

Deforestation and international trade

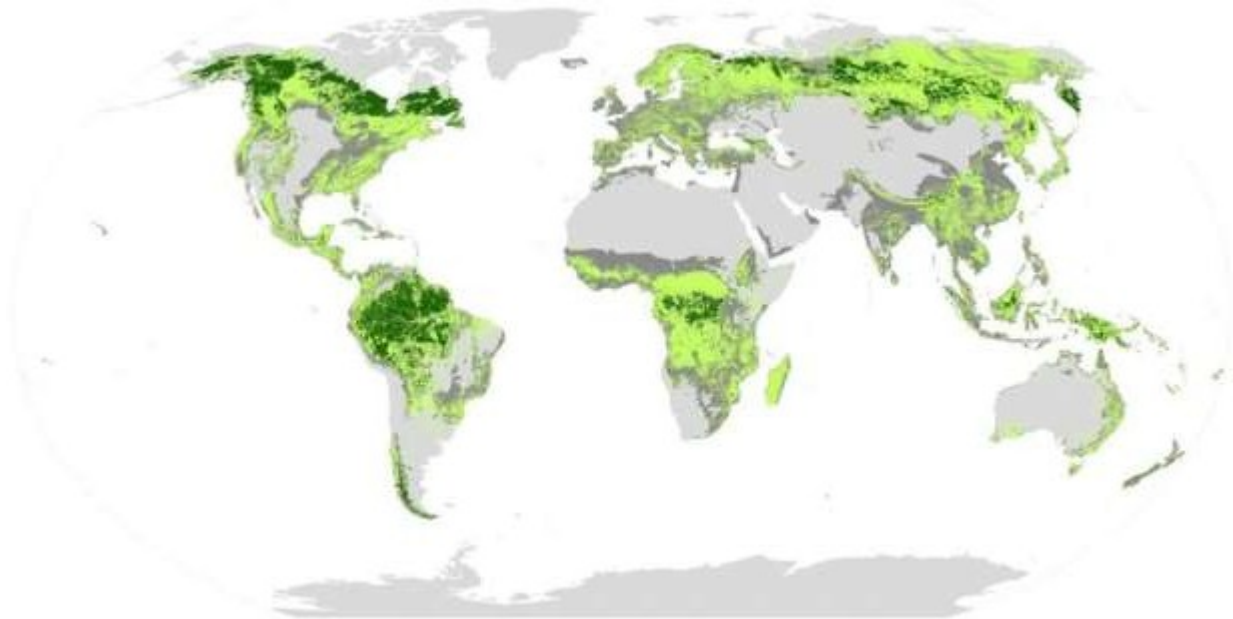
Imported deforestation, a source of diplomatic controversy

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Land-use change, a category in which deforestation occupies a prominent place, accounts for between 10 and 12% of annual CO₂ emissions linked to human activities (Friedlingstein et al., 2021). Moreover, forests are estimated to harbour 80% of the world's terrestrial biodiversity, two-thirds of which is found in tropical forests. As for the global water cycle, we now know that not only do large forests, such as the Amazon, make their own rain through tree transpiration (Staal et al, 2018), but that long-distance transport of moisture by

"Celestial rivers" bring rainfall thousands of kilometers away (Ellison et al, 2017). Deforestation is therefore one of the driving forces behind the global ecological crisis.

Map of past and present primary forests and forest cover



Source: *International Action for Primary Forest*, available at <https://primaryforest.org>

Deforestation slows in Asia and the Americas, accelerates in Africa

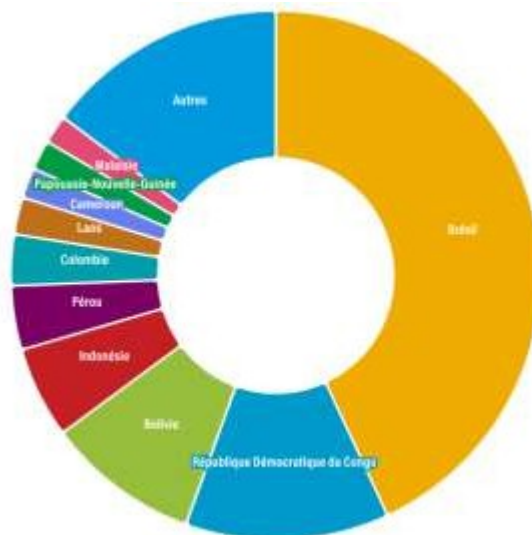
According to the FAO, over the period 2015-2020, gross deforestation (i.e. the loss of natural forests) averaged 10 million ha/year. Net deforestation (loss of natural forest areas compensated by tree plantations and forest expansion into non-forest areas), over the same period, amounted to 5 million ha/year. Compared with the previous decade, the trend is downwards, particularly in Asia and Latin America. While deforestation has fallen sharply in Indonesia, Malaysia and Brazil, it has increased in Bolivia. In Africa, deforestation has increased overall since

a decade. It has risen sharply in recent years in Cameroon, Angola and Liberia, and remains at a very high level, with over a million hectares deforested each year in DR Congo.



Source: FAO (FRA 2020)

Deforestation takes place mainly in tropical regions, although some fronts of deforestation can be observed in eastern Russia and a few other temperate or boreal countries (such as North Korea). The graph below shows the ten countries with the greatest loss of primary forest in 2022.



Source: Global Forest Watch/WRI¹

¹ <https://www.globalforestwatch.org/blog/fr/data-and-research/la-perte-de-forets-primaires-tropicales-sest-aggravee-en-2022-malgre-les-engagements-internationaux-visant-a-mettre-fin-a-la-deforestation/>

According to the FAO definition², forests are lands of more than 0.5 ha with trees reaching a height of more than 5 meters and a canopy cover of more than 10%, or with trees capable of reaching these thresholds. Land with a predominantly agricultural vocation (e.g. agroforestry fields) is excluded.

Deforestation only occurs when there is a lasting change in land use. Temporary deforestation associated with slash-and-burn agriculture, which involves a long forest fallow after two or three years of cultivation, is not counted as deforestation by the FAO. Nor are forest fires, since it is assumed that the forest will regenerate naturally or be replanted. Silvicultural practices involving clear-cutting followed by replanting are not considered as deforestation, even if this type of exploitation is criticized for its impact on soils and biodiversity.

Causes at different levels

The causes of deforestation are many and varied. A distinction is generally made between *drivers*, indirect causes and underlying causes.

The engines

The drivers are the activities that result in deforestation. The FAO estimates that agricultural expansion accounts for 90% of the direct causes of deforestation. More precisely, 50% is linked to agriculture in the strict sense and 38.5% to the conversion of forests for livestock (up to 70% in South America). Among the crops often associated with deforestation, oil palm, which requires the same conditions of heat and rainfall as equatorial forests, accounts for 7% of direct causes.

Tree plantations, often monocultures, are also significant drivers of land-use change, with the transition from a natural ecosystem to an artificial area. These plantations, which are significant in Asia, notably China, enable countries to show forestry gains, but mask a significant loss of biodiversity.

Historically the driving force behind deforestation in the Brazilian Amazon, soya's share of this process has fallen sharply since a moratorium imposed in 2006 by major multinational trading companies on the purchase of soya from recently deforested plots in this region. However, soybean production has shifted further south, from the Amazon to the Cerrado savannahs, which occupy over 200 million ha, including 127 million ha suitable for cultivation, mainly in Brazil.

In Africa, despite the recent boom in oil palm and rubber plantations, food crops, often associated with charcoal production, are the main drivers of deforestation. However, cocoa plantations, as cash crops, have made a major contribution to deforestation in West Africa, with Côte d'Ivoire and Ghana leading the way. Cattle farming and cotton play a significant role in the retreat of the lighter forests in the dryer part of the continent. And artisanal gold mining is causing increasing damage to forest areas.

The case of selective logging

Contrary to popular belief, logging contributes very little to deforestation. Deforestation only occurs when there is a change in land use, in other words, a conversion. According to this FAO definition, silvicultural systems that involve clear-cutting do not cause deforestation, provided that reforestation or natural regeneration takes place in the years that follow.

² <https://www.fao.org/3/ap862f/ap862f00.pdf>

In tropical regions, selective harvesting is generally practised, due to the high heterogeneity of natural forests (several hundred species per hectare) and high transport costs (only trees of high commercial value can bear the transport costs). Average removals per hectare vary from 1-2 trees in Central Africa to 7-8 trees or more in Southeast Asia, with Amazonia in between.

Indirect and underlying causes

The opening of a road in or near a forested area is the main indirect cause of deforestation, since this infrastructure enables agricultural producers to connect more easily to markets.

The first underlying cause is the growing demand for agricultural, livestock and forestry products. This demand may be internal, through population growth (particularly in Africa) and consumption patterns (Brazilians are the leading consumers of their beef), but global demand also plays a significant role. According to Pendrill et al (2021), 20-25% of deforestation is linked to international trade. The agro-industry uses large quantities of palm oil, which is also used for agrofuels; consumption of chocolate, which contains cocoa paste, is booming; soy is used, in the form of oilcake, to feed European and Chinese poultry, pigs and cattle. Indonesia exports massive quantities of pulp from plantations that have replaced natural forests degraded by logging.

One of the underlying causes, often overlooked, is the lack of clarity in land rights. Uncertainty over forest tenure in supposedly public forests is used by South American ranchers to clear vast areas of land, in the hope of then regularizing ownership of the "developed" land. In Africa and Asia, customary rights are based on clearing land for cultivation, and modern legislation allows access to land titles through this development.

Agricultural production conditions play a decisive role in the underlying causes of deforestation in Africa and parts of Southeast Asia and Latin America. Felling-burning systems, in which fertility is reconstituted by felling and burning trees (which enriches the soil with the nutrients contained in the ashes), are adapted to the constraints of tropical countries, where 2-3 years of cultivation are accompanied by a long fallow period of around ten years, allowing the return of secondary forest. With the increase in the rural population (due to natural growth, but also to migration) and the reduction in available land (protected areas, urbanization, forestry or agricultural concessions, etc.), the space required for such long rotations is running out, fallow periods are shrinking and even disappearing. The low use of fertilizers, whether organic or chemical, leads to a decline in fertility and to the deforestation of new areas.

Small operations rather than large mechanized farms

In 2023, the FAO published a study (Branthomme et al., 2023) which overturns a number of preconceived ideas about the categories of producers behind tropical deforestation. The FAO proposes to characterize *small-scale farming* as the use of non-industrial methods, on limited surfaces where human labor constitutes the main investment.

Over the period 2000-2018, the study shows that 68% of deforestation associated with agriculture (40% for crops, 28% for livestock) occurred on small farms. The situation differs according to

regions, with small farms accounting for 97% of deforestation in Africa (80% for crops, 16% for livestock), but only 52% in South America (46% for livestock, 6% for agriculture). However, as we shall see, the traceability requirements of the European regulation on deforestation pose specific problems for small farms.

Cocoa and deforestation: surges, crises and new cycles

Cocoa is the raw material of chocolate. Originally from South America, it was introduced in the 16th century by the Spaniards to the Indonesian archipelago and West Africa, a region which today produces more than half the world's annual crop. The production area covers between 3.5 and 4.5 million hectares, and supplies between 4 and 5 million tonnes of cocoa beans every year. Cocoa trees grow exclusively in regions with specific conditions. Temperatures must be between 18 and 30 degrees Celsius, with a humid climate and fairly even rainfall. The cocoa belt is a strip of land close to the Equator, between 20° north and south latitude. With around 5 million smallholders, 90-95% of the world's cocoa production comes from family farming, with 1 to 3 ha of cocoa plantations producing around 400 kg/ha of cocoa beans. But the most productive plantations can produce up to 2 t/ha. A cocoa tree produces for around 40 years, but production tends to decline after 20-25 years.

Cocoa is associated with deforestation, as forest land is ideal for new plantations. Thanks to accumulated humus, the soil is fertile, with few weeds, and rainfall is abundant. Cocoa trees thrive in this forest environment. Farmers therefore make use of what agronomist François Ruf calls the "forest rent"³, leaving only the trees needed to provide shade and moisture for the cocoa trees. Nevertheless, the spread of hybrid varieties grown in full sun, a practice which increases yields but makes cocoa trees more vulnerable to disease, will prompt many farmers to remove trees from their fields. In Côte d'Ivoire and Ghana, to prevent foresters from devastating cocoa fields by coming to exploit the trees, farmers took the initiative and cut down the trees coveted by the operators. Cocoa booms are also associated with internal migration or migration from neighbouring countries, as forest areas are often poorly controlled domanical areas, where settlement is possible by means of more or less tacit agreements with customary owners. Migrants provide the family labor needed to clear the forest, and thus benefit from the "forest rent". After twenty years or so, however, this rent dissipates, as the land loses its fertility, weed and insect pressure increases, and the health of the cocoa trees deteriorates, particularly in the case of full-sun plantations. The use of fertilizers and insecticides brought some respite, but affected farmers' financial situation. From then on, the cocoa front moved into new forests to begin a new cycle of deforestation.

³ Ruf F., 1995. *Boom et crises du cacao - Le vertige de l'or brun*. Karthala.

While Western Europeans are the world's biggest consumers, new chocolate markets are growing fast in Eastern Europe and Asia. Until recently, cocoa supply was more or less in line with demand, with episodes of overproduction leading to relatively low purchase prices for growers. However, since 2022, several factors have combined to reduce world cocoa supply: climatic disturbances, ageing cocoa plantations, and the development of viral diseases ravaging the orchards of the world's two leading producers, Côte d'Ivoire and Ghana. The market anticipates a lasting imbalance between supply and demand. Prices soar, driven by the speculation inherent in these futures markets (cocoa is generally sold well before the harvest). From \$2,300 at the end of 2022, the price per tonne of cocoa beans will climb to \$12,200 on April 24, 2024, before falling back to around \$8,000 in early May 2024. High prices generate new waves of entrants into the cocoa business, and new pioneering fronts. Currently, thousands of farmers have left Côte d'Ivoire, which has been massively deforested, to try their luck in the dense forests of neighbouring Liberia. A new cycle of cocoa boom and deforestation may have begun. However, its scope could be limited by the closure of the European Union market (Europe imports around 60% of the world's cocoa), as well as restrictions on the UK and US markets, where cocoa derived from illegal deforestation will soon be banned.

Behind the European Regulation on Deforestation and Forest Degradation (EUDR)

In 2013, the EU took stock of the impact of its imports on deforestation. A report highlights the concept of "imported deforestation", and indicates that the deforestation footprint of the EU 27 was 732,000 ha in 2004, or 10% of the total gross deforestation estimated that year by the FAO. Over the period 1990-2008, the EU 27 is estimated to have imported almost 36% of the total deforestation resulting from international trade in agricultural products. These estimates remain highly uncertain, however. A European Commission (EC) project to counter deforestation and forest degradation associated with "the placing on the EU market and export" of certain agricultural products was unveiled in November 2021⁴. The "Regulation on Deforestation and Forest Degradation" (RDUE) was adopted in June 2023, and will be effective in December 2024.

The Regulation stipulates that, before a product is offered for sale on the European market (or exported), each operator will have to guarantee that it is not associated with deforested land after 12/31/2020, by geolocating the parcels from which it originates using a traceability system. Farmers will have to upload traceability data, including GPS coordinates, which will be compared with satellite images. The indication of plot boundaries is compulsory from 4 hectares upwards.

The products concerned are palm oil, soy, cocoa, coffee, beef, wood and natural rubber. The list also includes certain by-products (chocolate, furniture, tires, printed products, etc.). To remain compatible with WTO rules, the regulation is non-discriminatory and applies to both imported and exported products (hence the absence of the word "imported" after "deforestation" in the RDUE title).

⁴ https://environment.ec.europa.eu/publications/proposal-regulation-deforestation-free-products_en

The cornerstone of this project is the obligation of "due diligence", i.e. all the checks that economic operators must carry out to ensure the origin of the product placed on the market, its legality and the conditions of its production.

The thorny issue of legal deforestation

The other important point is the adoption of the FAO definition of forest, i.e. at least 10% tree cover over a minimum area of 0.5 ha. However, many countries have adopted a threshold of 30% tree cover to define forests, i.e. a more restricted definition of forest. By setting the threshold at 10%, products deemed legal in the country of origin (for example, from the conversion of an ecosystem with 20% tree cover) will be unacceptable to the EU and, in principle, will not be allowed to be imported. This will create strong tensions and possible trade reprisals. Within the EC, a leaked memo from DG Trade described the draft as "*a direct challenge to notions of sovereignty over land use decisions*", as it does not distinguish between legal and illegal production (unlike the UK's⁵ or the US bill).⁶

In addition, debates focus on the "zero deforestation" dimension of the Regulation, but sometimes forget that it is first necessary for candidate products to be legal for import into the EU. The case of Brazil illustrates the problems of verifying legality in a context where the data that would enable the full legality of production to be verified is not available or accessible to importers. According to a study by Vasconcelos et al. (2023), 16% (3 million ha) of soybean production in the Amazon and Cerrado in 2020 will take place on farms that do not fully comply with the forestry code. In total, the report indicates that 74% (14 million ha) of soy produced in the Brazilian Amazon and Cerrado in 2020 was potentially non-compliant with RDUE requirements, even though over 95% of this soy is deforestation-free.

Tropical wood imports threatened... then spared

For tropical woods, a rather unexpected threat appeared in the initial 2021 project with the mention of forest "degradation". The definition of degradation was rather vague: it referred to logging operations "that are not sustainable".

Avoiding forest degradation means, according to several definitions, maintaining the original species composition, age structure or density of a forest stand. These are all things that are altered by selective logging, even if it is controlled and certified. Timber from selective logging (which removes only a few trees per hectare and relies on the natural regeneration of logged forests) thus risked being banned from the European market.

It was difficult for the EU, on the one hand, to promote, through various international initiatives, trade in timber from legal logging operations and, on the other, to block the way to timber that was legal but nevertheless contributed to forest degradation. The final text of the Regulation defines degradation as structural changes in forest cover, in the form of the conversion of natural forests to plantation forests. Selective logging, as practiced in tropical regions, is therefore no longer concerned, and is thus spared by the EU Regulation.

The subordinate role assigned to independent certifications

Country benchmarking is to be carried out by the EU to proportion the level of due diligence according to country risk. Criteria would include deforestation rates, trends in deforestation

⁵ U.K. Environment Act 2021

⁶ U.S. Fostering Overseas Rule of law and Environmentally Sound Trade Act (2021)

production sites for "high-risk" products, national policies, governance, etc. While this approach has its logic, it risks discouraging importers wishing to source from countries such as Cameroon, Cambodia or the DRC, given the guarantees required.

While the EC's initial draft envisaged the recognition of independent certifications to facilitate the achievement of objectives, during the next revision of the Regulation, the European Parliament, no doubt influenced by environmental NGOs who consider certifications to be instruments of *greenwashing*, removed this mention. The final text simply concedes that "*certification systems or other systems verified by third parties could be taken into account in the risk assessment procedure*".

However, given the ambiguity of forest definitions, the limitations of satellite observation, and the difficulties of establishing the full legality of certain productions when the legal framework is unclear, the EU would gain by giving a more decisive place to independent certification for due diligence procedures. Satellite verification, on which the Commission is pinning so many hopes, cannot replace detailed knowledge of the local context by verification professionals present in the field. Several independent certifications have recently adopted "zero deforestation" or "zero conversion of natural ecosystems" criteria, such as the *Rainforest Alliance* for cocoa and other products, the *Round Table for Sustainable Palm Oil* (RSPO) for oil palm, RTRS, ISCC and *ProTerra* for soy, and many others. While not perfect, these certifications are evolving in line with international demand for sustainable production.

What's more, by refusing to trust certifications incorporating "zero deforestation" criteria to declare a product "negligible risk", the Commission will penalize "clean" producers in difficult governance contexts. A collective penalty that will further accentuate the shift in EU trade flows towards Asia and emerging countries, and discourage responsible producers operating in "at-risk" countries.

Strong reactions from southern countries

Unlike the British law or the draft under discussion in the USA, which only prohibit illegal deforestation, the European regulation does not distinguish between legal and illegal. This means that products derived from legal deforestation in the country of origin will be deemed unacceptable in the EU.

For Indonesia, the EUDR constitutes a trade barrier, and would violate a country's right to make sovereign decisions about the use of its land. Indonesia and Brazil express specific concerns about the criteria for categorizing countries into risk levels, which they say "are inherently discriminatory and punitive in nature".

Several countries fear a "high risk" classification, which would tighten due diligence procedures for products exported to the EU. In 2023, the ambassadors of 17 countries, including Brazil, Malaysia, Indonesia, Ghana and Côte d'Ivoire, denounced, in a letter sent to the heads of the European institutions, "the EU's undifferentiated approach, as adopted by the EUDR, which does not take into account the differences and specificities of each country" and called the EUDR "an inherently discriminatory and punitive unilateral benchmarking system that is potentially incompatible with WTO obligations". The ambassadors called for a relaxation of traceability requirements for small producers. In March 2024, the EU announced that, for the time being, all countries would be classified as "standard risk", to give everyone time to prepare and implement traceability and legality verification tools.

Late awareness on the part of EU member states

Several European governments realized that the EUDR did not only concern "imported" deforestation, but that traceability requirements would also apply to beef, timber and soy production on European soil. In March 2024, some 20 member states, led by Austria, asked Brussels to postpone or review the Regulation, arguing that it "will have a negative impact on small-scale, sustainable farming and forestry practices in the EU, while third countries are only banned from importing"⁷. These states point out, among other things, that "livestock farming in the EU is often practiced on numerous, more or less scattered plots, and [that] setting up a traceability system for each production plot will be penalizing". They call for "a general exemption for producers of the products concerned in low-risk countries".

If this request were accepted, it could not be limited to EU countries. The reason why this regulation is on deforestation and not on "imported" deforestation is to remain compatible with WTO non-discrimination rules: what we ask of others must apply to our own production. As it is likely that few developing countries will be classified as "low risk" by the EU (at best, a certain number will be classified as "standard risk"), this would mean that only developed countries would be exempt from traceability obligations, which would be considered unacceptable by the countries of the South.

A graduated response with customs duties as an alternative?

Can we envisage other provisions to make these regulations less conflictual and less penalizing for small producers?

Considering traceability not at plot level, but at the level of "zero deforestation territories", resulting from a collective project by local players (including local public authorities) which would be independently verified and certified, would be a realistic option to avoid marginalizing many small producers. Admittedly, this would offer fewer guarantees than individual traceability (consistency checks on volumes produced would be less obvious), but the social stakes (and Europe's relations with rural populations in southern countries) make it worth considering such a compromise.

Secondly, it would be necessary to distinguish between products derived from illegal and legal deforestation, a distinction more politically acceptable than a boycott of agricultural imports associated with deforestation considered legal in the producing country but deemed environmentally problematic by the EU.

Ideally, producing and importing countries should agree on common definitions of forests (adapted to each biome) and on target dates after which deforestation cannot be prescribed. However, this would be a long and difficult process. It would be more realistic to adopt a dual principle:

- Ban the import of agricultural products derived from illegal deforestation (which cannot be refused by exporting countries).
- Modulate tariffs according to the information and guarantees that industry players provide to ensure that their production is "zero deforestation", or even "zero conversion" of natural ecosystems. These differentiated tariffs should be introduced on the basis of independent certifications including such criteria and adapted to different production contexts. These certifications would be accredited by public authorities and subject to an evaluation process.

⁷ <https://www.novethic.fr/environnement/biodiversite/deforestation-importee-une-majorite-detats-dont-la-france-call-a-reglement-report>

continued. Switzerland has paved the way with a free-trade agreement with Indonesia that lowers tariffs by up to 40% for certified palm oil (three approved labels). Certification performance must be monitored over time by the authorities.

"Governing" private certification through incentives

The current absence of zero-deforestation certification for certain value chains could be an obstacle, but the situation is evolving rapidly. We can assume that certifications will follow suit, and that business demand will be much more pressing if the prospect of differentiated taxation at EU borders materializes.

For public authorities, this would be a way of developing private certifications, insofar as they could accredit those that incorporate a zero deforestation approach that comes close to European criteria (flexibility needed to take account of the local context) and whose verification mechanisms are deemed credible. Certifications also address other important issues linked to wildlife conservation, social dimensions, fair remuneration of small-scale producers, gender, etc. Hence the importance of using these levers.

Nevertheless, the Achilles' heel of many certification systems remains the risk of auditors (private certification bodies) being "captured" by the companies that select and pay them. The assessment of certain sustainability criteria is sometimes subjective, and companies tend to choose auditors known for their complacency and avoid the most stringent. However, public authorities can require certification systems to find ways of guaranteeing greater auditor independence. This can be achieved through continuous performance assessment and conditional re-accreditation.

Designing a fair measure for small producers in the South

The proposal for a "graduated response" based on tariffs could face one difficulty: many tariffs are at 0% (such as soy, natural rubber or cocoa). Introducing a tax differential between zero deforestation products and others would require an increase in certain tariffs, and therefore a revision of existing and future bilateral trade agreements. Although a unilateral increase in certain tariffs could be challenged at WTO level, there is room for manoeuvre based on the agreement on general exceptions in Article XX of the GATT (protection of human and animal life or health, conservation of exhaustible natural resources), if the principle of non-discrimination (between "like" products from different trading partners) is respected.

The additional tax revenues resulting from the introduction or raising of certain tariffs could be used to finance programs helping small producers in exporting countries to adopt sustainable practices, and to fund "zero deforestation territories" projects. Such an allocation of additional tax revenues to producing countries, in proportion to the taxes levied on their imports, would mitigate accusations of protectionism and provide a "good faith" argument for defending this measure before the WTO. And, as with all ecological tax mechanisms, the aim would be for the yield of this import tax to decrease, i.e. for the EU to eventually import only certified zero-deforestation products with the most favorable tariffs.

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