



## Forests and deforestation

### Definitions, thresholds and implications

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#### Key Messages

Defining the term 'forest' and the inseparable concepts of 'deforestation' and 'forest degradation' is a prerequisite for strategies aiming to eliminate imported deforestation from tropical commodity supply chains. The definition must form part of a well-defined legal and political framework; it must be consensual, pragmatic and customizable to the variety of ecological contexts in countries producing commodities likely to exacerbate deforestation (Eba'a Atyi, 2021). This undertaking could expose conflicts of opinion between consumers concerned about the environment and producer countries with development goals.

#### What is imported deforestation?

The concept of 'imported deforestation' is evolving, as is that of 'zero deforestation', which surfaced at the end of the 2010s when civil society organizations began to link deforestation to the production of agricultural commodities (palm oil, soya, paper and cocoa) and to put pressure on the major producer companies. Through the Consumer Goods Forum, some companies decided in 2010 to ban net deforestation from their supply chains by 2020. In 2014, 190 organizations – including 57 multinationals – followed their lead after the New York Declaration on Forests.

'Imported deforestation' refers to the import of raw materials or processed products that have directly or indirectly contributed to deforestation, forest degradation or conversion of natural ecosystems in other countries. This concept, which was the subject of the 2015 Amsterdam Declaration, can be seen as a response by policymakers to pressure from civil society organizations and the reaction from the private sector.

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#### Agreeing on definitions

##### A variety of definitions of forest

The best known definition is the FAO one, which is based on four variables: 1) percentage of land area with tree crown cover (forest cover), 2) minimum area over which this percentage is calculated, 3) minimum width used to calculate this area, 4) minimum height of mature trees.

To date, 149 of the 193 UN member states have set a value for at least one of these variables, which is essential for countries involved in the UN REDD+ mechanism.

However, regional and global disparity between the values used for these variables is proving problematic. The FAO values are within the range of values proposed by UNFCCC. The FAO uses the following values for these variables: 10 percent (previously 20 percent for forests in Western countries), 0.5 hectares, 20 m width, and 5 m height (Gold, 2003).

##### Implications for imported deforestation

How can we "combat imported deforestation" when two exporter countries in the same world region have adopted different definitions? A country that has set a forest cover threshold of 30 percent will be able to develop its agricultural sector over a larger area than another that has chosen a 10 percent threshold: using an identical administrative approach,

**Table 1. Variations in forest area depending on forest cover threshold**

	Forest area in 2018, 10% threshold (ha)	Forest area, 30% threshold (ha)	Difference in area between 10% and 30% thresholds	Deforestation from 2001 to 2018 with 10% threshold	Deforestation from 2001 to 2018 with 30% threshold
Gabon	25,657,478	24,472,327	1,185,151	417,062	407,826
Ouganda	17,291,535	6,431,347	10,860,188	888,993	783,192

Data: Global Forest Watch

the first country will be able to conduct more deforestation than the second. Although importers would think they had fulfilled their commitments, they would have contributed to loss of forests from an ecological perspective.

In a highly forested country like Gabon, there is relatively little difference in forest area between these two forest cover thresholds (slightly over a million hectares). By contrast, in Uganda, which has vast expanses of wooded savanna, adopting a 30 percent threshold excludes over 10 million hectares from the area considered to be forest.

### The need for international harmonization on defining forest in ecological terms

It does make ecological sense to define forest based on one or more of the FAO variables, but assigning a single value for each variable, even at national level, makes little sense for many countries where forest configuration differs in various ways. Forest cover of less than 30 percent often indicates degraded forest within dense tropical rainforest, but it may also represent open forest or wooded savanna with minimal degradation in drier areas. In a country that has adopted this threshold, there are different ecological implications depending on which of these configurations is being cleared.

**There is an urgent need to develop a global definition based on the FAO variables and to propose tailored thresholds for different ecological zones,** drawing on the HCS approach for dense tropical rainforest (see Figure 1), which needs to be extended to other types of forest. Each of these zones could be assigned a profile of the type shown here, but this could be simplified by distinguishing between two (rather than four) types of forest – undisturbed forest and degraded forest<sup>1</sup> – and

<sup>1</sup> These categories of 'undisturbed forest' and 'degraded forest' are similar to the first two IUCN categories of forest (ref?), 'PF-IFL' (Primary Forests including Intact Forest Landscapes) and 'Degraded but naturally regenerating forests'. However, 'undisturbed forest' only includes PF-IFLs and covers wider areas.

adding the category of non-forest. This classification into three vegetation categories would thus mean setting values for two thresholds, instead of the single traditional threshold separating 'forest' from 'non-forest'.

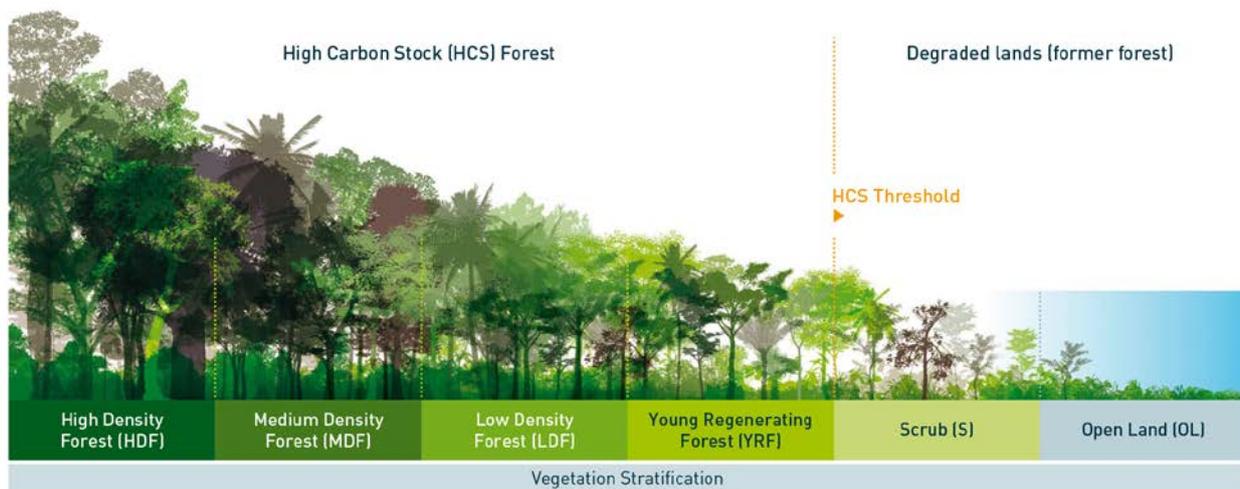
This harmonization would enable importer countries to adapt their negotiations to the ecological reality in the exporter countries.

### Defining deforestation

As deforestation means the loss of 'forest', it is heavily dependent on how we define this term, but it also depends on whether countries use an approach based on 'land use' or 'land cover'. In the first case, forest area is designated by the authorities: an area with few or no trees may be considered 'forest', and conversely a densely forested area may be open to agricultural development. In the second case, an area with trees is classed as forest.

**All countries should adopt the concept of land cover,** as regular and increasingly precise monitoring of forest cover, thanks to progress in satellite imagery, will make it possible to distinguish undisturbed forest from degraded forest, and thus to refine the thresholds between them. This will also make it easier to introduce regulations tailored to combating deforestation and forest degradation. Monitoring vegetation should remove ambiguities over 'false deforestation', where clearcutting is followed by natural regeneration, as tree cover is generally restored over a few years.

For importer countries, the issue then arises of distinguishing between gross deforestation (disappearance of a forest) and net deforestation (negative difference between the areas disappearing each year and those planted or naturally regenerating).



**MODULE 1: PUTTING NO DEFORESTATION INTO PRACTICE - HCS APPROACH INTRODUCTION, OVERVIEW AND SUMMARY**

Version 2.0: May 2017

**Figure 1. Vegetation stratification using the HCS approach**

Source: Rosoman et al. 2017

**The National Strategy to Combat Imported Deforestation (SNDI) adopted by France in 2018 uses the concept of gross deforestation, as do the current EU discussions.** Focusing on net deforestation would entail accepting natural forests being replaced by typically monoculture plantations (such as teak, eucalyptus or cacao), and numerous ecosystem services thus being lost in the name of economic interest. However, it is a global priority to preserve these services. The latest Global Assessment Report on Biodiversity and Ecosystem Services (IPBES, 2019) emphasizes that the damage incurred will hamper progress towards the Sustainable Development Goals. Biodiversity loss is not just an environmental issue, but also a development, economic, security, societal and ethical challenge. In addition, despite the achievement in 2020 of Aichi Biodiversity Target 11 on coverage of terrestrial protected areas, the IUCN and UNEP highlight that this is inadequate to preserve biodiversity and wish to see a 30 percent target adopted at the United Nations Biodiversity Conference in Kunming in 2021. To avoid making matters worse, there is an urgent need to encourage importer countries to think in terms of gross deforestation.

However, many producer countries have based their development strategies for the next two decades on land use, with or without land use planning. For example, the strategies to diversify central African economies currently overly dependent on the oil industry, developed with

support from technical and financial partners, rely almost entirely on agricultural development, which some consider synonymous with gross deforestation. Opposing gross deforestation without substantial support could trigger strong resistance from producer countries.

Although it does not seem acceptable to focus on net deforestation alone, for the reasons given above, the two indicators of gross and net deforestation could be proposed in conjunction. Strict rejection of net deforestation provides no encouragement for ecosystem restoration or reforestation, although this reforestation would reduce the pressure on natural forests from timber extraction, without necessarily being at their expense. Many countries could reforest previously deforested areas to create a sustainable timber resource without impacting the remaining natural forest. Conversely, a country with minimal gross deforestation but without a sustainable timber resource may represent a case of 'leaked' deforestation: it could have to import timber from countries affected by deforestation.

These leaks could be avoided by using several indicators in conjunction, but also by including indicators that reflect the country's food self-sufficiency. It is unrealistic to think that deforestation can be stopped by acting on a single country: if Gabon produces no food, it will import more from Cameroon or Brazil.

## Limiting legal deforestation

Deforestation is considered legal when it complies with the laws and regulations of the producer country. Forests can therefore be converted to farmland in accordance with an official land use plan developed with support from technical and financial partners.

Is there a case for restricting deforestation that is legal in producer countries, to curb overall deforestation? The SNDI considers (as do the current EU negotiations) a need to go beyond the issue of legality to respond to the ecological challenges. One solution could be for producer countries to make commitments under an international agreement. They could even be encouraged to exceed their commitments through the use of negotiation and/or compensation mechanisms.

## The value of monitoring tools and methods

Given the lack of national forest inventories in most tropical countries, satellite data – with regular comparison with field data – are essential for monitoring deforestation and forest degradation. The monitoring objectives will take into account the spatial resolution, temporal repetition and thematic accuracy. This is because applying a definition of forest and the associated thresholds may be limited by the thematic or spatial resolution of the observation systems used at the scale under consideration. These systems may be simple, but compatible at the global level or across tropical countries, or more sophisticated and customizable to specific geographic settings or sectoral issues.

Systems with global scope,<sup>2</sup> mainly based on Landsat (NASA) type images,<sup>3</sup> are in the process of integrating Copernicus Sentinel (ESA) images. By providing online access to information on changes in forest cover, these systems can be a basis for monitoring deforestation. However, it should be noted that there is uncertainty and sometimes bias in these estimations of forest cover compared with that measurable on the ground. It is also difficult to link variations over time to one particular cause, as the same change in forest cover can reflect very

different activities. Monitoring tools must therefore reflect the particular characteristics of different industries and their specific deforestation dynamics (gradual degradation under forest cover for cocoa, clearcutting for livestock or soya). Once established, rubber or oil palm plantations may present comparable forest cover to closed natural forests.

This is why remote sensing systems are being developed alongside global monitoring. They can be better tailored to local circumstances and can integrate a greater variety of satellite data to reflect the particular characteristics of vegetation and crops in specific supply basins. Various providers, both public and private,<sup>4</sup> are offering systems that can be tailored to the requirements of supply chain operators wanting to ensure practices are compliant with labels or regulations.

It would therefore be beneficial for the SNDI to focus on rapidly and globally deployable methods, but at the same time on the continuous improvements to satellite monitoring techniques, particularly with reference to the particular ecological characteristics of areas producing the highest impact commodities.

## What baseline to use for deforestation?

The baseline is the year from which the conversion of a forest plot to other uses is no longer accepted. To run satellite imagery monitoring tools, it is essential to adopt a baseline, which avoids having to distinguish between direct conversion (replacing natural vegetation with a plantation) and indirect conversion (e.g., creating pasture in Brazil which will subsequently be transformed into a soybean field).

Choosing this date involves finding a balance between the definition of deforestation (Angerant and Patentreger, 2000), social acceptability (by economic actors and governments in producer countries), and the signal to the economic community to discourage future deforestation.

Setting a date far in the past would prevent importation of much of the production responsible for deforestation, but may give rise to strong objections, due to the multiple and complex drivers of deforestation, changes in land use, and the difficulty over time in linking deforestation to a specific

2 In particular GLAD (University of Maryland) and GFW (WRI), but also BFAST (Wageningen), CODED/CCDC (Boston), SEPAL (FAO) and reference works by the JRC on degraded forests.

3 <https://landsat.gsfc.nasa.gov/>; <https://sentinels.copernicus.eu/web/sentinel>

4 Private: Starling–Airbus, CIRCAET and ONFI. Public: SEPAL and TerraAmazon

	2008	2015-2016	1 JANUARY 2020
POLITICAL SIGNAL ON LAND SPECULATION	VERY HIGH	HIGH	MODERATE
SOCIAL ACCEPTABILITY	VERY LOW	LOW	MODERATE
IMPLEMENTATION COST	HIGH	MODERATE/LOW	LOW

Source: Angerant and Patentreger, 2020

crop. For example, although it could be appropriate to choose 2008, the date of the Amazon Soy Moratorium, to guarantee imports are free of recent deforestation, this excludes a large proportion of the soy currently imported by France. A more recent date would be more acceptable to all actors involved, but would result in accepting imports of products that have caused recent deforestation, or even encouraging cultivation on additional deforested plots that are not yet being used to grow crops for export (as in the Amazon example above).

In the case of Brazil, the working group on soybean recommends setting the date as 1 January 2020, to reduce implementation costs as far as possible and to align with this sector which, as a whole, had committed to exclude deforestation from its supply chain by 2020.

At the same time, choosing a recent date gives some advantage to countries with high levels of deforestation over past decades (e.g., Côte d'Ivoire, Brazil, Indonesia), who could then continue to export products derived from deforestation. On the other hand, it disadvantages those with little or no past deforestation, such as Gabon or the Democratic Republic of the Congo, who now wish to develop their agriculture. An earlier date would re-instate some degree of equity, without being able to restore the lost forests. Thus, one solution could be to set a recent date (2020) and to devise compensation measures for countries with high forest cover.

Although it is difficult to come up with single definitions for deforestation and forest degradation, we are proposing a framework that would gain support from producer countries and would respect their own definitions. We are recommending (i) considering the potential for a legal framework for land use planning and governance (conducting due diligence as for timber exports and establishing bilateral agreements with the countries) and

(ii) potentially adopting regional approaches that would cover ecological as well as sociopolitical aspects. For the purposes of the SNDI, we recommend considering definitions that reflect the type of commodity, some being responsible for deforestation and others for forest degradation.

This study has demonstrated that the definitions chosen for deforestation and forest degradation influence the monitoring tools used, as these 'simply' ensure that the definition approach has been implemented. The tools already available at global level (FAO, JRC, GFW-WRI) do have the capacity to measure changes at regional or national level or even within major ecological zones. Future studies could focus on fragmentation and its role in forest degradation, and on whether or not to extend the discussion to non-forest ecosystems.

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