



## Encouraging measures against deforestation and its impact on the climate

### Introduction

It was yet the 1972 Stockholm Conference where delegates from all over the world emphasized the necessity of the existence of forests on our planet. According to FAO, forests form one third of the world's land area.<sup>1</sup> Nevertheless, these lungs of the human population are disappearing because of deforestation which produces nearly 20% of global emissions of greenhouse gases. Deforestation is one of the crucial global challenges today's civilization is facing. The IUCN Red List of Threatened Species reports that sixty of animal, as well as floral, species died out last year to the detriment of this problem.<sup>2</sup> Furthermore, anyhow it could seem to many that it has nothing to do with human lives, it is a problem of livelihood as well. Disappearance of the forests and phenomena related to it have a huge impact both on the climate and the social sphere. Countries with the most significant deforestation are Brazil, Nicaragua and Bolivia in Latin America, Nigeria and the Democratic Republic of Congo in Africa, North Korea, Cambodia, Indonesia and Papua New Guinea in Asia.<sup>3</sup>

### Definition

Deforestation is often understood simply as a timber felling caused by a human activity. In fact, this phrase is much broader. Forestry Department of the Food and Agriculture Organization of the United Nations brought out a proper definition of deforestation in 2001:

"Deforestation is:

*Decision 11/CP.7 (UNFCCC, 2001):* the direct human-induced conversion of forested land to non-forested land.

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<sup>1</sup> <http://www.unep.org/geo/geo3/english/178.htm>

<sup>2</sup> [www.iucnredlist.org](http://www.iucnredlist.org)

<sup>3</sup> <https://maplecroft.com/about/news/deforestation.html>

*FAO 2001*: The conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold.

#### *Explanatory notes*

1. Deforestation implies the long-term or permanent loss of forest cover and implies transformation into another land use. Such a loss can only be caused and maintained by a continued human-induced or natural perturbation.
2. It includes areas of forest converted to agriculture, pasture, water reservoirs and urban areas.
3. The term specifically excludes areas where the trees have been removed as a result of harvesting or logging, and where the forest is expected to regenerate naturally or with the aid of silvicultural measures. Unless logging is followed by the clearing of the remaining logged-over forest for the introduction of alternative land uses, or the maintenance of the clearings through continued disturbance, forests commonly regenerate, although often to a different, secondary condition. In areas of shifting agriculture, forest, forest fallow and agricultural lands appear in a dynamic pattern where deforestation and the return of forest occur frequently in small patches. To simplify reporting of such areas, the net change over a larger area is typically used.
4. Deforestation also includes areas where, for example, the impact of disturbance, over-utilization or changing environmental conditions affects the forest to an extent that it cannot sustain a tree cover above the 10 percent threshold."<sup>4</sup>

#### **Causes**

Throughout the history, causes of deforestation have developed a lot. Earlier it has been mainly about clearing the land for growing crops or breeding livestock. In the last decades, the cause of expanding infrastructure started to play its role in this issue. Most often these processes functionate simultaneously. In any case, it is the human kind who induces fatalities.

#### **Plantations and shifting cultivation**

In cases of deforestation in virtue of land use for plantation, forests are usually burned down. There are two methods of this process. Forest is

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<sup>4</sup> <http://www.fao.org/docrep/009/j9345e/j9345e07.htm>

burned down quickly or slowly with the slash-and-burn technique. This signifies chopping trees down inconsiderately and burning the stumps. Result is a fertile area for growing crops - usually a soy or an oil palm. Crops are grown until the soil becomes too degraded because of overgrazing and sun exposure. Then farmers move elsewhere. It is estimated that 70% of all deforestation during 1990's was caused by plantation and shifting cultivation.<sup>5</sup>

### **Illegal logging**

In spite of the fact that a legal logging is also one of the causes of vanishing forests, illegal one is not controlled which precludes managing consequences. Illegal timber production is regulated by national laws in every country. However, these can be violated in various ways and therefore illegal logging is often more practised than the legal one. And this can cause many problems regionally but also globally. Trade of this production handicaps companies which abide laws, deprives price of the timber on a market and also can endanger local communities of inhabitants (such as Awa, Amazon indigenous tribe).

### **Mining**

Mining is another great challenge of this issue. There are many examples all around the world where mineral assets lay right under the areas of forest growth. Amazon, for example, has reportedly huge deposits of copper, iron ore, gold, bauxite, manganese, tin and nickel. "In the Carajas Mineral Province, Brazil, maybe the world's largest copper reserve (iron ore, manganese and gold are already found there), wood from surrounding forest is cut for charcoal to fuel pig iron plants, resulting in annual deforestation of 6,100 km<sup>2</sup>." As mining technologies are improving, it is predicted that seriousness of this problem will increase significantly.

### **Related causes<sup>6</sup>**

- infrastructure development
- poverty
- population growth
- trade in forest products
- macroeconomic policies

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<sup>5</sup> <http://www.unep.org/geo/geo3/english/178.htm>

<sup>6</sup> <http://www.unep.org/geo/geo3/english/178.htm>

## **Consequences**

Deforestation has many problematic consequences. Among these we would distinguish loss of species, soil erosion, intervention to the life of untouched indigenous tribes or disruption of the tree water cycle. Nevertheless, our main point of interest is the effect on carbon emissions along with the climate change.

## **Greenhouse gas emissions**

"Forests help to mitigate carbon dioxide and other greenhouse gas emissions, but they become carbon sources when they are cut, burned or otherwise removed. Tropical forests hold more than 210 gigatons of carbon, and deforestation represents around 15% of greenhouse gas emissions. These greenhouse gas emissions contribute to rising temperatures, changes in patterns of weather and water and an increased frequency of extreme weather events."<sup>7</sup> Most of the emissions come from the Asia-Pacific region.<sup>8</sup>

## **The United Nations Activities**

United Nations authorities are trying to act strictly to avoid the increasing of production of emissions. "The UN's program for Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD) is now part of the post-Kyoto negotiations. The program already established a multi-donor fund to finance initial country activities on forest degradation in July 2008."<sup>9</sup> The REDD was founded to assist developing countries to involve and implement their strategies and mechanisms of reducing greenhouse gas emissions from deforestation. Recently, it is backed by the US, Norwegian and UN pledges of 250 million dollars.<sup>10</sup>

The UN Conferences focused on the climate change in connection with deforestation take place nearly every year. In 1992, the Framework Convention on Climate Change was passed in Rio de Janeiro. This treaty, adopting full implementation of the UN-REDD Programme, launched the series of negotiations on the issue of the climate change. Subsequently, the panel of specialists (the Intergovernmental Panel on Climate Change),

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<sup>7</sup> <http://worldwildlife.org/threats/deforestation>

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<http://www.unep.org/roap/Activities/ClimateChange/UnitedNationsCollaborativeProgrammeUNREDD/tabid/6848/Default.aspx>

<sup>9</sup> <http://www.cfr.org/forests-and-land-management/deforestation-greenhouse-gas-emissions/p14919>

<sup>10</sup> <http://unep.org/newscentre/Default.aspx?DocumentID=2755&ArticleID=9710&l=en>

established in 1988, started to produce analyses that support a need of the treaty.

Today, deforestation is being widely negotiated and solved. However, it is necessary to incessantly support international cooperation and head this problem in the most productive way possible. There is still a lot to improve in this matter.

### **Further reading**

- forest coverage of Earth in progress on interactive map:  
<http://earthenginepartners.appspot.com/science-2013-global-forest>
- conferences (author's advice: it is always very informative to take an inspiration from conferences dealing with the issue):
  - 1972 Stockholm Conference
  - The 1992 Earth Summit (Rio de Janeiro)
  - 2009 Copenhagen Climate Change Conference
  - 2010 Cancun Climate Change Conference ...  
[https://unfccc.int/key\\_steps/durban\\_outcomes/items/6825.php](https://unfccc.int/key_steps/durban_outcomes/items/6825.php)
  - 2011 Durban Climate Change Conference ...  
[https://unfccc.int/key\\_steps/durban\\_outcomes/items/6825.php](https://unfccc.int/key_steps/durban_outcomes/items/6825.php)
  - 2012 Doha Climate Change Conference ...  
[https://unfccc.int/key\\_steps/doha\\_climate\\_gateway/items/7389.php](https://unfccc.int/key_steps/doha_climate_gateway/items/7389.php)
  - 2013 Warsaw Climate Change Conference ...  
[https://unfccc.int/key\\_steps/warsaw\\_outcomes/items/8006.php](https://unfccc.int/key_steps/warsaw_outcomes/items/8006.php)
  - (March) 2014 Bonn Climate Change Conference
- surveys:
  - UNEP: Combating Deforestation ...  
<http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=52&ArticleID=59&l=en>
  - Global Forest Land-use Change From 1990 to 2010 ...  
[http://foris.fao.org/static/idf/RSS\\_2010update.pdf](http://foris.fao.org/static/idf/RSS_2010update.pdf)
- treaties, conventions, assessments and programmes:
  - The 1997 Kyoto Protocol ...  
[https://unfccc.int/kyoto\\_protocol/items/2830.php](https://unfccc.int/kyoto_protocol/items/2830.php)
  - The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD) ... <http://www.un-redd.org/>

- The United Nations Framework Convention on Climate Change (UNFCCC) ... [www.unfccc.int](http://www.unfccc.int)
- The Intergovernmental Panel on Climate Change (IPCC) ... <http://www.ipcc.ch/>
- Global Forest Resources Assessment ... <http://www.fao.org/forestry/fra/en/>

## **Sources**

- <http://www.unep.org/geo/geo3/english/178.htm>
- <http://www.un-redd.org/>
- <http://www.livescience.com/27692-deforestation.html>
- <http://worldwildlife.org/threats/deforestation>
- [http://wwf.panda.org/what we do/where we work/amazon/problems/other threats/amazon mining/](http://wwf.panda.org/what_we_do/where_we_work/amazon/problems/other_threats/amazon_mining/)
- <http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=52&ArticleID=59&l=en>