

Africa's Forests - Vital for our Climate

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Protecting the world's ancient forests



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Industrial logging did not bring development to forest communities. New finance mechanisms should provide a better future for forests and forest communities. High value Afromosia trees ready for export March 07 Isangi DRC.

FRONT COVER IMAGE ©GREENPEACE/JIRO OSE
March 07, Djibir/Isangi, Lomami river DRC

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Forests are vital in regulating the climate - locally, regionally and globally. Africa's intact rainforests act as a regulator of rainfall for the region. Moreover they act as a brake on further acceleration of climate change by serving as a vast carbon reserve. While the stakes are incalculably high in terms of biodiversity, there is also clearly an urgent need to protect Africa's tropical forests in order to maintain their carbon stocks.

Forests store half of the Earth's terrestrial carbon stock¹. The amount of carbon stored in the world's forests is 40 times the amount emitted every year through burning of fossil fuels and the production of cement². With its immense areas of intact rainforests, the Democratic Republic of Congo (DRC) alone holds 8 per cent of that part of the Earth's carbon which is stored in living forests - the fourth highest national store of forest carbon in the world³. The DRC's forests constitute an estimated 60 per cent of the total remaining forest in the region, more than any other country in Africa⁴.

Carbon Emissions from Deforestation

Deforestation causes these stores of carbon to be emitted into the atmosphere as carbon dioxide (CO₂) where they contribute to climate change. On an annual basis, global emissions from deforestation, mostly tropical, contribute approximately 20 per cent of total human-induced greenhouse gas emissions to the atmosphere, more than that produced by the global transport sector⁵. For Central African countries, cumulative carbon emissions from deforestation from 1950-2000 were many times (over 50 times in the case of the DRC) those from burning fossil fuels⁶. When forests are completely cleared - for instance, to make way for agriculture plantations or grazing - up to half the carbon they held may be emitted into the atmosphere⁷. Even selective logging, as generally practised in Central Africa, can have a serious carbon impact.

Logging is expanding rapidly in Central Africa with more than 30 per cent of the area's forest under logging concessions⁸. Recent studies document an accelerating rate of logging road construction, with the highest densities in Cameroon and Equatorial Guinea while logging in Gabon has expanded inland in recent decades⁹. While the DRC currently has the lowest measured logging road density of all Central African countries, it is being described as the "new frontier of logging expansion"¹⁰.

The DRC is currently twenty first on the global list of CO₂-emitting countries, almost exclusively as a result of land-use change and timber extraction. The country produces more greenhouse gas emissions than Belgium, Finland, Greece, Ireland, Spain, Switzerland or The Netherlands¹¹.

Predictions of future forest loss in Central Africa suggest that the DRC risks losing more than 40 per cent of its forest, with the area north of the Congo River and around infrastructure such as roads and the river transport network being entirely cleared by 2050. In Gabon, nearly half of the country's forest is under logging concessions, and this could increase to over 75 per cent of the remaining forest during the next decade unless forests are protected¹². It is estimated that this will release in Central Africa a total of between 31.1 and 34.4 billion tonnes of CO₂,¹³ roughly equivalent to five years worth of global CO₂ emissions from transport¹⁴.

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Intact forest landscape map for Central Africa





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Forests are a vital buffer against climate change in Africa

The recent Intergovernmental Panel on Climate Change (IPCC) assessment¹⁵ concluded that “climate change, interacting with human drivers such as deforestation and forest fires, are a threat to Africa's ecosystems.” Climate change in Africa is expected to aggravate existing water stresses and some countries will become increasingly at risk. The frequency of extreme events, such as droughts and floods is expected to increase. The tropical forests of Central Africa play a vital role in Africa's regional climate as forest cover feeds back into climate change.

Forests are important for climate not only in terms of carbon emissions, but also in terms of rainfall. Deforestation has a strong effect on rainfall. The effect of deforestation on rainfall is particularly marked in Africa since 75-95 per cent of the rainfall in the Congo Basin derives from water recycling¹⁶. Logging of large concessions can thus affect rainfall in surrounding forest areas¹⁷. Indeed, models show that deforestation would cause a general drying trend over Africa with rainfall increasing in some areas but falling by up to 40 per cent with increased heatwaves in other areas¹⁸. One recent study¹⁹ concluded that, for at least the first part of this century, the local impacts of deforestation would be more devastating to tropical Africa than direct impacts resulting from climate change. It concluded that “vegetation protection at the national scale may directly lead to a mitigation of the expected negative implications of future climate change in Africa.”

On the global scale, a strong link has been found between rainfall in the Congo Basin and circulation patterns over the North Atlantic during the northern hemisphere winter and spring²⁰. The Congo Basin represents the third largest region of deep convection on Earth (which drives atmospheric circulation that affect rainfall), after the Western Pacific and Amazonia. However, there is less known about climate processes in the Congo than in the other regions²¹. It is quite possible that deforestation in Central Africa could affect rainfall, not only locally, but also on the other side of the globe in ways that are not yet understood or predictable.

Carbon emissions from fragmentation and degradation

It is not only the direct effects of deforestation that cause losses of forest carbon to the atmosphere: indirect effects are also important. At present, the global figures used by the IPCC exclude emissions resulting from the fragmentation of vast areas of intact forests into smaller areas²² - for example by logging roads. Trees on the edges of such fragments are vulnerable to edge effects²³, which can result in tree death and the release of stored carbon. In addition, many trees are inadvertently damaged, even during selective logging²⁴. Similarly, only a small fraction of cut wood ends up stored in houses or other long-lasting structures which store carbon; the majority of carbon is lost to the atmosphere through the decay or burning of waste²⁵. These effects combined can be highly important, and are estimated as being just as important in terms of carbon emissions as the direct impacts, if not more so²⁶. The potential emissions from forest fragmentation (i.e. excluding emissions from the creation of infrastructure and transport of logs) as a result of logging infrastructure were recently calculated by Greenpeace to be nearly 2.5 times greater than, and in addition to, those created by actually extracting the commercial logs²⁷.

Deforestation, and the expansion of logging infrastructure into intact forest areas, exacerbates the effects of climate change and increases the vulnerability of the remaining forest to climate change impacts. Forest fragmentation caused by the expansion of logging operations into intact forest areas further increases forest vulnerability to drought, wind and fire²⁸. Deforestation and climate change can lead to a decrease in rainfall, increasing the risk of drought and fire. Forest fires are currently a huge threat to tropical forests in Africa²⁹. A vicious cycle is created whereby deforestation and fragmentation lead to increased droughts and fires, which in turn makes the remaining forest³⁰ more vulnerable to deforestation and climate change impacts. Such cycles are predicted for the Amazon forest and similar effects could be disastrous for the forest of the Congo.

Infrastructure development for logging is often the start of a process that ultimately leads to complete destruction of the forest. The introduction of logging roads increases access, leading to further encroachment and migration into previously undisturbed areas, leading to further fragmentation. This increases the likelihood of further deforestation and degradation, which will emit more carbon emissions and also leave the remaining forest vulnerable to the effects of climate change.

In summary, logging and related infrastructure development, even in the name of 'sustainable' logging, negatively impacts rainfall and climate, locally, regionally and globally and leads to further deforestation. These impacts will interact with predicted climate change, posing a serious threat to the forests of DRC and exacerbating the effects of climate change.

African Forests in Climate Change Negotiations

In their Declaration for the United Nations climate negotiations in Bali (COP/MOP December 2007), the countries of the Congo Basin ask that deforestation and forest degradation are taken into account within a future 'Reduced emissions from deforestation and degradation' mechanism. These COMIFAC countries also ask for a complementary mechanism - a stabilisation fund - to reward efforts for the sustainable management of their forests.

Greenpeace is calling on all Parties to make a commitment to end emissions from tropical deforestation a central part of the next phase of the Kyoto Protocol (post-2012) agreement on climate change. At the UNFCCC COP 13 in Bali, Indonesia, Greenpeace will unveil its proposal for an international funding mechanism to halt emissions from tropical deforestation. The proposal would provide access to funding to the broadest range of countries, including those with high historic deforestation rates, as well as countries such as the DRC with large intact forests but low deforestation rates.

The Greenpeace proposal will be adaptable to the varying capabilities of developing countries, avoid the pitfalls of market-based approaches, account for emissions at the national level, address the issues of uncertainty and permanence, assure the environmental integrity of the Kyoto Protocol, and contribute to meeting the ultimate objective of the UNFCCC. While Greenpeace supports ecologically and socially responsible logging practices, we oppose the extension of carbon financing to such operations which would increase greenhouse gas emissions and create perverse incentives to destroy otherwise intact forests. Furthermore, in order to benefit the climate, efforts to address emissions from deforestation must be additional to deeper cuts in Annex I emission reduction targets, and not provide an excuse for rich countries to do nothing at home.

Prior to 2012 initiatives are needed to improve governance, increase capacities in the African forest sector, develop alternatives to destructive forest practices, and strengthen and expand forest conservation programs. Such efforts should prioritize actions that provide win-win-win benefits for climate, biodiversity and local indigenous peoples.



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