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Geopolitics of the World's Forests

Strategies for Tackling Deforestation

ALAIN KARSENTY

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Alain Karsenty has a Ph.D. in social sciences and is accredited to supervise research (HDR, *habilité à diriger des recherches*) in economics. Since 1992, he has been a researcher at the Center for International Cooperation in Agricultural Research for Development (CIRAD, Centre de coopération internationale en recherche agronomique pour le développement). He works on the analysis of public policies on forests, land and the environment in developing countries, particularly in Central Africa. He is particularly interested in the conditions and dynamics of reform in these sectors. His main research areas include forest taxation, as well as concessions and economic instruments that can be used to improve forest management and reduce deforestation. As an internationally recognized researcher and expert in these fields, he regularly collaborates with several international organizations, such as the World Bank, the European Union (EU) and the International Tropical Timber Organization (ITTO). His most recent work focuses on the REDD+ mechanism (reducing emissions from deforestation and degradation) and payments for ecosystem services (PES), of which he is a specialist.

Summary

Deforestation continues at a worrying pace worldwide, except in temperate and boreal countries. It is caused by the race for land, underpinned by population growth and rising global demand for "deforestation-prone" products. Moreover, with climate change, mega-fires are now posing unprecedented threats to forests.

China has a major influence on the evolution of the world's forests through its trade and investment in infrastructures for the Belt and Road Initiative. The country has stopped the exploitation of its natural forests, but it is using imports to meet its huge timber needs, while its demand for agricultural products carrying risks of deforestation is also growing, such as soybeans and palm oil. In Africa and Southeast Asia, large European forestry firms are in retreat, given the expansion of Asian firms (from Malaysia, China, and Vietnam), and agribusiness firms are gaining influence everywhere.

Major reforestation operations are, at best, of limited effectiveness when they are not accompanied by the recognition of land rights, and when they lead to monoculture plantations with fast-growing tree species. By contrast, independent certifications appear to be essential tools for forest management and ensuring zero-deforestation production. Finally, the United Nations' REDD+ mechanism pays countries that reduce emissions from deforestation and forest degradation, or that increase their carbon stocks through plantations. Yet, REDD+ is criticized because it relies on reference scenarios: the anticipated emissions paths presented by the countries themselves. Moreover, it always faces the problem of the "non-permanence" of carbon storage in forests or plantations that may burn or simply die.

At the same time, companies' growing concerns to offset some of their emissions has generated strong demand for carbon credits from forest projects. Hundreds of "REDD+ projects" have emerged, relying on specific certifications to support the issuance of carbon credits in "voluntary markets." This entails risks of double-counting emission reductions at the national level. Moreover, the uncertain additionality and the risks of "leakage" (shifting deforestation pressures elsewhere) cast doubt on the environmental integrity of these private initiatives. Finally, the success of "REDD+ projects" remains conditional on taking into account the problems of land security of rural inhabitants, a key factor in reforestation, and in their access to land.

While institutionalized consensuses continue to pile up, there is in fact an urgent need to reconsider existing instruments, taking into account systemic and political economy questions which are too often ignored. The 15th meeting of the Conference of the Parties to the Convention on Biological Diversity (COP15) is scheduled to take place in China in October 2021, and needs to participate in the necessary leap forward on global forest governance:

- The principle of "results-based payment" (RBP) should be complemented by broad support for the investments needed to "produce" these results. It should only retain the coherence of public policies that have real potential impacts on forests as an essential criterion for assessing results.
- The demand for products linked to deforestation must be strictly controlled. Governments should review trade agreements with countries that encourage land-forest conversion, and include measures to tackle deforestation that are legally binding. Imports of products involved in illegal deforestation must be banned, and tariffs must favor products certified as involving zero deforestation.
- Developing countries should be helped to implement incentive-based environmental taxation to support agricultural production based on zero-deforestation and sustainable forests. Fiscally neutral bonus-malus systems could favor traced and certified production, and penalize production whose origin is uncertain and presumably unsustainable.
- A common agenda for food security, tackling deforestation and restoring degraded natural ecosystems needs to be built with developing countries. Ecological intensification through peasant-farmer agroecology, crop-livestock associations and agroforestry should become priorities. Necessary investments could be channeled through programs of payments for ecosystem services (PES).
- Finally, the forest concession regimes must evolve to include the recognition of overlapping rights, the commercial management of new resources and the sharing of profits.

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Introduction

According to the latest report by the Food and Agriculture Organization of the United Nations (FAO), the world has a total forest area of 4.06 billion hectares (ha), which corresponds to 31% of the world's total land area.[1] Tropical regions have the largest share of forests in the world (45%). According to FAO, deforestation averaged 10 million ha per year between 2015 and 2020 (compared to 12 million ha per year in the previous five years), but other organizations such as Global Forest Watch report higher figures. Most deforestation is taking place in tropical zones.

Forests constitute a huge stock of carbon accumulated in the biomass of trees and their roots, estimated at 862 gigatons (Gt) of carbon (C).[2] 55% of this stock is contained by tropical forests, which are threatened by fire and deforestation.[3] Forests are also carbon sinks, meaning that they are net CO_2 absorbent because of their growth and expansion. It was long thought that mature forests released as much CO_2 (through respiration) as they absorb (through photosynthesis), and that only growing young forests were net absorbers. We now know that even older forests absorb more than they emit, owing to their densification.[4] The most recent study estimates that the world's forests constitute a net carbon sink of 7.8 Gt CO_2/year.[5] In comparison, annual anthropogenic emissions of fossil origin were estimated at 34,4 Gt CO_2 in 2020.[6]

Beyond their importance in the carbon cycle, it is estimated that forests are home to 80% of global terrestrial biodiversity, two thirds of which are in tropical forests. As for the global water cycle, large forests, such as the Amazon, make their own rain by perspiration

1. FAO, *Global Forest Resources Assessment 2020: Main Report*, Rome, 2021, available at: www.fao.org.
2. Stock data are generally expressed as carbon (C), while flow data are generally expressed as CO_2. One ton of C is equal to 3.64 tons of CO_2.
3. Y. Pan *et al.*, "A Large and Persistent Carbon Sink in the World's Forests," *Science* 333, 2011, available at: https://science.sciencemag.org.
4. S. Luyssaert *et al.*, "Old-Growth Forests as Global Carbon Sinks," *Nature*, No. 455, 2008, available at: www.nature.com.
5. N. Harris *et al.*, "Global Maps of Twenty-First Century Forest Carbon Fluxes," *Nature Climate Change*, No. 11, 2021, available at: www.nature.com.
6. P. Friedlingstein *et al.*, "Global Carbon Budget 2020," availabe at: https://essd.copernicus.org.

from trees.[7] But the long-distance transport of moisture by "atmospheric rivers" also leads to precipitation thousands of kilometers away.[8]

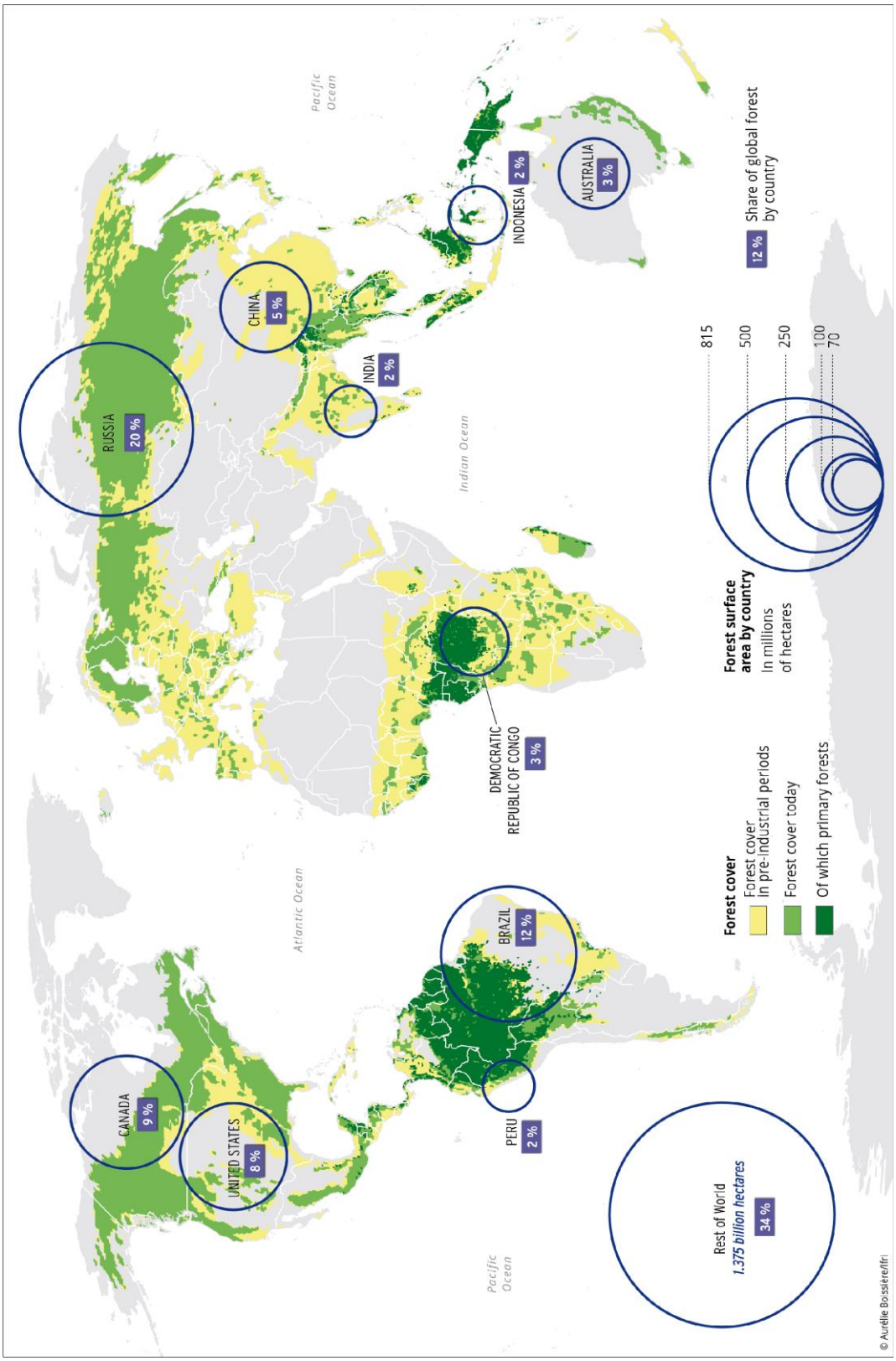
These global ecological functions have led some observers to view forests as global public goods. For example, an editorial in *Le Monde* ran the headline "Amazonia, a universal common good" (*L'Amazonie, bien commun universel)* on August 24, 2019, when "mega-fires" were destroying the forest.[9] In response, Brazilian President Bolsonaro asserted "the Amazon is ours," expressing Brazilian officials' suspicion of any attempt to "internationalize" Amazonia.[10] These issues have become more prominent due to the growing interest in CO_2 emission compensation solutions. They are also reflected in the G7's ambition to create "sustainable supply chains" by decoupling agricultural production from deforestation.[11]

In fact, the world's forests can be viewed in two ways: first, for the resources they hold (wood, land, genetic resources, etc.), and second, for the ecosystem services they provide (as carbon sinks and stocks, biodiversity reservoirs, water regulation, local rain cycles, etc.). Resources fall under the sovereignty of states and are appropriated by public or private actors (including communities). By contrast, services can be regarded as "global public goods," whose continued production depends on how resources are used.

The purpose of this study is to explore the geopolitics of forests through the link between the sovereignty over resources and the protection of ecological services. The analysis starts by reviewing the present state of forest governance, and then examines the piling up of institutionalized compromises to combat deforestation. Finally, the study sets out several proposals to improve the effectiveness of international responses and national policies.

7. A. Staal *et al.*, "Forest-Rainfall Cascades Buffer against Drought across the Amazon," *Nature Climate Change*, No. 8, 2018, available at: www.nature.com.
8. D. Ellison *et al.,* "Trees, Forests and Water: Cool Insights for a Hot World," *Global Environmental Change*, Vol. 43, March 2017, available at: www.sciencedirect.com.
9. J. Zask. *Quand la forêt brûle. Penser la nouvelle catastrophe écologique*, Paris, Éditions Premier Parallèle, 2019. Joëlle Zask uses the expression *megafeux* (mega-fires) which is borrowed in this text.
10. O. Dagicour, "Géopolitique de l'Amazonie," *Politique étrangère*, Vol. 85, No. 1, Ifri, Spring 2020, available at: www.ifri.org.
11. Communiqué of the G7 Climate and Environment Ministers' Meeting, May 21, 2021, available at: www.gov.uk.

Map of Primary Forests, as well as Current and Past Forest Cover



Source: GRID-Arendal; Global Land Analysis & Discovery (GLAD); FAO, 2020.

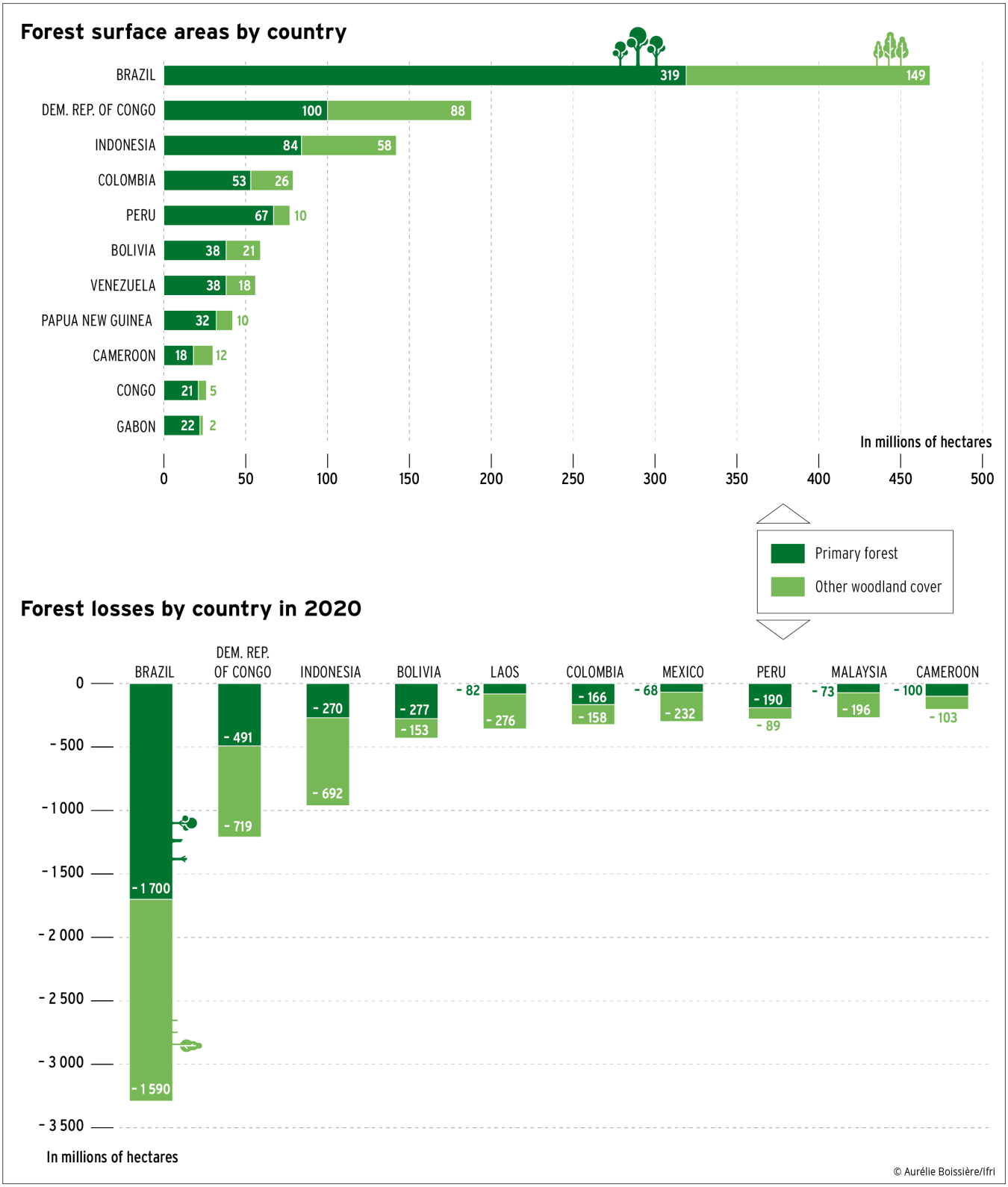
Factors shaping the future of the world's forests

In temperate and boreal countries, land covered with forests is increasing with the intensification of agriculture and the decline in rural populations, which changes the structures of land use in rural environments. But, while climate change is favorable to the growth of forests in mountainous and the most northern regions, it also causes massive fires, forest losses due to insect attacks, and various health problems. More generally, many forests seem to be more fragile, as a result of droughts in an increasing number of regions.

Tropical forests are subject to similar problems, even though the vast diversity of natural forests is likely to give them greater resilience. But deforestation continues and is even accelerating in Africa, because of expanding croplands, livestock farming, and the search for land, underpinned by increasing population densities and rising global demand for certain products that cause deforestation.

International trade in tropical timber plays a small role in global trade flows. In the medium term, tropical forests will supply timber, first and foremost for national and subregional markets, whereas transcontinental trade in tropical timber from natural forests has already begun to decline. The fate of tropical forests does not hinge on the "forest sector" itself, but in the evolution of economic development models and public policies that impact forests, and which are adopted by countries in both the South and the North.

Forest areas and losses by country

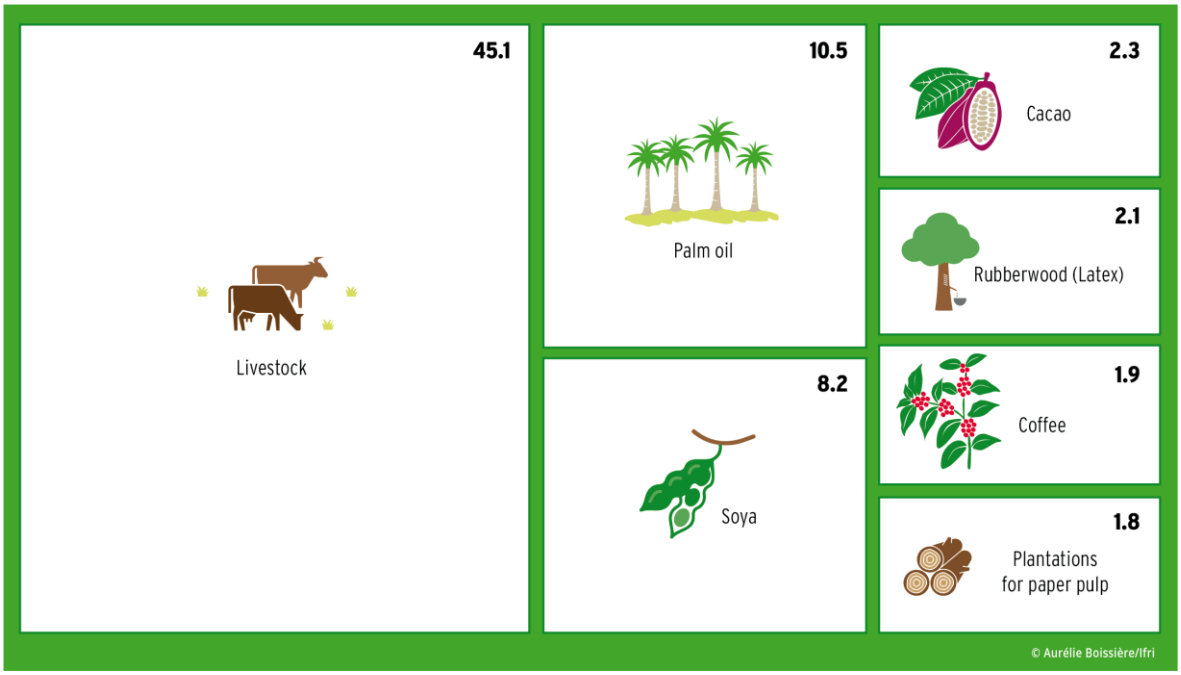


Source: Global Forest Watch, 2020.

Parties responsible for deforestation

Commercial agriculture is fairly unanimously identified as one of the major drivers of the decline of natural forests (about 26% of deforestation is attributable to seven major commercial agropastoral production activities). By contrast, the role of poverty in deforestation is subject to debate.

Agricultural commodities involved in deforestation: deforested areas by product between, 2001 and 2015 (in million hectares)



Source: Global Forest Watch.

Poverty is put forward to explain deforestation, particularly by African governments, which have argued for increased development assistance. For sure, low returns due to capital scarcity, and the absence of productive alternatives, are leading poor farmers to clear new forest land in order to find fertile soil. This dynamic is accentuated by significant population growth, especially in Africa, where population density is increasing in rural areas, despite a growing rural exodus.

Nonetheless, Angelsen and Kaimowitz insist on investment as a condition for converting forests to other uses, suggesting that it is not the poorest who are clearing forests, but those who have achieved some level of wealth accumulation.[12] This idea has been taken up by

12. A. Angelsen and D. Kaimowitz (eds.), *Agricultural Technologies and Tropical Deforestation*, New York, CABI Publishing, 2001, available at: www.cifor.org.

Moonen and his colleagues, concerning the Democratic Republic of Congo (DRC).[13] There, rural people are seen to be marketing their agricultural products, as is the most educated population, which is also most active in land-conversion processes.

Land insecurity and the lack of recognition of customary land rights are also presented as the main causes of deforestation, and recognizing these rights would be a key to solving the problem of deforestation.[14] In South America, forests given to Amerindian communities for management have lower rates of deforestation than comparable neighboring forests with ambiguous land rights. However, the relationship is less clear than it seems. Angelsen has suggested that if long-term agricultural investment decisions (e.g., to create a cocoa plantation) depend on how secure land rights are perceived, then insecurity deters investment and protects forests.[15] Empirically, a correlation can be observed between civil insecurity and moderate levels of deforestation during periods of conflict, in countries such as the DRC, Côte d'Ivoire or Colombia, and an explosion of deforestation with the (relative) return to peace.[16] But, as Angelsen recognizes, deforestation is also a means for asserting possession through the development of land (customary "ax rights"). This suggests an ambivalence about the relationship between land security and deforestation. In short, land security is crucial for reforestation. However, its influence on whether to conserve a natural forest will depend on other factors, especially the economic opportunities to market agricultural or pastoral products.

Private companies: The agri-food industry is taking over from forestry

National or transnational companies are playing an increasing role in the exploitation of forests and, sometimes, in the dynamics of

13. P. Moonen *et al.,* "Actor-Based Identification of Deforestation Drivers Paves the Road to Effective REDD+ in DR Congo," *Land Use Policy*, No. 58, 2016, available at: www.sciencedirect.com.
14. C. Stevens *et al.,* "Securing Rights, Combating Climate Change," WRI & Rights and Resources Initiative, 2014, available at: www.wri.org.
15. A. Angelsen, "Forest Cover Change in Space and Time: Combining von Thünen and the Forest Transition", *World Bank Policy Research Working Paper*, 2007, available at: https://openknowledge.worldbank.org.
16. N. Grima and S. J. Singh, "How the End of Armed Conflicts Influence Frest Cover and Subsequently Ecosystem Services Provision? An Analysis of Four Case Studies in Biodiversity Hotspots," *Land Use Policy,* Vol. 81, February 2019, available at: www.sciencedirect.com; M. M. Prem, S. Saavedra and J. F. Vargas, "End-of-Conflict Deforestation: Evidence from Colombia's Peace Agreement," *World Development*, Vol. 129, May 2020, available at: www.sciencedirect.com.

deforestation. Large European (French, Italian, or German) and Lebanese forestry companies have played a leading role in Africa. By contrast, Japanese firms in 1980s and 1990s, then Malaysian, and finally Chinese or Vietnamese (in Cambodia and Laos) have dominated logging in Southeast Asia. Timber in Siberia is predominantly exploited by Chinese companies along the vast southern border of eastern Russia.

Malaysian forest enterprises accelerated their internationalization in the early 1990s, by establishing themselves in small Amazonian states such as Belize and Suriname, and in several African countries, including Equatorial Guinea, Gabon, Congo-Brazzaville, and Liberia. Rimbunan Hijau, with its many subsidiaries in these countries, is emblematic of this internationalization. Such firms are highly capitalized, with vast markets in Asia that are less demanding about wood quality, often working on order with customers who pre-finance cutting operations (thus avoiding the need for bank loans). They tend to comply little with host country laws and regulations, and have quickly found a way to secure vast land areas in countries where corruption and free-passes are part of daily business. Employing mainly Indonesian or Filipino workers, Malaysian companies in Africa effectively operate in enclaves. In the early 2000 years, Chinese companies entered many southern forest countries in force. In Central Africa, they bought several European family-owned enterprises, often French, that have also been long-established in Africa. In less than a decade, these Chinese firms have become dominant players in Gabon, Liberia, Mozambique, as well as in Peru.

Among these companies, a distinction needs to be made between state-owned and private enterprises, The latter are often formed by former employees of Chinese state-owned enterprises operating in the forest economy. The government in Beijing is increasingly paying attention to the public image of resource-extraction activities, particularly in Africa. This has been felt on the ground, and in Gabon, some of these Chinese state-influenced companies are tentatively committed to certification. But this drive to improve corporate reputations is undermined by subcontracting and/or outsourcing. Using "contractors" is a well-known forestry practice in Southeast Asia, whereby forest concessions are divided by their holders and subcontracted for logging and log supply to small private firms (usually Chinese, too), which dilutes responsibilities.

While logging companies were key players in the 20th century, in this century, large agribusiness firms have been involved in deforestation as land investments have been carried out to increase

agricultural production (including livestock). These have often occurred in forest areas, particularly in South America and South-East Asia. Each sector has its flagship companies: Cargill and Bunge are focused on soybeans, Mondelēz and Mars on cocoa, Olam and Golden Agri-Resources on palm oil.

In Southeast Asia, conglomerates present in numerous sectors (such as the giant Sinar Mas which owns Asian Pulp & Paper, or palm oil producer PT Smart, and Berau Coal, have played a singular role in coal-mining and hence the gradual conversion of forest ecosystems. Forests were thus first overexploited by forestry companies that did not meet legal management standards. Subsequently, degraded wooded areas were then gradually converted by other firms into oil palm fields or fast-growing tree plantations (*Acacias mangium* in particular) intended for paper pulp production. In many cases, these new players are members of the same conglomerates.

Large-scale land acquisitions by agribusiness firms are often held up by peasant resistance, prompting dithering governments to sometimes even change position. Firms are increasingly turning to contracting with local producers, outsourcing their supply needs for agricultural products. The proliferation of small peasant oil palm plantations in Indonesia or Cameroon is causing new waves of deforestation, with direct actors being small producers whose beneficiaries are in fact companies that produce palm oil.[17]

Developmental and ecological states

Governments of countries with forests are at the center of the game, not so much because "forestry policies" that are generally limited in scope, but through public policies that can have an impact on forests. These begin with agricultural, land-ownership, educational, and land-use policies. In addition to the orientation of policies that may be more or less consistent, governance is therefore crucial given its role in policy implementation.

At the national level, the "resource dimension" of forests takes precedence. Logging meets urban demand, creates jobs, generates tax resources and foreign currency. But forests are also land reserves viewed for their agricultural potential in the context of food self-sufficiency and economic emergence. Governments sometimes

17. E. Ordway *et al.*, "Deforestation Risk Due to Commodity Crop Expansion in Sub-Saharan Africa," *Environmental Research Letters*, Vol. 12, April 2017, available at: https://iopscience.iop.org.

believe that they can reconcile these seemingly contradictory objectives with the development of fast-growing timber plantations, whose high productivity will offset the conversion of large areas of natural forests for agricultural and livestock use. China's massive reforestation, following intensive deforestation in the 20th century, has been an undeniable political success, with forest cover rising from 20% of the total land area in 2005 to 23% in 2020. Many countries want to follow a similar path, but forget that China's success is not unrelated to the land security afforded to farmers for their land: no one plants trees without being sure of long-term land ownership. Several countries have entered the race to beat daily tree-planting records, ranging from India to Ethiopia. But they have not yet reported on survival rates of planted trees, which may be quite low.

Moreover, reforestation efforts are usually at the expense of the "biodiversity services" and other potential ecological impacts on soil and water resources. For example, through the Bonn Challenge launched in 2011 by the German government and the International Union for Conversation of Nature (IUCN), more than 100 governments have committed to planting 350 million ha of forest by 2030. However, more than 80% of the commitments made under this challenge relate to the planting of monoculture or little-diversified trees (fruit trees, acacias, teak, rubber, etc.).[18] Yet such plantations have low carbon sequestration and habitat creation potential compared to natural forests, and are often carried out in areas of degraded natural forests (which could have regenerated naturally), where local land rights are least asserted. Furthermore, major planting programs are being put forward to mask the continued loss of natural ecosystems, as in China, which loses about half a million hectares of natural forests every year (according to Global Forest Watch).

Only a few developing countries have managed to control deforestation. Costa Rica is often cited as an example for stopping a deforestation process that seemed inexorable, with forest cover falling to 20% in the 1980s. Today, forests cover more than half of rural space, following policy changes to reverse this trend. These include: the elimination of numerous subsidies for agropastoral production; the introduction of a national program of payment for ecosystem services (PES) funded through fuel duties and water distribution royalties; and the creation of numerous national parks to boost ecotourism.

18. R. Heilmayr, R. Echeverria and E. F. Lambin, "Impacts of Chilean Forest Subsidies on Forest Cover, Carbon and Biodiversity," *Nature Sustainability*, No 3, pp. 701-709, 2020, available at: www.nature.com.

Brazil could have claimed to be an "ecological development state," when, under President Lula, the country decided to enforce more severely existing laws limiting the maximum area that forest owners could legally clear in the Brazilian Amazon (the legal Amazon) to 20%. Falling prices paid to agricultural producers (owing, among other things, to the strength of the Brazilian real *vis-à-vis* the dollar at the time) facilitated the government's task. Even so, the decline in deforestation between 2004 and 2011-2012 was spectacular in the Amazon (down by about 75%), despite the fact that soybean cultivation moved to *cerrados*, savannas with high biodiversity and carbon-rich soils. But the weakening of legal and regulatory constraints under the Roussef government, macroeconomic conditions more favorable to agropastoral expansion and, lastly, the change in policy of the Bolsonaro government, have all changed Brazil's image – at least for now. The agro-industrial lobby itself is worried about this image degradation, because it fears that other countries will refuse to buy Brazilian agricultural products. The threat of around 40 distributors (including Aldi and Migros) to boycott Brazilian products if a law regulating illegal occupation of public land is adopted, reinforces these concerns. Under domestic and foreign pressure, President Bolsonaro has announced his intention to end illegal deforestation in 2030. But he has also said that he expects billions of dollars from other countries to do so, including from the US.

Indonesia has seen its levels of deforestation decline sharply since 2017, and is now exporting legally-recognized timber to the EU, and has also banned the drainage of peatlands for planting. It has thus received "results payments" from the Green Climate Fund (GCF). But, at the same time, Indonesia has become a major coal producer, with the help of public incentives, and mines are opening, doing considerable damage to forests in eastern Borneo. The country's massive biofuel program, aimed at providing an outlet for palm-oil production, worries observers as it is likely to generate additional demand for land to produce oil-palm, either directly (conversion of forests into palm plantations), or indirectly (as producers of rubber, rice, and soybeans convert all or part of their farms into oil palm plantations). And so, it will be necessary to produce rubber, rice, or soybeans elsewhere to meet the unchanged demand for these products.

In 2020, during the Covid-19 crisis and despite an agreement with the EU, the Indonesian government relaxed the constraints of verifying the legality of timber in order to help small businesses. But there is also a real problem with transparency: The authorities prohibit traders in agricultural and forestry products from reporting

data concerning their concessions (geographical limits, production, etc.), citing problems of national security and data confidentiality. Opacity is thus desired by some actors, even at the expense of a constituency most eager to improve its reputation. Finally, deforestation has slowed on the islands of Sumatra and Kalimantan (Borneo), where the remaining primary forests are mostly in mountainous areas that are not conducive to planting. Yet, it is spreading in West Papua, where there are large primary forests, as oil palm and wood plantations for pulp paper develop. Indonesia has not put its demons to rest.

In Africa, Gabon is trying to assert itself as an "ecological development state," by seeking to become the world's leader in processed tropical timber. Its objective is to double wood production in natural forests and launch a large eucalyptus plantation program on 400,000 ha to produce up to 17,5 million m^3 of wood per year by 2030. Like Costa Rica, Gabon created several national parks in 2002, but has failed to develop ecotourism. Gabon has also made commitments to conserve its natural forests, including with respect to Norway, which has pledged up to $150 million to maintain the "carbon sink" function of Gabon's forests. The Gabonese government wants to reduce the total area allocated to forest concessions by 3 million ha (which now covers just over 16 million ha), and is encouraging concentration of companies in order to maintain only a few large concessions certified as being under "sustainable management." Gabon's small population (of roughly 2 million people who are mostly urban) makes it easier to achieve conservation goals. But the country's leadership's ambition to transform tropical timber seems more questionable, owing precisely to labor shortages and high wage costs, especially relative to neighboring Cameroon. The success of a development policy depends not only on the willingness of a government, but also on the support of entrepreneurs, as well as middle and popular class support for a shared vision of the goals to be achieved and the means to implement them. Above all, such ambitions could quickly reach their limits if the population is not sufficiently trained and the country lacks the necessary engineering capabilities.

International donors' efforts are hampered by China's ambivalence

International organizations for the environment and development, such as the World Bank and the various UN agencies, were powerful forestry policy-makers at the end of the 20th century. Since then, however, their role has diminished in favor of bilateral political

agreements on forests, notably under the leadership of the EU and Norway. China's growing influence through UN organizations like FAO and some development banks have also played a role in this relative retreat.

Governments in industrialized countries are both providers of financial and technical assistance, and prescribers of governance arrangements. They are gaining increased influence through their trade policies regarding purchases of timber or agricultural products that may be connected to deforestation. The EU has a special role in these arrangements, due to its partnership agreements with various tropical wood producing countries and its European Union Timber Regulation (EUTR), which prohibits the marketing of illegal timber in the EU. This role should be reinforced by the directions taken in the European Green Deal and the forthcoming introduction of new demand-driven regulatory obligations aimed at reducing imported deforestation.[19]

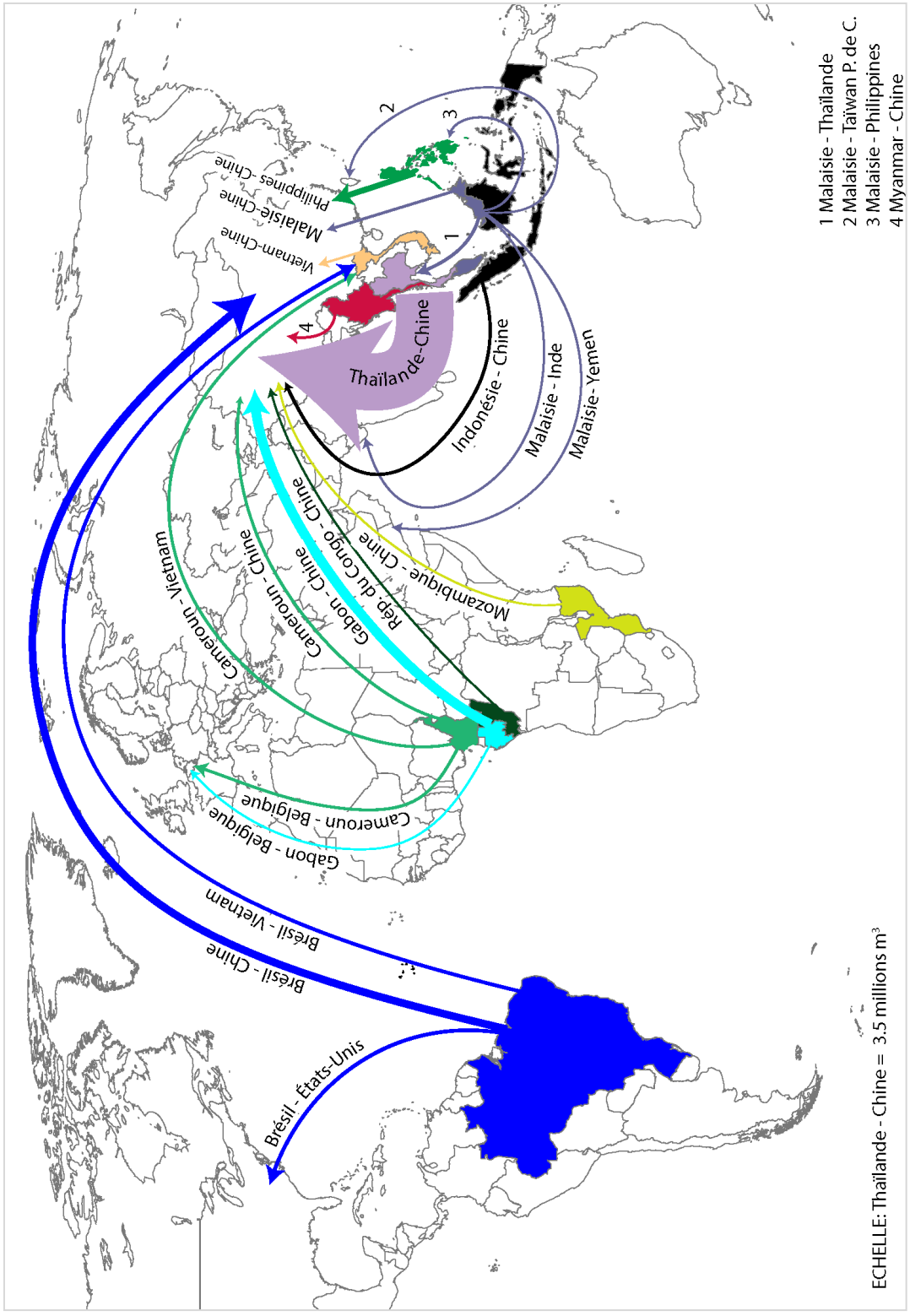
It is difficult to assess the annual amount of funding committed to combating deforestation, particularly because of problems choosing an appropriate scope (for example, whether funding for sustainable agriculture in the Amazon should be counted). At the 2015 Paris climate summit, Germany, Norway, and the United Kingdom collectively committed to providing more than $5 billion from 2015 to 2020 to countries with forests which could demonstrate emission reductions. Added to this are: other, smaller sources of public funding; private financing through the purchase of forest carbon credits ($159 million in 2019);[20] and company financing for programs supplying agricultural supplies with zero-deforestation. But the biggest provider of financing to combat deforestation is Norway. The country is a major contributor to the Global Environment Facility (GEF), to the World Bank's Carbon Fund, the Central African Forest Initiative (CAFI), and to many other bilateral initiatives. Norway is a country whose citizens are highly sensitive to the environment. But it is also Europe's largest producer of gas, resulting in a strong sense of responsibility for the global growth of greenhouse gas emissions. In 2008, the country launched the Norwegian International Climate and Forest Initiative (NICFI), through which it commits to allocating about $369 million annually for tackling deforestation.[21]

19. Council of the European Union, "EU Action to Protect the World's Forests: Council Adopts Conclusions," *Press Release*, December 16, 2019, available at: www.consilium.europa.eu.
20. *State of Voluntary Carbon Markets 2020*, Forest Trends, available at: www.ecosystemmarketplace.com.
21. Norwegian International Climate and Forest Initiative (www.nicfi.no).

Furthermore, China, which promotes principles of non-interference, has in fact a major influence on the evolution of the world's forests through its massive investment in Belt and Road Initiative infrastructures.[22] Such infrastructures sometimes cross forested areas, and they lower transport costs, which are the main determinant of the profitability of deforestation (along with the prices of timber and feasible agricultural production in forest areas). Trade is also growing disproportionately. In 2017, China decided to ban logging in all of its natural forests, and implemented a comprehensive conservation program that has slowed, but not stopped, deforestation. But China's wood mills have enormous needs, as since 2020 the country has imported 108 million m^3 of timber, including 59 million m^3 of logs, the majority of which came from Russia, New Zealand, Thailand and Canada. Timber imports have increased fivefold since 2000, and this obviously has an impact on the state of the world's forests, mainly among China's major tropical timber suppliers: Indonesia, Malaysia and African countries, but also Papua New Guinea and the Solomon Islands, which are China's two main providers of tropical wood. If imports of agricultural products associated with deforestation risks are added to this (such as soybeans or palm oil), China is in fact "externalizing" deforestation and forest degradation to several parts of the world, without contributing significantly to multilateral forest-related financial efforts.

22. E. Losos *et al.*, "Reducing Environmental Risks from Belt and Road Initiative Investments in Transportation Infrastructure," *WB Policy Research Working Paper,* No. 8718, 2019, available at: https://documents.worldbank.org.

Main export flows of tropical timber, 2020



Source: ITTO.

Piling up institutionalized compromises and technocratic autonomy

During the second half of the 20th century, prescriptions for forest policy were mainly technical, under the influence of organizations such as FAO. They were structured around methods for managing forest production and planting techniques. Beginning in the 1990s, economic approaches overtook technical approaches, under the growing influence of the World Bank. The goal was to "add value" to resources whose unregulated exploitation would lead to significant externalities, and to raise the forestry sector's political priorities. This resource-oriented policy approach however lost importance with the end of the period marked by structural adjustment, and which had given the World Bank leverage to influence the policies of its client countries. Within the World Bank itself, this vision was considered too productivist, and forests were increasingly viewed from the perspective of providing global ecological services, but with particular attention paid to local communities and indigenous peoples.[23]

Instruments to promote good forest management

In the early 2000s, several agendas emerged in parallel, as the impact of the Climate and Biodiversity Conventions made itself felt increasingly. The growing awareness of the importance of illegally logged timber sold into the tropical wood market led to the Forest Law Enforcement and Governance (FLEG) and FLEGT (T for trade) initiatives, spearheaded by Western countries and the World Bank.

Legality and governance

Starting in 2003, the EU made the FLEGT initiative a priority, and offered different producing countries to enter voluntary partnership agreements (VPAs), in order to help them eliminate illegal timber

23. A. Karsenty, "The World Bank's Endeavours to Reform the Forest Concessions' Regime in Central Africa: Lessons from 25 years of Efforts," *International Forestry Review,* No. 18, 2017, available at: www.ingentaconnect.com.

from their exports, and even from their national territories. In 2013, the European Timber Regulation (EUTR) made it a crime to import illegal timber into the EU, thus following up closely the evolution of the US *Lacey Act*. The aim of these partnership agreements is to clarify and help to ensure the consistency of legal and regulatory frameworks, to assist in the establishment of national systems to verify the legality of timber including traceability instruments, as well as to increase transparency and the participation of civil society in forest governance. But the ultimate goal has been, in a way, to "certify" a country as being a legal producer, through "FLEGT licenses". These must be associated with timber exports to the EU and exempt importers from due diligence obligations to ensure that the wood products they sell are indeed of legal origin. VPAs were negotiated (at length) with different producing countries, with the EU emphasizing the benefits for countries' timber exports to Europe. Brazil rejected the EU proposal outright, viewing it as an attempt to interfere in its internal affairs.

This European policy had mixed results, even as several countries (Australia, Japan, South Korea, and recently China) adopted regulations that are more or less similar to the EUTR. At the beginning of 2021, five countries, including four African nations, had concluded VPAs with the EU. But since 2016, only Indonesia has been able to secure FLEGT permits, which are meant to guarantee an increased share of the European market. Yet, this theoretical commercial advantage has not resulted in an increase in the market share of Indonesian timber in European markets, given that price and quality remain important purchasing criteria for importers.

Despite considerable investment by the EU and the World Bank in the development of computerized legal and traceability systems, other countries are only moving slowly forward in this final phase of VPAs. The EU has focused on the technical dimensions of combating illegal exploitation, but has underestimated conflicts of interest and corruption in partner states. Moreover, in many countries, illegal logging is mainly for domestic markets rather than exports. This is a problem that VPAs have no real strategy to address.

In 2020, illegal timber trade continued on a very large scale, probably worth tens of billions of dollars a year. Part of such trafficking is controlled by organized crime, which is increasingly

turning to Africa, as Interpol has recently pointed out.[24]

"Good forest management" certifications

Certification schemes of "responsible management" of forests have emerged over the past 25 years, and have taken on great importance in the international forestry regime. These have arisen at the initiative of large, "institutionalized" non-governmental organizations (NGOs) – especially the WWF – which are convinced that boycotting tropical timber is counterproductive, because this would encourage producing countries to convert their forests into other, more profitable uses.

The most well-known certification standard (or norm) is the FSC (Forest Stewardship Council) launched in 1993, but many national or regional standards have developed since then. The PEFC, (originally the Pan-European Forest Certification Scheme, but now the Programme for the Endorsement of Forest Certification) was initially put forward by European forest-owner associations that found the FSC's economic model, which relies on external audits, to be unsuitable for small areas. Subsequently, the PEFC became a program of the mutual recognition of certifications, endorsing many of the national certification systems, from Malaysia to Brazil and the United States. Indeed, the PEFC is considered to be closer to the forestry industry, and is attacked by NGOs such as Greenpeace.

Certification has often been met with skepticism. This follows from the gradual South-South shift in tropical timber trade; from the fragility of an instrument based exclusively on trust, given the lack of scientific consensus on sustainability criteria and indicators; or even because certification does not address extra-sectoral factors and bypasses governments.[25] It is also criticized by "conservationists," in as much as it endorses the industrial exploitation of ancient forests.[26]

One of the recurring debates is whether certification can develop and be effective in tropical countries marked by a weak rule of law and poor governance. If one takes certified rainforest areas, where legitimacy issues and management problems are most acute, the total area was a modest 7.8 million ha in 2018, or 10 million ha if semi-natural forests are counted, including reforested areas (based on FSC data). Central Africa has the largest area of FSC-certified natural

24. Interpol, "Forestry Crime: Targeting the Most Lucrative of Environmental Crimes," December 14, 2020, available at: www.interpol.int.
25. M.-C. Smouts, *Forêts tropicales, jungle internationale*, Paris: Presses de Sciences Po, 2001.
26. N. Freris and K. Laschefski, "Seeing the Wood from the Trees," *The Ecologist*, Vol. 31, No. 6, 2001, available at: www.wald.org.

forests in the tropics, with 5.6 million ha. Yet this very calculation has much angered of radical NGOs opposed to any form of industrial exploitation, and they are trying in particular to discredit certification schemes for concessions operating in Gabon, Congo, and Cameroon. The presence in these countries of European firms with large concessions and which export most of their production to the EU explains the importance that Central Africa has in FSC certification.

The problems raised initially are still largely relevant. Nevertheless, certification, which is a market instrument meant to express "consumer power," has become, in various forms, an institution, sociologically speaking. If, in its early days, independent certification was perceived by states themselves as a source of competition, or even as an attack on their sovereignty, the narrative has changed. Certified surfaces are put forward by governments to demonstrate the good management of their forests. Above all, these private instruments have gradually been used in public policy: first, through preferential public procurement policies for certified wood in several Western markets; and second, through tax incentives granted to certified forest firms, in Peru, Brazil, and, more recently, in Gabon. For the latter, the area tax is significantly reduced for FSC or PAFC-certified firms (an African certification endorsed by the PEFC). In Gabon, the Head of State even announced in 2018 that all forest concessions had to be FSC-certified from 2022 onwards (a target postponed to 2025). But the EU remains reluctant to recognize independent certifications as proof of legality under the EUTR, even if this could now change following Brexit, as the UK had been the most reticent on this.

Forests and "climate instruments": the origins, functioning and limitations of REDD+

The issue of forests in the climate Convention instruments is particularly thorny. In the early 2000s, forest projects were included in one of the flagship instruments of the Kyoto Protocol – the clean Development Mechanism (CDM). This was however minimal, using afforestation and reforestation projects only, while excluding conservation projects. The majority of delegates were sensitive to the risk of leakage: i.e., the possible shift of deforestation pressures from a protected area to one that was not. This was because the "project" instrument does not have sufficient influence on the causes of deforestation and public policy. The problem of non-permanent carbon storage in plantations at risk of burning or just dying, led Convention

experts at the time to put forward specific, so-called "temporary" carbon credits with limited time span. Yet these found few buyers from private companies. This was all the more so as these credits are not accepted on the European Emission Trading System (ETS).

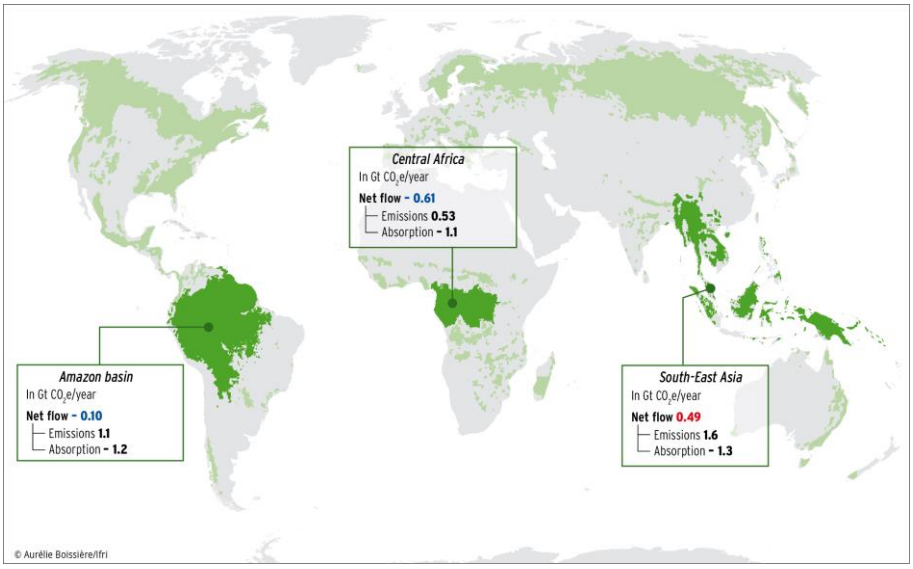
This forest CDM thus failed, with afforestation and reforestation projects accounting for an insignificant proportion of total CDM projects. However, many actors saw this as a missed opportunity to have an instrument encouraging forest conservation. As early as 2003, a group of researchers (mainly from Brazil and North America) put forward a new proposal aimed at "avoiding deforestation." The researchers wanted to counter the objection of the risk of leakage, which is inherent in the logic of projects within limited geographical areas. So, the new proposal turned its back on projects, embracing the full scale of countries from the outset. The proposal's authors admit that while it eliminates the problem of leakage at the national level, it may not do so at the international level: investments by agribusiness firms could avoid a country that actively preserves its forests, and look to locate itself in more welcoming forest countries. They therefore propose moving forward step by step.

This proposal received generally favorable support. In 2005, a new mechanism called "avoided deforestation" was proposed to the Climate Convention by different countries, led by Papua New Guinea and Costa Rica. This involves paying for countries (not projects) that reduce their deforestation-related emissions relative to a baseline level or trajectory. The proposal quickly became REDD+, which includes other activities, like carbon storage through tree plantations. It is interesting to note that large-scale tree plantation projects had been systematically rejected by the CDM Executive Board, the UN body responsible for assessing project eligibility. The reason for this was a lack of financial additionality: as these projects were deemed cost-effective, with or without carbon credits, they would have been carried out even without CDM registration. Lobbying by the large "planting" countries, including China and India, led to the principle of additionality being left aside with the change in scale of activities; Plantations became acceptable for carbon storage, whether profitable or not. Other activities were admitted to REDD+ this time, even if initially not retained under the CDM. The most surprising was the inclusion, at Guyana's request, of a "forest conservation" activity, whereas the principle of "climate" instruments is to account for differences in emissions levels, not for existing carbon stocks. Guyana is a small, sparsely populated Amazonian country with virtually no road infrastructure. It had never experienced significant

deforestation, and was expecting that past efforts by countries that kept their forests would be remunerated.

The second "D" in REDD+ refers to the goal of avoiding degradation. Several countries with high forest cover and low deforestation, including a number of Central African countries, soon realized that they would not gain much from a mechanism that only compensates reduced deforestation. Representatives of COMIFAC (the Central Africa Forestry Commission) considered that forest management plans, which had become mandatory for concessions in countries of the region in recent years reduce forest degradation – even if the laws are not equally enforced. Likewise, with the support of French diplomacy, they successfully defended the inclusion of "sustainable forest management," in the hope of receiving compensation. But this victory for Central African diplomacy is a double-edged sword. While the management of productive forests can reduce forest degradation compared to unregulated exploitation, strict forest conservation still offers the best carbon balance.

Carbon flows associated with the three large tropical forest ranges, in GT CO_2e/year



Note: The numbers are rounded. For example, for Central Africa, carbon absorption is estimated at -1,14181 Gt CO_2/year and emissions at 0,52916 Gt CO_2, yielding a net flow of -0,61265 Gt CO_2/year. An April 2021 article (Y. Qin et al., "Carbon Loss from Forest Degradation Exceeds that from Deforestation in the Brazilian Amazon", *Nature Climate Change*, available at: www.nature.com) indicates that the Brazilian Amazon would be a net emitter of CO_2. But this result does not relate to the entire Amazon, which covers five countries.

Source: Global Forest Watch, data from Harris et al.*, 2021.*

The tough issue of carbon-credits

While the idea of commercializing REDD+ carbon credits was implicit in the several variants of the mechanism proposed at the Climate Convention in the mid-2000, Brazil has opposed this approach. It refuses to allow industrialized countries to use forests in the South, in order to avoid efforts to reduce their own emissions. At the time, President Lula da Silva argued for a global fund against deforestation that would pay countries that reduced deforestation. While this fund was not set up, the GCF was established in the early 2010 years, and took on this role. Using its available budgets, it has already paid several countries, including Brazil and Indonesia, for emissions reductions linked to deforestation.

The REDD+ rules were negotiated for ten years. An agreement was finally reached in 2015 and included in the Paris Agreement at COP21. It gives countries the choice of issuing carbon credits or not, or of turning to the GCF for compensation. As negotiations have proceeded, REDD+ has become a mechanism of formidable complexity, with many ecological and social safeguards, and emerging as a major consumer of expertise of all kinds. This instrument for results-based payments is based not only on measures of carbon stocks and deforestation, but mainly uses reference scenarios, anticipated trajectories of business-as-usual emissions. The latter are presented by the countries themselves without the Convention's climate experts being authorized to discuss the public policy assumptions used to construct these scenarios.[27] In other words, a country which believes that its business-as-usual development involves converting almost all of its forests to other uses cannot be contradicted.

Predicting the worst as a "rational" strategy for building reference scenarios

In 2008, Guyana, after having first tried to get compensation for carbon stocks in forests within the REDD+ framework, then developed another strategy using the possibilities of the baseline scenario. The aim was to negotiate financial compensation in order not to implement what McKinsey, then the architect of Guyana's proposal, had called an "economically rational scenario." Even though the scenario was somewhat unlikely, it would have led to the destruction of 90% of Guyana's forest cover over 25 years, in order to

27. Annex to decision 13/CP.19 (Guidelines for technical assessment), Warsaw, 2013: "*The assessment team shall refrain from making any judgement on domestic policies taken into account in the construction of forest reference emission levels and/or forest reference levels.*"

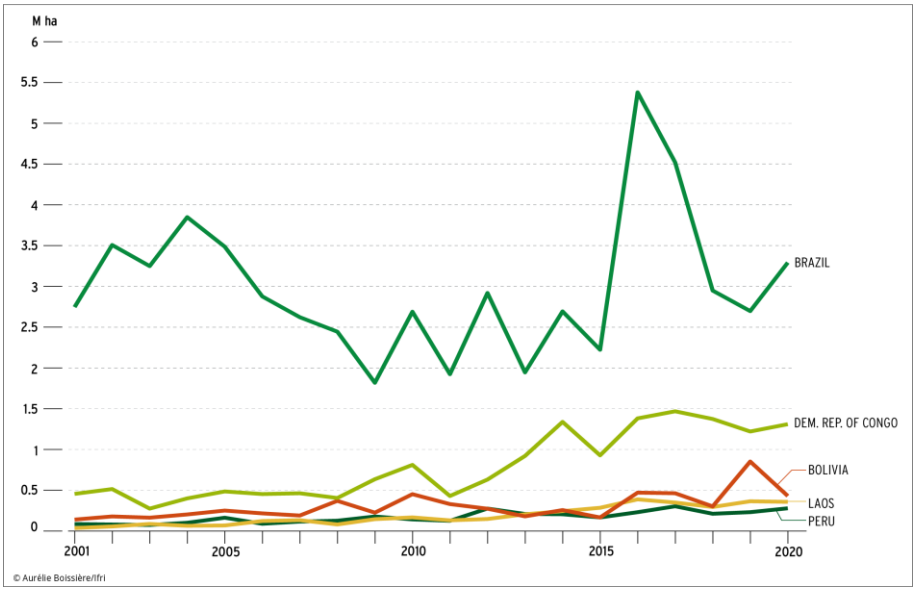
produce oil palm.

President Jagdeo's low-carbon development strategy (LCDS) forecast that deforestation would be around 4% per year 630,000 ha/year) over 25 years in a sparsely populated South American country, which had a deforestation rate close to zero until then. The LCDS is based on projections by McKinsey, which estimated that 90% of the country's forests would be cut down or exploited during the period, and converted to industrial plantations and agricultural land. Guyana used these figures to request financial compensation of approximately $580 million per year.

Many saw this bid as a typical example of discourses to come: "if you don't pay me, I'll let my forests be destroyed." Determining a "true" reference scenario (an objective forecast) is impossible to do: as part of a self-fulfilling prophecy, Guyana could decide to offer part of its forests to international investors seeking agricultural land to make palm oil, and so begin lending credibility to a scenario of massive deforestation which now seems absurd.

As for the problem of non-permanence, what if deforestation, after falling, then rises durably? This has been largely abstracted from the negotiations. The argument put forward to justify this is that once the fall in deforestation has started, it is irreversible. Yet this argument has little basis in reality, and contradicts the sharp seesawing in annual deforestation patterns, beginning with Brazil: after falling as of 2005, deforestation has risen again in recent years.

Gross annual loss of tree cover by country from 2001 to 2020 (in millions of hectares)



Source: Global Forest Watch.

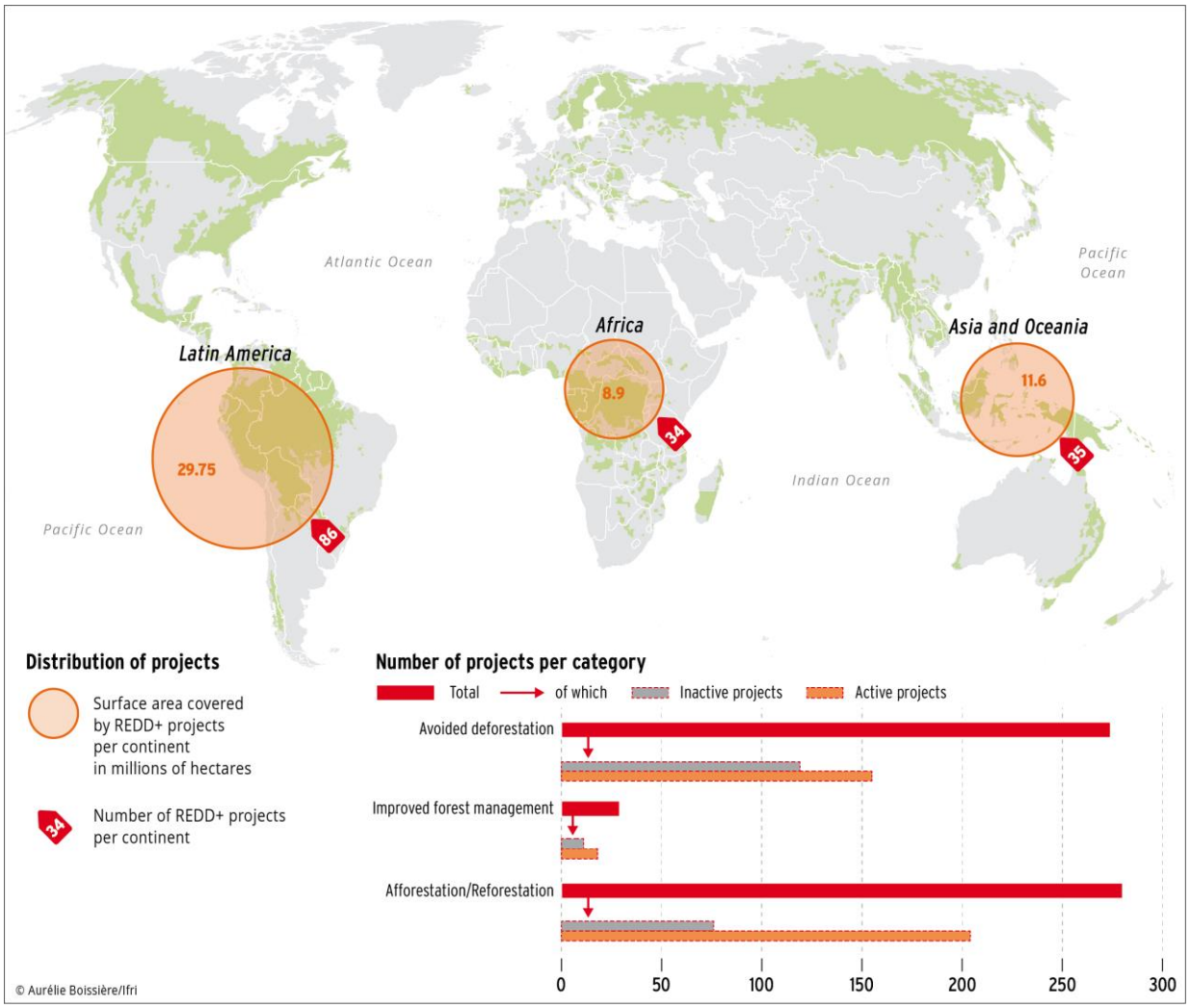
Moreover, forest fires are not considered as emissions due to deforestation, since forest fires are not supposed to alter land use.[28] This is despite the fact that mega-fires have ravaged millions of hectares in the Amazon, Australia, Indonesia, and Africa over the past three years, and have released huge amounts of CO_2 into the atmosphere, some of which will remain for centuries. The fire-related emissions that affected Australia in 2019-2020 were equivalent to one year of the country's average CO_2 emissions.[29]

"REDD+ projects" or the triumph of private governance

Expanding the scope of REDD+ activity with respect to the CDM opens up new opportunities for conservation organizations and tree-plantation developers. Yet, the move to the national level upsets players seeking funding or lucrative opportunities for their projects. During the endless negotiations over the "official" REDD+ mechanism, both "carbon entrepreneurs" and environmental NGOs seeking conservation funds developed their own initiatives using the REDD+ logo. The UN mechanism strives to restrict the possibilities of issuing carbon credits to governments, and only exceptionally to lower-level jurisdictions "on an interim basis". By contrast, "REDD+ projects" have adopted this privilege by targeting the "voluntary market for carbon offsets". Thus, private governance, with its own certification standards and methodologies, has emerged by adding a little more complexity to the REDD+ maze.

28. J. Barlow *et al.*, "The Critical Importance of Considering Fire in REDD+ Programs," *Biological Conservation*, Vol. 154, 2012, available at: www.sciencedirect.com.
29. "Ten Impacts of the Australian Bushfires," UN Environment Program, January 22, 2020, available at: www.unep.org.

The dynamics of REDD+ projects



Source: International Database on REDD+ Projects and Programs, CIRAD.

Demand for compensation emerged in the early 2000s from companies that gradually adopted carbon-neutrality targets with more or less short time horizons. Hundreds of projects, often benefiting from initial financial support from international donors, developed, supplying carbon credits in voluntary markets. A few early-stage scams occurred as a few buccaneers went after quick money by selling carbon stocks from distant forests to uninformed business leaders, all backed up by the signatures of traditional, local leaders. As a result, the need for minimum guarantees for such carbon credits emerged, and so paved the way for private certification schemes.

Drawing on methodologies developed or accredited by the CDM Executive Board (and often with the same consultants) and on the way forest certification works, several organizations have proposed standards to ensure the quality of credits offered in this voluntary

market, which often involves over-the-counter transactions. Standards develop methodologies, and provide accreditation to consultancies that conduct audits of projects that pay for them. They collect a fixed fee on each certified carbon credit. The standards claim to guarantee additionality, and to take into account the risk of leakage. The principal one – the Verra or VCS (Verified Carbon Standard) – provides an original solution to the problem of non-permanence.

The "reserve" system be a solution to non-permanence

Private certification schemes like Verra-VCS assume that they can deal with the question of non-permanence through a system of mandatory freezing of a share of carbon credits in a central reserve, thus pooling the risks of a set of projects around the world. The principle is to cancel credits in the reserve if a project fails (due to fire, etc.) assuming that not all will suffer failures. As with any insurance problem, this mechanism is effective in normal times, but it reaches its limits in the event of an out-of-range disaster, such as mega-fires that may be the beginning of tomorrow's world. Furthermore, it is necessary that this mechanism be maintained in perpetuity for it to correspond to the time that CO_2 stays in the atmosphere.

Another limitation of this reserve mechanism is the fact that there is a disconnect between the physical asset (forest) and the compensatory action. An individual or company buys something abstract, and Verra-VCS assures the buyer that there is no problem if the forest in which the emission reductions are generated is destroyed. Hence the buyer is "insured." But more and more companies or individuals deciding to offset their emissions do not just want to buy credits from brokers. They want to know where these credits come from, whether biodiversity is also taken into account, and whether the project also helps to reduce poverty. Some therefore contrast *insetting* with *offsetting*: i.e., focusing on partnership within a territory and so contributing to its environmental and social well-being. Reducing emissions through forest projects has become part of companies' social and environmental responsibility (CSR) objectives, which want to communicate the multiple benefits they bring from buying carbon credits. And this cannot be abstract, but needs to be well anchored in territories.

The uncertain future of the UN REDD+ process

Several countries have received results-based payments from the GCF, notably Brazil and Indonesia, for reducing deforestation (using the choice of a historical baseline, calculated on a past period). Payments are relatively modest, owing to GCF budget constraints.[30] They are far off the promises of compensation through an international carbon market, which is viewed as an inexhaustible source of financing. Indeed, since the end of the "Kyoto regime," the rules for transferring emissions reductions between countries mentioned in Article 6 of the Paris agreement have not yet been established. At COP25 in Madrid in 2019, negotiations broke down over the modalities for implementing this Article, with Australia and Brazil submitting requests deemed unacceptable by other delegations.

Between the first discussions over REDD+ in 2005 and today, the international scene has changed, as all countries now have more or less quantified targets for reducing or controlling their emissions. As a result, countries must now choose: Carbon credits sold by countries to third parties cannot be used by the selling countries to meet their national emissions-reduction targets. The new dimension of the international regime resulting from the Paris (2015) agreement is beginning to be understood by the countries of the South. Consequently, the question of ownership or transferability of carbon credits generated in national jurisdictions, which has been neglected so far, is a matter of growing importance. Mexico has already banned avoided deforestation projects from commercializing carbon credits, arguing that deforestation is illegal in the country, and effectively nationalizing the credits.[31]

Thus, the potential of an international carbon market in which forest countries could sell "emissions reductions" is probably less important than was imagined at the beginning of the century. But the issue also concerns "REDD+ projects." Until now, the countries of the South had little interest in these private initiatives taking place on their territory. But potential double-counting problems, revealed by the Article 6 debate, may be a game changer, and will likely severely limit the carbon-trading opportunities of these projects.

30. $96 million for the various countries that meet the requirements.
31. C. Strek, "Who Owns REDD+? Carbon Markets, Carbon Rights and Entitlements to REDD+ Finance," *Forests*, Vol. 11, No. 9, September 1 , 2020, available at: www.mdpi.com.

Combining "project" and national approaches: the limits of the "nested" approach

Without addressing most of the underlying causes of deforestation, the project-based approach typically shifts the pressure of deforestation to other areas. This potential cancels out the proclaimed carbon gains. To avoid these recurring objections, the so-called "nested" approach aims to combine a national approach with project-based compensation.

Schematically, the principle is that if, over a commitment period, deforestation-related emissions fall in a country, then there are a number of carbon credits to be distributed at the end of the period. If REDD+ projects, recognized by a government, can demonstrate emission reductions (for example, by having them certified), then they are given priority in the distribution of carbon credits, in proportion to their contribution. Once all projects have been thus compensated, and if emissions reductions remain unallocated, then these reductions are assigned to government policies and measures by default, and the corresponding credit appropriations are allocated to the government.

This mechanism can only work if the emissions recorded at the national level are greater than or equal to the sum of all the reductions attributed to the projects. If, at the end of a commitment period, all REDD+ projects post emission reductions above the national total, or if emissions have increased at the national level, then projects cannot be credited. It may be assumed that private investors will be reluctant to engage in projects without being certain to benefit from the proceeds of their investments – carbon credits – if these gains are conditional on national performance.

Doubts may also be held about the real potential of such an architecture to prevent leakage, and opportunistic strategies by government that could encourage REDD+ projects in some parts of a national territory and promote (or simply be unable to prevent) land conversion in other parts.

Finally, the LEAF initiative needs to be mentioned. It was announced on April 22, 2021 by the United States, Norway, and the United Kingdom and by major companies (including Amazon, Bayer and McKinsey).[32] This public-private partnership aims to raise $1 billion to buy "high-quality" emissions reductions from developing

32. Lowering Emissions by Accelerating Forest Finance: www.leafcoalition.org.

countries resulting from deforestation reductions, measured nationally. Norway has obtained that purchases of emissions reductions (at $10 per ton of avoided CO_2) are verified using the ART/TREES standard which it promotes in its initiatives. This standard was developed by a private firm (Winrock International) and currently only validates reductions in deforestation, but not increases in carbon stocks through woodlands or forest management, both of which are eligible for REDD+. This standard is therefore different to those of UN REDD+ (used by the GCF), but also from those proposed by the World Bank as part of its FCPF emissions-reduction procurement program.[33] REDD+ will not gain readability in this case, and its multilateral UN dimension is being questioned.

A return to bilateral agreements to compensate for the slowness of international arrangements

Several state actors will decide to act in parallel to the multilateral process, which has taken so long to be operational and is highly uncertain. Norway will play a leading role in concluding a series of bilateral results-based payment agreements with many major forest countries, including Brazil and Indonesia, as well as the Democratic Republic of Congo and some of its neighbors, within the framework of a Central African Forestry Initiative (CAFI). This is a coalition of donors led by Oslo, and includes France. CAFI primarily finances "national investment frameworks" submitted by countries, which include programs and projects that must address the causes of deforestation and degradation. The originality of CAFI is that the scope of intervention is not limited to the forest sector. Instead, there is a willingness to act on the causes of deforestation as well as to take into account different public policies that have an impact on forests (agriculture, land tenure, demography, etc.).

Conditioning financial support

The bilateral approach has the advantage of allowing financial support for policy reforms and allowing specific measures being able to be made conditional, so that payments do not have to be made unconditionally if a country exhibits a (relative) decline in deforestation from a questionable baseline. The limits of the multilateral approach stand out clearly, for example, in the case of

33. Forest Carbon Partnership Facility, which targets sub-national jurisdictions.

Brazil. The GCF paid the country for reducing deforestation in 2014-2015, agreeing to accept the average of 1996-2010 as a baseline. Yet deforestation has increased again in the Brazilian Amazon since 2016, and the Bolsonaro government is openly anti-conservation. So, the multilateral approach does not allow policy judgments to be made.

Paradoxically, REDD+ was welcomed by both donor and potential recipients as a hands-off process (with no direct involvement), leaving sovereign countries with the choice of ways to reduce deforestation (though limited by many social and environmental safeguards). The bad memories of the World Bank and the International Monetary Fund's period of "structural adjustment" conditionality largely explain that an outcome-payment mechanism was considered welcome. But *hands-off* can also mean tying hands to results whose credibility is at stake.

The reference scenarios are supposed to reflect a business-as-usual evolution. They are interpreted by their designers as giving carte blanche for the virtual projection of the "worst kind of politics," as if internal and external changes in political contexts should not include awareness of the urgency of action on climate change. To say that, without financial incentives, "my future would have been irresponsible" (*vis-à-vis* the common good), presents an (improbable) future that was unlikely to occur, inasmuch countries accepted the international regime of "common but differentiated responsibilities" that emerged from the Rio Conference (in 1992) – and in the name of which they demand compensation for their results.

Acting on demand: tackling imported deforestation

In 2010s, European countries became aware of the "deforestation footprint" of their agricultural imports. Over the period 1990-2008, the EU-27 imported about 36% of the integrated deforestation (agricultural and livestock products) entering international trade. This corresponded to a consumption of about 10% of the global incorporated deforestation: i.e., a footprint of 730,000 ha per year in terms of the area of deforestation – re-exported products included.[34]

At the same time, several agribusiness companies decided to try to ban the products involved in deforestation from their supply chains.

34. *The Impact of EU Consumption on Deforestation: Proposal of Specific Community Policy, Legislative Measures and other Initiatives for Further Consideration by the Commission*, study financed by the European Commission and DG ENV, and undertaken at the 'initiative of VITO, HIVA and IUCN NL, 2012, available at: https://ec.europa.eu.

In 2010, Nestlé came under pressure from Greenpeace over palm oil imported from Indonesia, and the firm set up a program to identify and eliminate all companies related to deforestation in its supply chain. The multinational stopped sourcing from Indonesia's largest palm oil producer, Sinar Mas. Nestlé committed itself to achieving the goal of "zero net deforestation" by 2020.[35] However, in 2019, it announced that it would not meet its target, owing to the difficulty of tracking supplies from small producers, which provide 20% of its oil palm fruits. Most of the large agribusiness companies using products at risk of causing deforestation followed suit and made zero-deforestation supply commitments.

To implement this concept, NGOs working in Southeast Asia with an oil palm company have proposed the High Carbon Stock (HCS) approach. In places where deforestation is legally permitted, this approach consists of mapping forest areas to preserve intact and little-degraded areas as a priority, measuring carbon stocks (air biomass) in different areas, and ensuring the connectedness of plots of forest, in order to allow wildlife to circulate.

In 2014, the New York Declaration on Forests was endorsed by many public entities (36 national states), private entities (52 large companies), and many NGOs. But Brazil's absence was notable. The purpose of the declaration is very ambitious – to "at least halve the rate of loss of natural forests globally by 2020 and strive to end natural forest loss by 2030." Yet the first part of the 2020 target is far from being achieved. The second part is even more ambitious. However, the drafting of the Declaration suggests an obligation of means rather than results.[36] One of the main measures adopted is the elimination of deforestation due to agricultural supply chains. Examples of products include: oil palm, soybeans, cocoa, paper and beef.

In 2015, the Amsterdam declarations (one on deforestation, the other on palm oil) were signed by seven European countries (Denmark, France, Germany, Italy, the Netherlands, Norway and the United Kingdom) which have formed a partnership for their implementation.[37] They aim to promote sustainable production that does not lead to deforestation, and propose to work in partnership with private-sector companies and producer countries. In particular, they have proposed that the issue of eliminating deforestation

35. In other words, they committed to the possibility of offsetting deforestation by tree plantations elsewhere.
36. A. M. Mekouar, "La déclaration de New York sur les forêts du 23 septembre 2014 : quelle valeur ajoutée ?" *Revue juridique de l'environnement*, Vol. 40, available at: www.cairn.info.
37. See https://ad-partnership.org.

associated with agricultural value chains becomes a chapter in political dialog and trade negotiations with producing countries.

The difficulties of implementing strategies to tackle imported deforestation

The notion of deforestation is less straightforward to define than it seems. First, we must agree on a definition of what a forest is. The FAO's definition is often used: land with an area of more than 0.5 ha with trees exceeding 5 meters in height and a forest cover of more than 10% (other institutions set the forest cover threshold at 30%), or refer to trees capable of meeting these criteria. However, with this definition, a natural forest which is destroyed to make way for a plantation of eucalyptus or rubber trees is not considered to be deforestation, despite the loss of biodiversity and other ecological services that accompany such a change.

Another problem concerns determining when production may be assumed not to be responsible for deforestation, especially when economic actors commit to a zero-deforestation policy only as of a future date. The risk then is that an accelerated conversion of natural forests will be undertaken before the deadline. A cut-off date should therefore be agreed upon (for example, January 1, 2015), from which any subsequent forest loss is taken into account, so no pretense can be made that there has been zero deforestation.

In 2018, France launched a national strategy to combat imported deforestation (SNDI, s*tratégie nationale de lutte contre la déforestation importée*), and this idea is being actively pursued by the European Parliament. But the content of this strategy remains uncertain. Should firms be pressured to make voluntary commitments? Or should trade agreements be renegotiated to ban products and use tariffs to penalize "legal deforestation," at the risk of contravening World Trade Organization (WTO) rules?

The operational component of the SNDI refers to the necessity of including deforestation in trade agreements. It notes the need "to assess the feasibility of introducing incentives for sustainable raw materials. and for countries that are actively engaged in the fight against deforestation." One difficulty is related to the content of the incentives envisaged by the SNDI. In general, incentives involve a positive advantage, such as lower taxes on products that are certified zero deforestation. An analysis of existing tariffs, however, shows that because of many trade agreements (including the economic partnership agreements concluded between the EU and many

African, Caribbean and Pacific (ACP) countries), a majority of tariffs are already at zero.[38] In most cases, incentives can only be achieved by increasing tariffs for non-certified productions. Yet at present, such provisions would be deemed contrary to WTO rules. The principle of non-discrimination in Article 1 of the General Agreement on Tariffs and Trade (GATT) concerns products held to be similar: They cannot be treated differently depending on their origin. Product similarity, for its part, refers to the concept of WTO processes and production methods (PPMs). These can be classified into two categories:[39]

- Product-related PPMs: i.e., that have an impact on the consumption of the product (implicitly, on health, as in the case of asbestos). This exception to the principle of product similarity is recognized by the WTO.
- PMPs that do not affect the product, but have implications at the time of production. It is this category which is relevant to distinguishing between productions that cause deforestation or not, because of the processes employed. But, so far, this differentiation has never been recognized by WTO-appointed judges, who stick to product similarity.

This is clearly a matter to be brought to the WTO by European diplomacy. In fact, the SNDI proposes introducing competition conditions and production patterns into trade agreements, and thereby incorporate new "footprint" performance indicators.

38. A. Karsenty, "Les filières tropicales à l'épreuve de la lutte contre la 'déforestation importée'," Will Agri, Septembre 9, 2019, available at: www.willagri.com.
39. *Processes and Production Methods (PPMs): Conceptual Framework and Considerations on the Use of PPM-Based Trade Measures* (OECD working papers), OECD/GD (97) 37, Paris, OECD, 1997, available at: www.oecd.org.

Strengthening the international response to deforestation

Overcoming controversies

The modalities of forest exploitation

The productive use of natural forests is a recurring topic of confrontation, both in developing and industrialized countries, where opposition to tree-cutting is becoming increasingly noisy. In tropical areas, logging is always selective, owing to the high heterogeneity of forests (several hundred species per hectare) and often high transport costs (only trees of high commercial value are worth shipping). Average removals per hectare range from 1 to 2 trees in Central Africa to 7 to 8 or more trees in Southeast Asia (in the last usable primary forests, notably in Papua New Guinea), with the Amazon in between.

When logging leads to deforestation, the intention is to convert the land to other uses, so that as much wood as possible is taken out to make way for the crops. While selective logging is not a direct factor in deforestation, it is one of the first factors of forest degradation: i.e., it constitutes a reduction in the ability of the forest to provide goods and services. Such degradation may be accompanied by the fragmentation of woodlands as roads are opened up. Several NGOs see this as the indicating future deforestation. This is indeed possible, but it is not systematic. It usually requires land pressure, and thus the presence of a dense and active rural population that will use roads to establish crops and establish trade relations with distant markets. Gabon is one of the few countries in the world to have experienced an expansion of its forest cover between 2010 and 2015 due to natural dynamics, not plantations. Yet it is also the country where concessions occupy the largest proportion of woodlands, and where industrial wood production is the highest.[40] Moreover, it shows up the indirect role of concessions in deforestation. The opening up of tracts of forest depends on the density and intensity of the agricultural activities conducted by populations.

40. About 70% of the area of dense Gabonese forests is under forest concession.

But disagreements are most acute when it comes to the industrial exploitation of timber under the controversial concession regime, which is seen as an inheritance of the colonial era. In fact, the discourse critical of concessions, and which is often held by NGOs, masks a divergence between advocates of the strict conservation of tropical forests and proponents of local community solutions that may include timber harvesting. The various stakeholders that make up the FSC regime are regularly in conflict on these issues. Greenpeace, a founding member of FSC, has suggested that certification should primarily benefit community forestry, not major industrial concessions. Yet the opposite has occurred, given the very logic of consensus building (by the "stakeholders"), and this has led to the piling up of normative criteria for good management and so of the costs of independent third-party verification (audits). Greenpeace International withdrew from the FSC in 2018, thereby undermining the compromise on which the most credible certification has been built.

REDD+ as a commodification of nature?

The use of economic instruments, especially the payment-by-results logic associated with REDD+, is subject to both external and internal criticism.

The external criticism sees the commercialization of REDD+ carbon credits as a financialization of nature, aimed at enabling the most greenhouse-gas-emitting countries to continue emitting by preventing the South from using its natural resources for development. REDD+ policies are accused of excluding local communities and indigenous peoples from access to their traditional forest resources, which are transformed into "carbon sinks." This criticism can be found in the *Journal of Peasant Studies* and on the REDD-Monitor website. It is based mainly on conflicting situations in protected areas, whose surveillance has been strengthened through funding from REDD+ projects. This has allowed public managers to reassert controls and has led to the eviction of farmers or poachers. The debate about REDD+ intersects with the debate over national parks, which are accused of being instruments of "green colonialism," particularly in Africa.[41]

Outside protected areas, the modalities for REDD+ projects are different, and much closer to traditional conservation-development

41. G. Blanc, *L'Invention du colonialisme vert. Pour en finir avec le mythe de l'Eden africain*, Paris: Flammarion, 2020.

projects, sometimes generating PES for local communities. REDD+ carbon credit certification standards have incorporated the social safeguards of major international institutions, and conflicts over projects with local populations result in the loss of Climate, Community & Biodiversity (CCB) certification, along with the VCS, both labels being offered by Verra. Loss of certification in turn greatly reduces the chances of commercializing carbon credits.[42]

The internal criticism, for its part, emphasizes the risks of creating "fake climate money," which the various REDD+ processes could spread under the guise of carbon credits. These credits stem from unverifiable reference scenarios, and are likely to be set in such a way that they can achieve results without real political efforts to reduce deforestation (the additionality problem). Major problems have not been addressed, such as the risk of non-permanent carbon sequestration.

Finally, along with fragile states, the idea that these countries can actually *decide* to stop deforestation and that they are able to *implement* the relevant political and social measures, gives short shrift to the political economy issues that have already been raised in the development debates.[43]

The fragile consensus on zero-deforestation agriculture

Decoupling agricultural production and deforestation, and tackling imported deforestation, appear to be more consensual. However, differences begin when it comes to defining what a forest is, and thus the threshold loss of forest cover to define deforestation. The Gabonese authorities are considering changing their definition of a forest, to start at a threshold of 118 tons of carbon per hectare.[44] This proposed high threshold is justified by the authorities in order to be able to export different agricultural products without being accused of deforestation. It may be that other countries will consider this kind of strategic definition in turn, which will inevitably lead to friction with many importing countries.

42. C. Seyller *et al.*, "The 'Virtual Economy' of REDD+ Projects: Does Private Certification of REDD+ Projects Ensure Their Environmental Integrity?" *International Forestry Review,* Vol. 18, No. 2, June 2016, available at: www.ingentaconnect.com.
43. A. Karsenty and S. Ongolo, "Can 'Fragile States' Decide to Reduce Their Deforestation? The Inappropriate Use of the Theory of Incentives with Respect to the REDD Mechanism," *Forest Policy and Economics,* Vol. 18, 2012, available at: www.sciencedirect.com.
44. For comparison, European forests therefore contain 25 to 90 tons of carbon per hectare (aerial biomass).

Another divergence is to be found in industrialized countries and concerns the treatment of products from illegal deforestation and those from legal deforestation. Should the latter be banished as much as the former? Does a graduated response require banning only products derived from illegal deforestation but favoring zero-deforestation products through advantageous tariffs? This is what Switzerland has just decided for Indonesian palm oil.[45]

Strengthening the international forest regime

The various initiatives, along with their associated instruments, actually converge more than they oppose each other. In doing so, they constitute the milestones of an emerging international forest regime, despite the absence of a specific international convention on forests. It is nevertheless necessary to reconsider and refocus some of these instruments in order to take into account systemic and political economy dimensions that are too often overlooked. Five lines of work are set out here.

- REDD and payments by results need to be rethought, with public policy coherence and investment put first.

  The payment by results principle has no chance of achieving its goals without substantial support for the investments needed to produce the desired results, particularly in countries with weak institutions. If developed countries support such investments, then a principle of financial incentives to encourage reform could be worthwhile, provided that the notion of results is rethought intelligently. From this point of view, the problem of the "right" reference level for REDD+ has no solution:

  - On the one hand, no spatial and economic model can predict the evolution of major economic and climate variables that control rates of deforestation (agricultural prices for producers, droughts, and rainfall, etc.). This leaves the door open to building optimized scenarios, with variables chosen according to the strategic interests of the proposing states.
  - On the other hand, the very logic of business-as-usual forecasts entails perverse incentives, because it encourages parties to free themselves, virtually, from the "common but differentiated" liability regime inherited from the Rio summit (1992), through the construction of worst-case scenarios.

45. See "Votation sur l'accord de libre-échange avec l'Indonésie," *Public Eye*, available at: www.publiceye.ch.

It may be desirable to keep the results-based payments, without being bound by an automatic payment procedure which is dependent on an unverifiable reference level/scenario. The only smart criterion is the coherence of public policies that have potential impacts on forests. It is possible to rely on the effectiveness of measures to contain deforestation (the formal adoption of laws and regulations, land-use planning, implementation efforts, etc.), and on the effectiveness of sanctions against perpetrators of environmental offenses. Independent collective expertise, under the joint umbrella of Climate and Biodiversity Conventions, should be able to evaluate these efforts by states, in order to combat deforestation and degradation.

- Changing food systems and putting the fight against imported deforestation at the heart of international agreements.

  Without profound changes in consumption patterns and the strict control of the demand for products involved in deforestation, it would be illusory to focus only on stopping deforestation. Absolute falls in certain types of consumption (e.g., beef), the selectivity of purchases (guided by information and certification systems), and the scrapping of first-generation biofuels (in particular palm oil) are three priorities.

  But not wanting to modify the rules of international trade will undermine committed consumers' efforts. It is the responsibility of industrialized countries to exit trade agreements with partners that encourage forest-land conversion, and to include legally enforceable anti-deforestation clauses in new trade agreements. Strategies to combat imported deforestation must combine measures banning products involved in illegal deforestation, as the EU is trying to do for timber, and, where deforestation is permitted in third countries, there should be a differentiation of tariffs favoring products certified as "zero-deforestation" by internationally recognized standards. Current WTO rules do not allow product discrimination on the basis of the environmental externalities (in this case, deforestation) associated with their production. These must be changed. The results of such differentiated tax, whose revenues ought to decrease over time, should be fully allocated to support programs for small producers (along PES lines) in the countries of origin.

- Assist developing countries to implement incentive-based environmental taxation, in order to promote sustainable zero-deforestation and forest production.

  Forest or agricultural taxation is rarely used to favor traced and certified production, or to penalize products of uncertain origin or that are likely unsustainable. Gabon has recently innovated by

introducing differentiated forest taxation that benefits certified concessions and penalizes others. This principle could be extended to agricultural production. Independent certifications are, of course, perfectible instruments. But governments can push for their continuous improvement and accredit those that fulfill their expectations.

Producing countries could adopt tax-based bonus-malus (feebates) mechanisms for their commodities at risk of deforestation. The bonus-malus principle means that tax reductions for some (with zero-deforestation, tracked production) is financed by higher taxes for others, thereby ensuring that the mechanism is fiscally neutral. As the objective is to reduce the quantities of non-certified products, the respective bonus and malus rates must be managed dynamically, year after year. Donors could support producer-country governments by accompanying these reforms through the establishment of "zero-revenue-loss" guarantees.

- Targeting producer incentives through PES combining conservation and investment.

  The evolution of agriculture and livestock systems is a crucial issue. Ecological intensification should become the priority of public policy, on the basis of small-scale agroecology, crop-livestock associations and agroforestry. Necessary investments could be channeled through PES programs aimed at financing changes in producer practices, with conservation conditionalities and incentives to counteract the rebound effects associated with intensification. Part of the funding effort should come from national taxation using low rates and broad-bases, as emerging countries like Costa Rica and Mexico have done with fuel or water. Several tax bases may be envisaged in each country to finance a national PES program, according to a simple principle: the larger the tax base, the lower the tax rate can be and the more socially acceptable it will be.

  It will be necessary to finance policies for the recognition of local rights (participatory mapping, rights registration, etc.) and appropriate forms of land security to protect rural communities from land grabs for agribusiness. Investment in education, especially girls' access to extended education, is essential to accelerate the demographic transition. Africa is particularly concerned, given that this transition is lagging in many countries.

- Make forest concession regimes evolve through approaches based on the recognition of overlapping rights, the commercial management of new resources and profit sharing.

Large forest concessions, some of which exceed one million hectares, are increasingly facing demands by local communities for land rights, as well as limits to operational profitability based solely on logging. Some companies have engaged in the systematic mapping of customary territories overlaying their concessions. These companies use this information to share part of their income from logging, based on the extent of customary land spaces included in their concessions. The mapping of rights and the income-sharing associated with such mapping are the first signs of a shift from concessions worked simply along business lines, towards rights-based territorial development institutions and inclusive governance. Yet, current forest codes only allow the exploitation of timber in forest concessions. Populations are only allowed to exercise traditional practice rights but may not develop commercial activities using non-wood products. It is therefore necessary to change legislation in order to enable concession-holders to establish joint structures for the commercial exploitation of non-wood products with the communities involved in the management of concessions.[46]

46. A. Karsenty and C. Vermeulen, "Vers des Concessions 2.0 – Articuler gestion inclusive et exclusive dans les forêts de production en Afrique centrale," in: G. Buttoud and J. C. Nguinguiri (dir.), *La Gestion inclusive des forêts d'Afrique centrale : passer de la participation au partage des pouvoirs*, FAO-CIFOR, 2016.

Conclusion

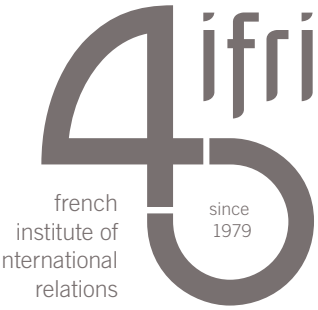
Across the tropical world, population expansion, together with low increases in agricultural yields, is putting pressure on natural ecosystems. Growing international demand for agricultural products, but also emerging demand for biofuels (and biomaterials) are compounding domestic dynamics, and are leading to global deforestation.

At the same time, the issue of forests is becoming increasingly important in international policy agendas and in corporate strategies, through the carbon compensation sought by major greenhouse-gas emitting companies. But these agendas are based on a naïve view of incentives (especially with REDD+), and they ignore the political economy of deforestation and the systemic dimension of the problems that should be addressed to transform the use of forest resources in developing countries. To avoid taking the risk of having to judge national policies, REDD+ negotiators created a labyrinthine system that earns experts a fortune but has done little to help rural people overcome the farming, land, and the demographic constraints they face. Large private companies meanwhile hope to find a way to achieve an unlikely carbon neutrality through large-scale tree-planting operations, which only makes sense globally.[47] For these steps to be useful, they must take into account problems of land security for rural people, a key factor in reforestation, and their access to land. Promising solutions involve zero-deforestation supply policies implemented by agribusiness firms, but they quickly run into the difficulty of tracking flows from small producers outside firms' control.

Money is just one part of the problem. Consumption patterns in industrialized and emerging countries must change rapidly to reduce the direct and indirect pressures on forested areas. And if we hope to address the problems arising from forest ecosystem loss, we will also need to address land inequality and insecurity, while implementing policies that pay farmers more equitably for the food they produce and the ecological services they provide. Moreover, the various public policies required for development need to be made more coherent. A common agenda for food security, tackling deforestation, and

47. See "Vers un nouveau référentiel de la neutralité carbone des entreprises," Carbone 4, available at: www.carbone4.com.

restoring degraded natural ecosystems has to be constructed with developing countries, which are themselves increasingly seeing the growing impacts of climate change on their economies. Investment in the transformation of agri-food systems, education (especially for girls), land reform, and the consolidation of the institutions needed for the rule of law (justice, independent authorities, etc.) must become more important than the results-based payment approach, which tends mainly to reward the product of circumstance rather than effort.



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