



International forest conservation – for the environment and climate

Forests do a lot more than provide timber. They store large quantities of greenhouse gases, thus serving as carbon sinks and helping to mitigate climate change. Because they produce oxygen, they are the planet's "green lungs", while at local level they reduce extremes of temperature and regulate the water balance. Furthermore, semi-natural forests are home to an extraordinary diversity of species: in the tropical rainforests, many of these have not yet even been identified and yet they are already at risk of extinction. The forests are also important as popular places of recreation.

Around the world, immense damage is being caused by deforestation: some 15 per cent of worldwide CO₂ emissions arise from the clearance of tropical forests. Forests are giving way to the cultivation of monocultures such as palm oil and soya or being converted into cattle pasture. Commercially valuable trees in primary forests are being harvested – often illegally – to provide tropical timber for purposes such as paper production and the manufacture of cheap garden furniture. This triggers progressive deterioration of the forest that may ultimately lead to complete deforestation.

According to [Global Forest Watch](#), the tropics lost more than twelve million hectares of tree cover in 2020 alone. Of that, 4.2 million hectares – an area the size of the Netherlands – was primary rain forest. This loss of primary rainforest released 2,640 million tonnes of CO₂. Global Forest Watch estimates that deforestation has increased by 12 per cent since the previous year.

Forest conservation, nature conservation, climate change mitigation – and other interests

A major challenge in forest conservation arises from the many competing needs associated with forest use. Forests are a source of food for global and local consumption. They have for centuries been places where people live. Forests are a source of energy and raw materials and as such they may be exploited ruthlessly or managed sustainably to preserve them for the future. From the point of view of nature conservation and climate change mitigation, the important aspects are carbon storage, biological diversity and other ecosystem services.

Under the Paris Agreement of 2015, countries agreed to limit the global temperature rise to well below 2°C: it is clear that this target cannot be achieved without drastic efforts to halt deforestation. Steps must also be taken to restore carbon sinks in terrestrial ecosystems. Instead of clearing forests, we need to protect them, prevent them being damaged and reforest areas that are already degraded.

At international level the United Nations Framework Convention on Climate Change (UNFCCC) sets out rules on Land Use, Land-Use Change and Forestry (LULUCF). The principle of forest conservation must also be applied throughout global supply chains, [but checks and controls are at present inadequate](#). Publications and further information from the Oeko-Institut's research can be found on the linked topic pages.

International forest conservation requires cooperation

Because there are competing demands on forests and because forest destruction has global impacts, forest conservation requires extensive international cooperation. A multi-pronged approach is needed at various levels:

- **Participation:** It is essential to involve local people in projects, measures and climate protection strategies that affect the land-use sector. It is also vital to clarify land ownership issues, provide opportunities for consultation and respect people's rights. The concept of "ownership" is important so that countries, government agencies, stakeholders and affected members of the public feel part of the process and do not have solutions devised by outsiders forced upon them. This takes time and slows the process, but in the long term it is more successful.
- **Transparency:** From sources such as satellites, value chains and statistics we now have a great deal of data on land-use changes and the associated emissions. But if better and more cooperative use is to be made of this data, it must be presented and documented transparently. Where is forest being lost? What are the drivers? Such information must be of good quality and freely available. Other issues are the compatibility and harmonisation of the data and accessible communication of it.
- **Financing:** Forest conservation measures cost money. Financing must be based on high standards in certification and supply chain management. These must not be relaxed simply in order to achieve faster results. Climate protection projects in the land-use sector are more difficult to monitor than industrial projects. More surveillance is therefore needed.
- **Coherence:** Under the Paris Climate Agreement, countries have undertaken to specify and implement climate commitments known as Nationally Determined Contributions (NDCs), including contributions to forest and landscape conservation. These self-set goals must be ambitious, but they must also be measurable and verifiable so that NDCs can be meaningfully compared and can deliver results in terms of climate change mitigation.
- **Investment:** Vast sums of money are currently being spent on revitalising the economy in the wake of the Covid-19 pandemic. The provision of state funds must be linked to rules on forest conservation and restoration. This investment will shape development pathways in the medium term: the limited resources should therefore be allocated to sustainable actions.

Forest restoration

As well as conserving existing forests – especially the primary forests that are so important for biodiversity and the climate – we need to restore forest areas and plant new ones or upgrade them ecologically through targeted intervention. Examples in Germany include reforestation after forest fires or attack by bark beetles, forest rejuvenation, and the planting of tree species that are better adapted to climate change.

Many different approaches are being used in different parts of the world. They include the "Great Green Wall" that stretches across Africa and is intended to halt further spread of the Sahara,

afforestation projects managed by environmental organisations and local groups, and projects that promise to offset the consumption-related CO₂ emissions of people in the Global North by planting trees elsewhere.

This last approach, though, is subject to criticism: it is often unclear whether and where the trees that have been donated – perhaps per crate of beer or for 45 Internet searches – are actually being planted. Questions also need to be asked about what tree species are being used and whether they are ones that occur naturally in the replanting area or ones that might cause nature conservation problems. And to store appropriate quantities of greenhouse gases, the trees must thrive – for as long as possible. This is an argument against the establishment of intensively used plantations that are regularly felled again.

Another problem is the competition for land. Like forest conservation, reforestation only works in cooperation with the people who live in the affected areas and who grow food, graze their animals and need fuel. Sustainable forestry projects take all these factors into account.

The “Transparent Monitoring” project

As part of the research project titled “Transparent monitoring in practice: Supporting post-Paris land use sector mitigation“, which is managed by the Center for International Forestry Research (CIFOR), Oeko-Institut researchers are developing instruments that will promote forest conservation by enabling global data to be used more effectively. The project covers four countries – Côte d'Ivoire, Ethiopia, Papua New Guinea and Peru.

Under Article 13 of the Paris Climate Agreement, all parties must by the end of 2024 submit biennial transparency reports on their land-use-related climate change mitigation commitments. An important aspect of this is measurement, reporting and verification, or MRV. To meet all the requirements, the countries of the Global South in particular need reliable, accurate and objective sources of information for transparent monitoring (TM).

Different countries – different approaches

Sources of the requisite data include Global Forest Watch, OpenForis and Geo-Wiki. The researchers are now drawing up guidance on TM in order to make best use of open-source tools and open-access data and improve access to data.

In Côte d'Ivoire, cocoa supply chains are a particularly important aspect of greenhouse gas reduction in the land-use sector. Transparent evaluation of these supply chains will promote effective and consistent carbon accounting at national level. In Ethiopia the focus is on integration of open-source tools, freely available data and TM principles into the national reporting system. This will enable more accurate assessment of the carbon bound in biomass after land-use change and improve the participation of local communities.

In Papua New Guinea the research team is likewise analysing how open-access data can support the national MRV system. The participation of indigenous peoples and local communities in MRV is very important here. In Peru the project team is drawing up guidance for an interactive real-time forest change monitoring system linked to a national incentive system.

REDD+: Financing forest conservation

The basic principle behind the REDD+ mechanism that forms part of the UN's climate regime is that the industrialised nations should support the countries of the Global South financially when they act to protect their forests and thus stabilise the climate. For example, funding is provided for activities that reduce the conversion of forest to other land uses, reduce forest damage, make forestry more sustainable or increase afforestation. There are already a number of different forms of such financing: some of them overlap, but there are also distinct differences between them.

In the research project “Potentials for result-based payment – Instruments in the forestry sector under the Paris Agreement”, researchers from the Oeko-Institut and the Center for International Forest Research (CIFOR) are analysing when and in what circumstances various forms of financing are appropriate for market-based approaches in their particular context. Via market-based REDD+ financing, countries or companies such as airlines can purchase emission certificates from forest conservation activities and credit them towards their international commitments and mitigation targets.

Challenges for climate change mitigation

Market-based financing, especially in the field of forest-related climate change mitigation, requires high standards in the measurement, reporting and verification of emissions reductions and the reduction of greenhouse gases by means of sinks. But uncertainties persist in relation to the quantification of emissions, the specification of reference scenarios and the determination of displacement effects. In addition, it is not always certain that the greenhouse gas reductions are permanent. And other environmental and social aspects must be considered, such as protection of indigenous communities and the conservation of biodiversity.

There is a general risk that inadequate standards for land-use-related activities could result in the market being flooded with cheap REDD+ certificates; low prices would then reduce the incentive to prevent fossil emissions. The linking of forest certificates to major demand markets for emission certificates – such as the CORSIA mechanism, which is supposed to reduce the growth in emissions from international aviation – should therefore be viewed in a critical light.

The project “Potentials for result-based payment – Instruments in the forestry sector under the Paris Agreement” by the Oeko-Institut and the Center for International Forest Research (CIFOR)

Further information

[The Oeko-Institut's “Forest Vision” website \(in German\)](#)

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