

Tropical Rainforests – Reasons for their Destruction

Tropical Rainforests are found in the Amazon Basin of South America, (e.g. Brazil) Central Africa (e.g. Congo) and South–East Asia (e.g. Indonesia).

There are **economic** reasons for countries to cut down their rainforests.

1. Farmland is made. This is both arable land which is used for tropical crops such as cassava and bananas, and grass land which is used for livestock farming, mainly cattle ranching. This farmland, as well as providing food, gives employment and earns money in export earnings for the country.
2. The wood cut down is sold as timber and used as fuel. Tropical hardwoods are much in demand for use in building and furniture. The main markets for the tropical hardwoods are in the developed world.
3. It will allow the mining of minerals. Many important ores such as bauxite and iron ore have been found in tropical rainforest areas. The most economical way to remove the rocks is often by opencast mining, which means that the trees have to be cut down.
4. The produce power and water supplies. Rivers have been dammed to make large reservoirs for Hydro–Electric Power schemes. An example is the Sobradino Dam on the San Francisco River in Brazil.

There are also **social** reasons for cutting down the trees.

1. Transport links. Roads and railways are needed to move goods and people.
2. Settlements. Modern cities such as Manaus in Brazil and Jakarta in Indonesia have been developed in areas that were once were tropical rainforest.

The Effects of Destroying the Tropical Rainforests

Native People

When the trees are cut down it takes away the habitat of the plants and animals. It also reduces the space for the indigenous people who have lived there for thousands of years. These people used the available resources by hunting, fishing, gathering and farming. This way of life has died out with contact from incomers. Some native groups suffered greatly from diseases which they had no resistance to. People are also tempted into the modern lifestyles in the larger settlements, which can have social problems.

Fauna and Flora

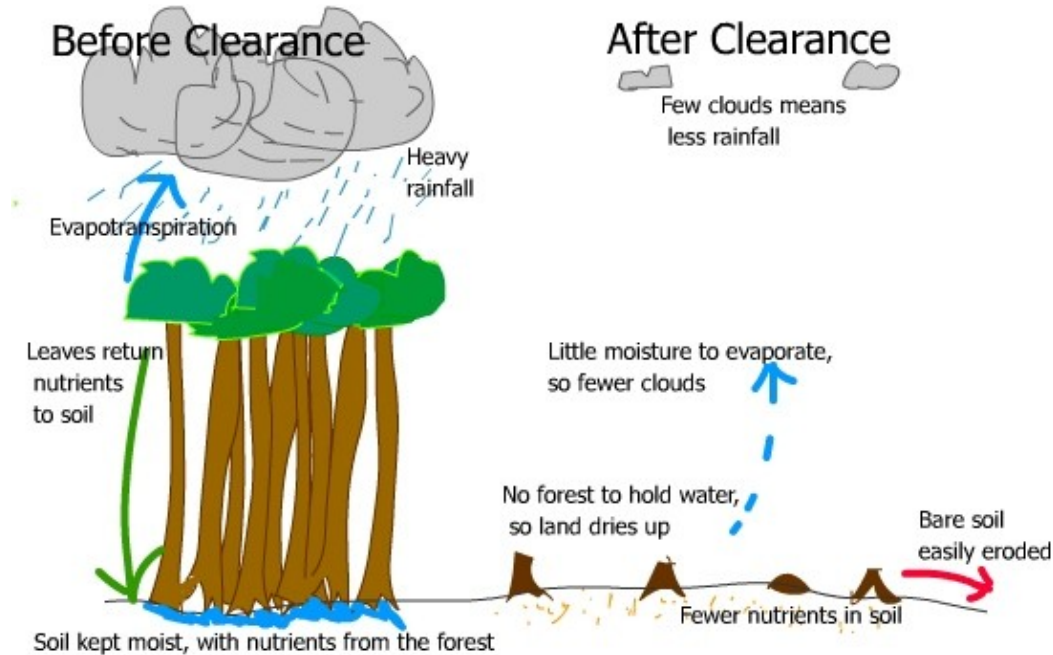
Deforestation has led to the loss of thousands of species of insects, animals and plants. It means that important chemicals that could be used for medical purposes have not been found and will be lost.

The Soil

Removing the vegetation cover exposes the soil to erosion and leaching. Without the branches and leaves to break its fall, heavy tropical storms can quickly wash the soil from even an gentle slope. Cutting down the trees also takes away the roots which helps bind the soils together. The soil can

quickly silt up rivers and lakes.

Even if the soil is not completely removed the nutrients may be leached out as the rainfall seeps down through the soil. Soils lose their fertility after only a few years, and this causes problems for commercial arable farmers.



The Climate

The climate of the area becomes drier with the loss of the vegetation which acts as a "sponge" to hold on to the moisture. Having less cloud cover means the increase in temperatures. Both the burning of the trees and their reduced number increases the concentration of carbon dioxide. The extra carbon dioxide is believed to contribute to global warming, which in turn is blamed for the rise in sea level.

Protecting the Rainforests

Rainforests can be protected by establishing game reserves to save rare animals and plants, reducing deforestation in areas where native people live, replant the areas the timber countries clear and by supporting the countries that have rainforests. The "debt for nature" scheme is designed to remove or reduce the debts that developing countries may have if the forests are protected.

People have also tried to reduce the demand for tropical hardwoods such as mahogany, teak and ebony. This can be done by using woods that are grown in **sustainable** forests.

Desertification

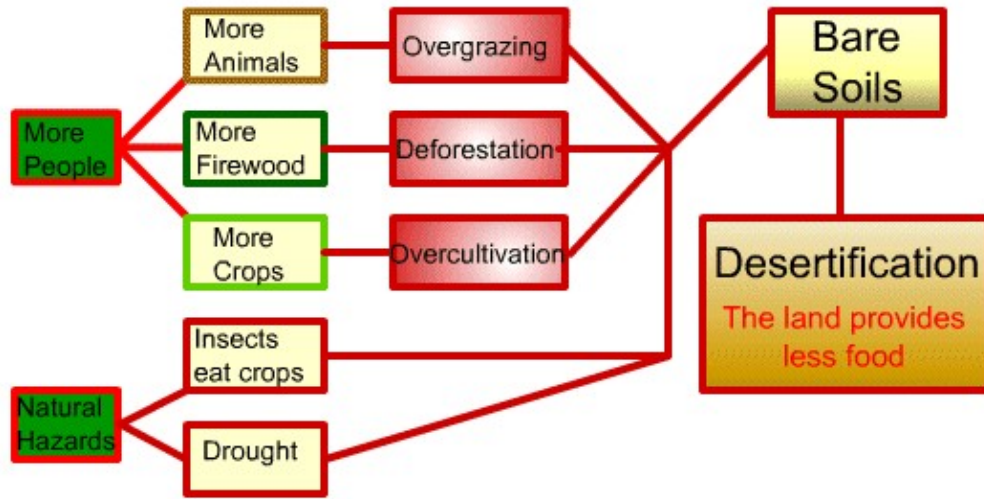
Desertification is when land turns into desert. This means that little or no food can be grown in areas where people live and farm the land. Desertification is caused by the following factors

1. Deforestation – This directly leads to lower rainfall and higher temperatures

Physical Environment

2. Overcultivation – growing too many crops, year after year on the same piece of land damages the soil structure and reduces the soil fertility
3. Overgrazing – the cattle, sheep, goats and other animals take away the vegetation cover and expose the bare soil
4. Poor irrigation – this can make the ground too salty (salinisation)
5. Drought – extended periods of lower than usual rainfall damages the vegetation
6. War – this causes refugees to move into marginal land

Most of all desertification is caused by the pressure of **too many people** living in an area.



Possible Solutions to Desertification

To solve the problems caused by desertification means increase the amount of food that can be grown in areas where people live and farm the land. The following problems can be tackled by

1. Deforestation – **Aforestation**, that is re-planting trees, especially in shelter belts. Planting grasses can help stabilise the soil and cut down on erosion by wind and rain.
2. Overcultivation – Using **good farming practices** such as proper crop rotation and the use of manure as a fertiliser
3. Overgrazing – It is important that the young trees are **fenced off** to prevent grazing by animals
4. Poor irrigation – Make sure the water is not evaporated on the surface which wastes water and increases its **salinity**
5. Drought – This can be triggered by deforestation, so aforestation should help reduce this. Also **terracing** the land to slow down the water running off will make better use of the rain that does fall

Most of all desertification can be controlled by human activity. This is by people **not** mis-using the land and by reducing the pressure of too many people living in an area.

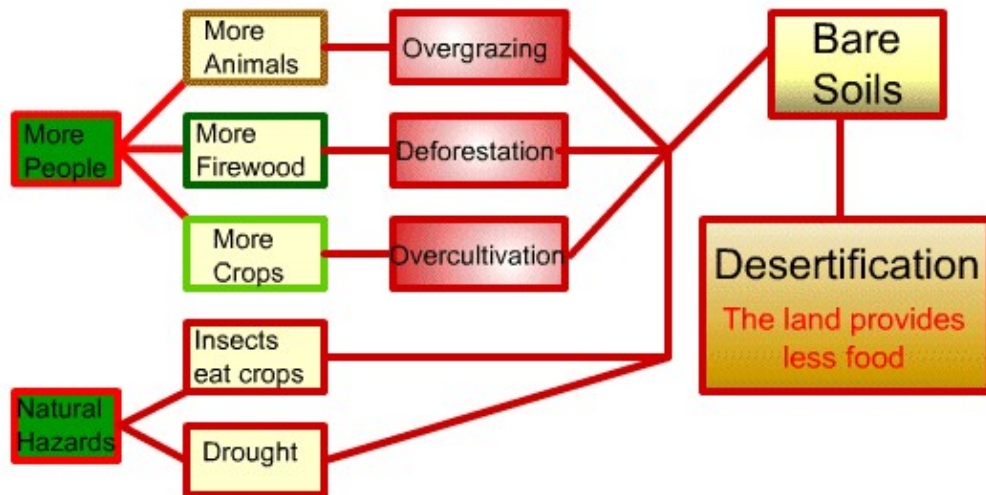
Soil Erosion

Soil erosion is when the soil is **blown away** by the wind or **washed away** by the rain.

Soil erosion is common in areas with steep slopes, where trees have been cut down, in droughts when crops and other vegetation grows poorly and in rural areas which are overpopulated. Nepal, in the Himalayan Mountains, has severe problems caused by increased population density and steep slopes.

Soil erosion can be reduced by building terraces on hillsides, irrigation schemes to overcome droughts, planting more trees to bind the soil together and make wind breaks, and using fertilisers in overpopulated areas to make the soil more fertile. It is very important that the farming techniques used do not damage the structure of the soil, as this makes it easily eroded. Good farming techniques include contour ploughing, crop rotation and keeping the soil rich in humus.

An example of poor techniques was the "Dust Bowl" in the mid-western states of the U.S.A. in the 1930's. Farmers exhausted the soil by monoculture and left the soil bare after harvesting. Soil erosion is a problem of the developed world as well as the developing.



Ocean Pollution

The world's seas and oceans are being polluted by

- Agriculture – The run off of pesticides and fertilisers
- Industry – effluent from factories and power stations
- Sea transport – especially oil tankers
- Overfishing – a type of pollution as it damages the environment
- Domestic waste – sewage from settlements

Ocean pollution can kill fish, plants and animals, spoil beaches and swimming areas, and make people ill.

Ocean pollution can be prevented by banning the use of the dangerous forms of agricultural chemicals, building sewage treatment plants, using aircraft to follow and monitor ships, and using laws to stop industry dumping waste in the rivers and seas.

Overfishing

With overfishing too many fish are caught and the number of fish in the sea decreases substantially. Overfishing could be prevented by

- Putting quotas on much fish can be caught
- Banning nets with small mesh size and using square mesh panels. This allows smaller, immature fish to escape, grow and breed
- Tie-up schemes. Boats are only allowed to fish on so many days a month
- Decommissioning. Fishermen are encouraged to stop fishing by getting compensation for their old boats
- Exclusion zones. Areas of the sea are off-limits to certain nationalities, or at certain times of the year
- Monitoring by Fisheries Protection ships and aircraft. Larger fishing boats are now required to carry devices so that their position can be monitored by satellite.

Air Pollution

Acid Rain

Acid rain is a mixture of water and pollutants which falls as rain and damages lakes, rivers, soils and buildings. In Sweden, about a quarter of its lakes have been damaged by acid rain, and in Germany many forests have been damaged. Buildings made of limestone in central Europe are being dissolved and statues are unrecognisable.

Acid rain can be reduced by reducing sulphur and nitrogen dioxide emissions from power stations and factories which burn fossil fuels.

The Ozone Layer

The ozone layer is the part of the atmosphere which shields the Earth from the Sun's harmful ultra-violet rays. Chlorofluorocarbon's (CFC's), which are found as coolants in fridges and in the past in aerosols, are the main cause of the "hole" in the ozone layer above Antarctica. The use of alternative chemicals would contain this threat, but the damage already caused will take a long time to heal.

Global Warming

Global warming is the slow increase in temperature of the world. The greenhouse effect is when solar radiation is prevented from leaving the atmosphere by various gases such as methane and carbon dioxide in the air. Global warming could lead to the ice-caps melting, which would raise the sea level and flood coastal areas and islands.