

Deforestation – Causes and Consequences

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Forest Resources:

One of the most valuable natural resources of the world is forests. The first known forest on the earth arose in the late devonian (approximately 380 million years ago), with the evolution of Archaeopteris.

Archaeopteris was a plant that was both tree like and fern like growing to 10 meters in height. Archaeopteris quietly spread throughout the world, from equator to sub polar latitudes. Archaeopteris formed the first forests by being the first known species to cast shade due to its fronds and forming soil from its roots. Archaeopteris was deciduous, dropping its fronds on the forest floor. The shade, soil and forest duff from the dropped fronds created the first forest. The shed organic matter altered the fresh water environment, slowing it down and providing food. This promoted fresh water fish. Originally forests covered about half of the land area of the earth. But today, they cover 30% of the land area of the earth. The reasons for the decrease in the area of land under forest is that pressure of population in many countries has necessitated the destruction of forests for the purpose of agriculture and habitations.

The term “forest” is derived from the Latin word “foris” meaning outside. Originally the word “forest” meant uncultivated and uninhabited village boundary consisting of natural plants i.e. trees and grasses. But today, it means an association of plants, natural or cultivated, predominantly trees. In the words of Allen and Sharpe “Forest is a community of trees and associated organisms covering a considerable area, utilizing air, water and minerals to attain maturity and to reproduce itself and capable of furnishing man kind with indispensable products and services” so a forest is a community of trees growing together at one place.

Importance of forest:

Forest is the house to many living organisms. It is a precious resource provided by nature. Forest are of great importance to mankind. A human economy without forests is quite unthinkable. Like a river system, a forest is a multi-purpose resource. Forests serve mankind in many ways. They have both direct and indirect benefits. The important direct benefits of forests are

- They provide timber for house building, ship building, railway sleepers. Lorry bodies, furniture etc.
- They supply fire wood and charcoal for fuel in homes and industries.
- They provide raw materials for industries like paper industry, rayon industry, rubber industry etc.
- Resin, honey, lac, bamboos, canes, sandal wood, neem oil, satin wood oil, eucalyptus oil, medicinal plants etc. are the some of the other direct benefits of forests.

The indirect benefits of forests are

- Forests pump out oxygen we need to live and absorb carbon dioxide we exhale. A single mature, leafy tree is estimated to produce a day's supply of oxygen for anywhere from two to ten people.
- They stop the rain bearing winds and cause rainfall. Further they increase the amount of moisture in the atmosphere and thereby provide additional precipitation in the locality.
- They minimize the extreme variation in climatic conditions and make the climate more equable.
- Forests control floods during heavy rains by absorbing the excess rain water.
- They prevent soil erosion by checking the force of flowing water.

- They acts as wind-breaks and protect the adjoining agricultural fields against strong winds.
- The thick roots of the trees absorb large quantity of water. The absorbed water gets into the sub-soil and feeds the rivers and streams. Thus forests help the flow of rivers and streams.
- Forests increase the fertility of the soil. The trees and plants collects nitrogen from the atmosphere, fix it in the soil and thereby increase the fertility of the soil. Further the decomposed leaves and other organic matter of forest brought and deposited on the fields by the rivers add to the fertility of the soil.
- They provide shelter to the wild animals and birds.
- They improve the sanitary conditions of a place.
- They provide pure water, fresh air and beautiful scenery and become recreational centres.
- Forests are good source of revenue to the government.
- Forests provide employment to a large number of people in different capacities.

Factors affecting growth and distribution of Forest:-

The growth of forests depends upon a number of conditions. The most important being are temperature, rainfall, attitude, aspect of slope, sunlight, wind and soil. As these factors varies from place to place, the growth and distribution of forests varies from place to place. In areas of high temperature and rainfall evergreen forests are found whereas in areas of high temperature and very low rainfall, desert vegetation occurs.

Deforestation

The clearing or thinning of forests by man is called deforestation. Deforestation is the clearing of forest areas by cutting down the trees. The term commonly refers to the removal of trees. The main purpose of deforestation is take commercial advantage of cleared forest land. Deforestation represents one of the largest issues in the global land use. Estimates of deforestation traditionally are based on the areas of forest cleared for human use, including removal of trees for wood products and for eroplands and grazing lands. In the practice of clear-cutting, all trees are removed from the land, which completely destroys the forest. In some cases, however, even partial logging and accidental fires thin out the trees enough to change the forest structure dramatically. Infact deforestation is the permanent removal of trees from forest land.

Conversion of forests to land use for different purposes has a long history. Earth's eroplands which cover about 49 million square km are mostly deforested land. Most present – day eroplands receive enough rainfall and warm enough to have once supported forests. Only about 1 million square km. of eroplands are in areas that would have been cool boreal forests, as in Scandinavia and northern Canada. Mush of the remainder was once moist tropical and subtropical forests and also temperature forest of north America, eastern Europe and China. Most of the present grazing lands of the world were once forest areas. According to United Nations Food and agricultural organization the present rate of deforestation is about 1.3 million square Km. per decade. But the rate has slowed in some places as a result of enhanced forest management system and the establishment of nature preserves. The countries with highest deforestation rates in the world are Brazil, Nigeria, Philippines, Benin, Ghana, Indonesia, Sudan, Venezuela.

Causes of Deforestation:

Trees are vital part of life on the earth. Without forests, living would not possible. Like food, water and shelter, forests are important for life. Infact forests are the source of food, water and shelter to many living things. We humans moved to civilized city life but many insects, plants, animals and microbes live inside the

forests. Deforestation is the permanent destruction of forests that is done to make the land useful for other purposes. The most important causer for deforestation are

- 1) **Agricultural activities:-** Agricultural activities are one of the major factors affecting deforestation. Due to over growing demand for food products, huge amount of trees are felldown to grow crops and cattle grazing.
- 2) **Logging :-** Wood based industries such as paper, match sticks and furniture need a substantial quantity of woods. Lumber and charcoal are common example of trees being used as a fuel. Cooking and heating all around the world use these resources, and half of the illegal removal from forests is thought to be used as fuel wood. Large areas are also cleared to construct road in order for large trucks to have entry to logging sites. Selective logging is where only the most valuable trees are felled. But felling of large tree may bring down surrounding trees and thin the forest canopy.
- 3) **Live stock ranching:-** Forest clearing for live stock ranching is an important contribute of deforestation. Since 1990, Brazil, a top exporter of beet has lost an area of forest that is three – fourth size of Texas. A strong global demand for beef, supported by governments such as in Brazil is expanding this kind of deforestation.
- 4) **Mining:-** Due to high demand for minerals, mining activities are carried out throughout the word. These mining activities are the main reasons for deforestation in many places of the world. These projects are often accompanied by large infrastructure such as roads, railways and power system. This contributor to deforestation is putting additional pressure on our forests and fresh water ecosystems.
- 5) **Over Population:-** Due to over population, more land is needed to establish housing and settlements. As well many more roads and highways are being built in order to accommodate a large sum of people driving. With more people that come with a large need for food and farmland to grows and raise

livestock – resulting in deforestation. Logging industries will cut down trees for furniture, paper, building materials and many more products.

- 6) **Climate change:-** It is true that forest loss can be both a cause and an effect of climate change. Typically rain forests are quite humid due to water vapour released along with oxygen, but when trees are cut down, the humidity level can drop. This can cause the remaining plants to dryout and increase the risk of fire damage and can destroy forests rapidly.
- 7) **Forest fires:-** The most common hazard in forest is forest fire. Forest fires are as old as the forests themselves. Every year thousand hectares of forest areas are destructed due to forest fire. They pose a threat not only to the forest wealth but also to the entire regime to fauna and flora seriously disturbing the bio-diversity and the ecology and environment of a region. During summer, when there is no rain for months, the forest become littered with dry leaves and twinges, which could burst into flames ignited by the slightest spark.
- 8) **Consequences of Forests:-** Some of the most important consequences deforestation are
 - **Climate imbalance:-** Deforestation affect climate in more than one ways. Trees release water vapour in the air, which is compromised on with lack of trees. Trees also provide the required shade and keep the soil moist. This leads to the imbalance in the atmospheric temperature further making conditions for the ecology difficult. Flora and Fauna across the world are accustomed to their habitat. The haphazard clearance of forests have forced several animals to shift their native environment. Due to this several species are finding it difficult to survive or adopt a new habitat.
 - **Increase in global warming:-** Trees play a major role in controlling global warming. The trees utilize the green house gases, restoring **balance** in the atmosphere. With constant deforestation the ratio of green

house gases in the atmosphere has increased, adding to our global warming woes.

- **Floods:-** Deforestation leads to land erosion because the trees maintain the surface of the mountain. The water level of the rivers increases suddenly, causing floods. When it rains, the trees absorb and store a large amount of water with the help of their roots. Chopping down of trees disrupts the flow of water and lead to floods in some areas.
- **Soil erosion:-** Cutting down of trees leads to clearance of forests and so soil erosion occurs. Exposure of the soil to the Sun's heat dries up the moisture inside the soil. Nutrients evaporate and it affects the bacteria that help to break down organic matter. Due to this, rain washes the soil surfaces and erosion takes place. Large amount of soil wash into local streams and rivers and cause damage to hydroelectric structure and irrigation infrastructure.
- **Biodiversity losses:-** Deforestation alters land and so that many of the plants and animals do not survive. With more deforestation, the entire species can extinct. This is the '**biodiversity** loss'. Many wonderful specifiers of plants and animals have been lost, and many others remain endangered. As each species of an ecosystem rely upon other species, loss of one species can have far – reaching consequences for other species. We lose 50 to 100 species of animals each day due to the destruction of their habitats. Millions of plants and animal species are on the verge of extinction due to deforestation.
- **Hydrological effects:-** The water cycle is also affected by **deforestation**. Trees extract ground water through their roots and release it in to the atmosphere. When part of forest is removed, the trees no longer transpire this water, resulting in a much drier climate. Deforestation reduces the water in the soil and ground water as well as atmospheric moisture. The dry soil leads to lower water intake for the trees to extract deforestation reduces soil cohesion so that erosion, flooding and land slides ensue

shrinking forest cover lessens the landscape's capacity to intercept, retain and transpire precipitation. Forests retain most of the water that falls as precipitation to the atmosphere by transpiration. In contrast, when an area is deforested, almost all precipitation is lost as run-off.

Deforestation is happening everywhere on the earth for many different reasons in different regions. Vast areas of dense forests in many countries have been destroyed to make way for agriculture, industries, cattle rearing, etc. The increasing global demand for wood products threatens many ancient forests around the world, whether it is for paper products, furniture or fuel.

Ending deforestation is the best chance we have to stabilize our climate, save wildlife species and protect our well-being – by educating people, planting trees, minimising paper use, recycling of paper and paper board, reducing meat consumption, strict rules and laws of Government, use of alternative materials to wood are some of the important measures to reduce deforestation.

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