardous substances, and nuclear waste and all other category of waste that is produced in day to day activities around the globe.

IV. Contaminant Clean-up:- this law deals with prevention of pollution and clean-up of pollution in day to day activities of life which include auto-mobile pollution and industrial pollution etc.

V. Chemical Safety:- Laws that regulate use of pesticides and chemicals in the required quantity and proportion. These laws also deal with use of plastic bottles and reuse of plastic bottles

VI. Hunting & Fishing:- This law deals with protection of wildlife which includes restrictions on hunting of wildlife and fishing of creatures in the water which are non-harm to people living on the earth.

[Figure 3 about here.]

## 7. Sustainable Development

The Main principle of sustainable development is integrated decision-making—the incorporation of environmental, social, and economic considerations and goals into decisions.

World Commission on Environment and Development (WCED) defines sustainable development as "economic development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Even though, this idea is acceptable among general public, local, national and international governments; coming implementation of such practices is not much acceptable. Karnosky (2003)

Unlike other industrial sectors, forestry sector is sustainable in getting yield principal because of its various uses of natural forest ecosystems. This sustained yield can achieve easily with sustained development of forest which is easier compared to other sectors. To attain this, transformation of management from forests to forest ecosystem needs to be done. It means maintenance of ecological integrity has to be placed along with management of other forestry developments. Dixon et al. (1994)

Harmonization between human engagements with forest ecosystems biologically and physically plays major role in sustainable development of forests. Through analyzing limits of forests for its endure ecological changes, using innovative methods for forest growth as well as deforestation can achieve sustainable development of forests. There are mainly three parameters of forests to be analyze: Lindenmayer (2009)

**Productive capacity:** The features of the forest land like number of species and trees growing, soil fertility and climate conditions of that forest represents its productive capacity. Along with these, the entire nutrients concealed in the forest biomass which makes forest land is very robust. But, while harvesting crops, the forest biomass will loosen and it will be completely eradicating it totally during harvest cycling. It also not useful for crops in future because of nutrient poor forest land. So, we need to understand the effect of harvesting by reducing productive capacity of forest land. Bonan (2008)

a) **Renewal capacity:** Renewal capacity of forest eco system is depends on the mode of reproduction of species. In natural, reproduction of species is a common thing in the forests and from industrial point of view it needs quick reproduction. So, it is important and possible to maintain the forest renewal capacity by natural and artificial ways. There are three stages of renewal of forests: 1) Self Renewal: where forest ecosystems are able to renew themselves at the moderate of degradation, 2) Rehabilitation: At this intermediate stage of degradation, with human intervention the eco systems can be set to its natural stage in longer periods and 3) Restoration: In this final stage, where the forest sites lost totally or near to total their renewal capacity and it will take centuries to come back its natural state and it may not possible to recreate the original state. Benhin (2006)

Here we need to remember that if we try at the first stage or at least in the second stage it is possible and more possible ways with the help of innovate new technologies to protects our forest eco system.

b) **Species and Ecological diversity:** On earth, Forests are rich sources for its genetic heritage of hundreds of tree species. For future growth of forests, Luysaert et al. (2008) preservation of various species through species and ecological diversity is the only option.

[Figure 4 about here.]

The first and immediate action to be implemented for sustainable forest is re-planting. Because other than re-planting all kinds of practices or innovations can address solution for prevention of degrading forests, but can't improve the no. of forests or plants. So, the only solution for forest growth is re-planting.

Let's discuss other sustainable actions towards forest development:

Fully utilization of existing knowledge and practices of integrated forest ecosystem through establishing networks national and international wide.

Innovation of well-developed devices and systems with the help of information technology to identify early

warning signals and indicators of eco stress and deforestation activities that occurs due to natural causes or human activities.

Fasten the monitoring systems of forests national and international wide through providing reliable information in time.

It's need of hour to protect ecological and bio diversity through maintaining ecological reserves and unique forest types and take actions to promote and further development of forests.

Some selected forest areas to be planted with high productive forest plants

- Implementation of effective measures to prevent forests from fire, plant diseases and insects so as to fulfill the needs of timber Reduce forest waste and effluents in product manufacturing
- Encourage recycling as to make more variety of products for which can utilize the small wood pieces left while making manufacturing of various products.
- Reduction in pollution from various industry plants which effects reduction in forest plants by productivity declines.
- Continuous efforts towards conservation and sustainable growth of forests by giving essential support of technology and monetary to develop necessary frameworks and policies globally.
- Certain criteria to be framed to strengthen global trade of forest products for defensible forest growth.
- Create awareness among people on need of forests growth and policies and programs conducting for sustainable forest growth.

As per the view of Nicholas Ashford and Ralph Hall argument national governments in particular need to integrate two things:

a. Increase the product efficiency with necessary materials and energies utilized by a cause of five to ten and also opportunities for eloquent employment with passable purchasing power.

b. For achieving this objective, Integrative technological innovations will substitute a wide range of strengthening objectives in a larger number.

These measures make possible not only incremental growth but rather than breakthrough innovations.

According to Ashford and Hall argument the

Governments can achieve this kind of policy integration

a) through a various legal and policy tools, including the use of regulation to substitute invention, research, and expansion.

b) "removing regulatory barriers to innovation;"

c) tax policies; and encouragement of Sustainability

d) management-labor bargaining "before technological changes are planned and implemented" Legal rules pertaining to a sustainability objective in between two governments at a higher level and lower level are separate from the relevant legal rules of one another as a result, the basic level of government can make decisions that aggravate sustainability goals.

Many observers recognize that sustainability requires new laws in place of existing laws or modifications to existing laws as mere applying of current laws to new problems does not give proper results that are expected in present era of business Similarly, Robin Craig and J.B. Ruhl has suggested a variety of tools to be implemented legally and while making policies that can be accustomed substitute ecological management of coastal Eco systems such as

a) strategies to be developed that can be incorporated and place-based.

b) Development of innovative conventions that based on market

Creating new laws by modifying or enhancing the existing laws in the way to achieve sustainable outcomes including adaptation of climate change.

[Figure 5 about here.]

The key regulatory authorities are  
Ministry of environment, forests, and climate change  
Central pollution control board  
State pollution control board

### 7.1. Role of Non-governmental organizations

In India role of non-government agencies and groups is very active readily use the services of media for information and courts for prosecution of offenders against environmental grievances. This organization is more effective since judiciary cannot concentrate on all matters raised in public interest.

## 8. Methods

The aim of the present article is to design a conceptual Framework that would allow any researcher or practitioner involved in a preventing of Deforestation and in preserving the Environment and by achieving the goal of Sustainability to follow logical, consistent procedural steps for a schematic representation

## 9. Results

The study is to attempt to translate sustainability while achieving the Eco friendly forest range where all living beings who are inhabitants to that area can leave happily and safely without any fear of them being exposed to the harmful intentions of human beings living nearby, by adopting some specific legal principles, and the challenge of developing a proper national legal structure for sustainability. Tapia-Armijos et al. (2015b)

I. Environmental Challenges has highlighted the recognition of environment as an important consideration for economic development has been the most remarkable realization of this century and it is likely to be of increasing significance for the 21st century and beyond

II. Owing to the increasing population and growing consumerism, the demand of environmental resources is fast outstripping the carrying capacity of the biosphere. Prolonged disregard of nature including forests and greenary effect and cumulative impact of industrialization, misuse and overuse of natural resources has resulted in a severe backlash represented by soil degradation, global warming, depletion of stratospheric ozone, environmental pollution, loss of biodiversity and economic disparities.

III. Environmental problems are transnational and Transgenerational in character and require Transdisciplinary holistic approach

IV. The complex issues posed by rapid environmental degradation have forced us to re-examine the relationship between natural environment and human systems. The area of focus in the present study is however not gone through

V. Environmental Law emphasizes that our environment is faced with the twin pressure of deforestation and development, resulting in its deterioration and depletion of the natural resources at an alarming fast rate. Tilker et al. (2019)

I. In addition to the traditional pollutants, the strain of unchecked effluents and emissions from hazardous and polluting industries has caused pollution of the environment and consequent human health hazards.

The over-exploitation and destruction of natural resources due to industrial growth has led to such an extent that our future generations may discover that life support system has been damaged beyond repair in view of this there is a need for striking a balance between environment and development so that we may have sustainable development.

II. Some important concepts such as the crucial problem of deforestation which traces the origin of constitutional support to protection of environment, and deliberates on the

[Figure 6 about here.]

Relationship between industrialization for economic growth and environmental protection for human health

III. Problems of environmental compliance and enforcement machinery with a view to suggesting solutions to alleviate the problems, role of judiciary and legislature for environment protection. But the area of focus in present study is however not gone through. Mayaux et al. (1454)

X. Environmental Law has thrown light on environmental regime in India and also projects international jurisprudential trends to restore environmental equilibrium.

XI. The journey of environment with sustainable development from the Stockholm to the Rio Summit led to the recognition that all human beings and creatures in world entitled to a vigorous and fruitful life in coordination with nature. Mayaux et al. (1454)

XII. To materialize this vision, the concept of sustainable development came to be recognized as important factor with a view towards friendly and natural growth.

XIII. It was such factor which was responsible for the enactment of various environmental laws in India that are designed not only to preserve and protect environment but also to prevent environmental pollution. In the enforcement of these laws, the Indian judiciary has played a seminal role and used Public Interest Litigation as a convenient tool to create a new environmental jurisprudence.

XIV. The concept of sustainable development, precautionary principle and polluter pays principle has become part and parcel of the Indian judicial system. The author further deals with the constitutional rights available to a citizen of India and as to one, who can come forward to sustain and enforce these rights, have been elaborated. As a matter of fact, all the topics regarding which concerns have been shown in the national environment policy have been incorporated.

XV. The role-played by the United Nations Organization at the world level is equally credible. This has motivated the powerful and developed nations to come to a conference table, and they have been forced to deal with the subject seriously.

XVII. Environmental Law: Environment Protection, Sustainable Development and the Law environment protection and its preservation is of major concern.

We should preserve the nature gifts in the form of off flora and fauna to save ourselves from the environmental disaster. It is need of the hour to create and maintain the proper of the eco system. The only answer to tackle this problem is sustainable development. But, it is not possible alone with making laws and regulations and to be creating awareness of the problem among people is also important.

#### **4. Limitations**

The primary focus of sustainable development has been on critical challenges posed by various environmental problems which includes depletion of nonrenewable resources and increase in non-biodegradable waste etc.

#### **5. Conclusions**

In conclusion challenges that environmental sustainability addresses are widespread poverty and growing global environmental degradation which are urgent challenges that need attention according to Law it can make a variety of key contributions in achieving sustainability and in finding ways and means to quicken the use and investigation of laws that can substitute sustainability. Deforestation can lead to many disasters that we cannot predict and foresee with in a responsible time to come as the forest are the main source of shelter to some animals and are the most oxygen friendly human companions on the earth where we are living.

So, it's very essential that environmental laws towards sustainability got to implemented strongly and to the full extent possible by India for a bright future and it looks that India is progressing towards the Sustainable and though environmental friendly laws that can given best results in coming years.

As Deforestation is a global environmental issue, we discussed all the issues related deforestation and provided possible solutions too for the problem in this article national and international wide problem has been

addressed here.

#### Declaration of interest statement

There is no conflict of Interest involved in the Paper as a whole or Part there of in any manner

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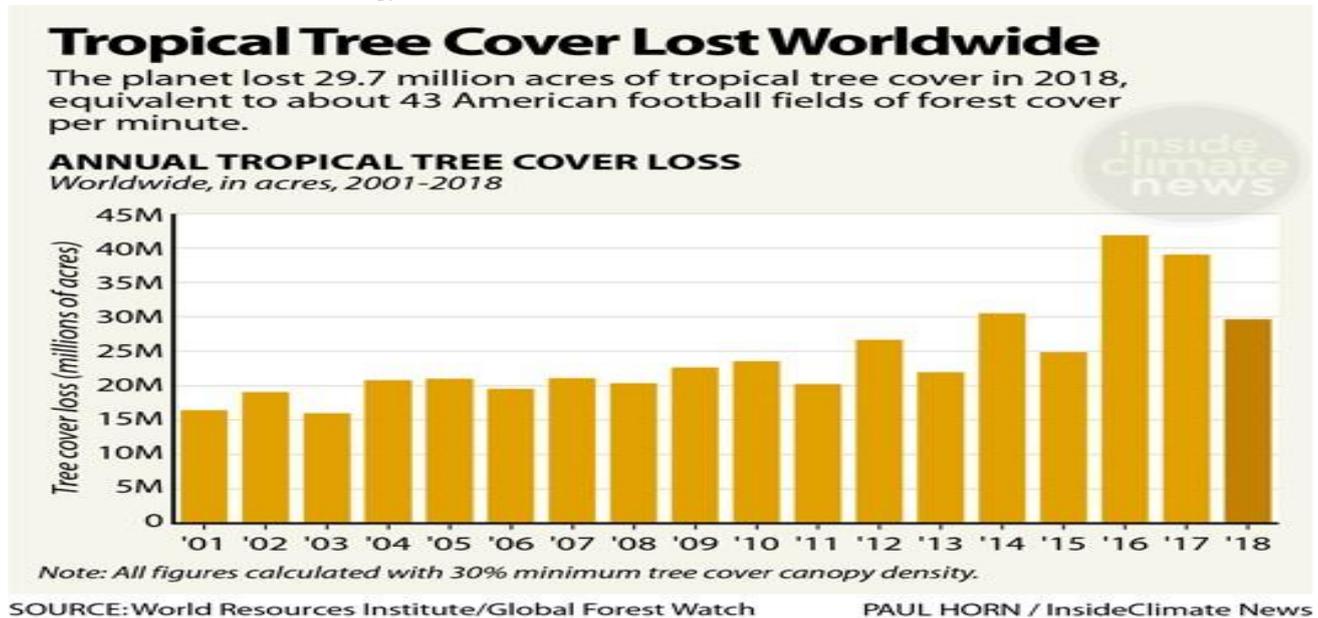
Lindenmayer (2009); Dixon et al. (1994); Luysaert et al. (2008) Karnosky (2003) Bonan (2008) Achard et al. (2002) Mayaux et al. (1454) Benhin (2006) Tilker et al. (2019) Tapia-Armijos et al. (2015b) Sahana et al. (2018)

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**Figure 1.**  
 Tropical Primary Forest Loss, 2002-2019

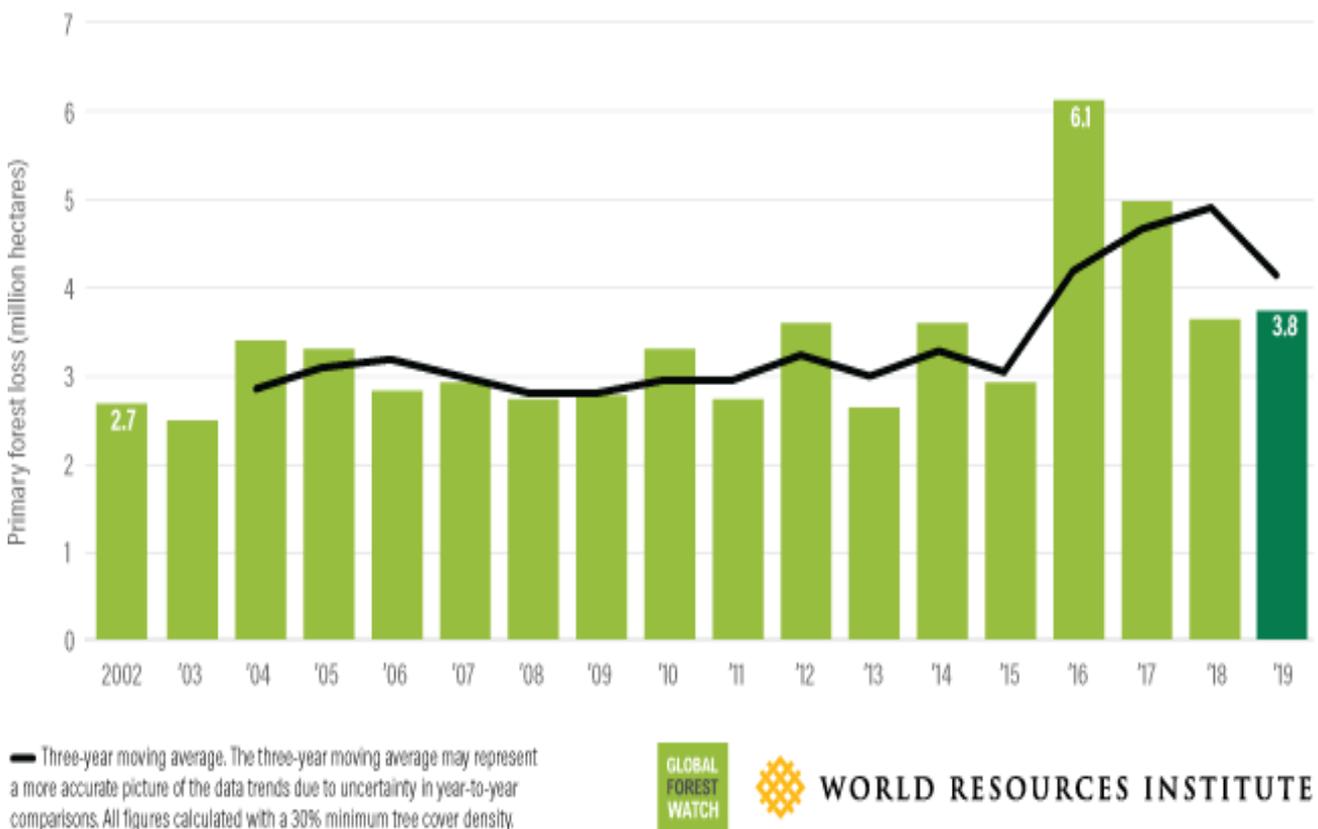


Figure 2.



Figure 3. Environment Management



Figure 4. 17 Goals



Figure 5. 3: Challenges



**Figure 6.** Safe and Healthy Environment