



Oil palm or forests ?

More than a question of definition

Kees van Dijk
Herman Savenije



Policy Brief

Oil palm or forests?

More than a question of definition

Kees van Dijk
Herman Savenije





Published by: Tropenbos International, Wageningen, the Netherlands
Copyright: © 2010 Tropenbos International, Wageningen, the Netherlands
Texts may be reproduced for non-commercial purposes, citing the source.
Citation: Dijk, Kees van and Savenije, Herman. 2010. *Oil palm or forests? More than a question of definition*. Policy Brief. Tropenbos International, Wageningen, the Netherlands. iv + 16
ISBN: 978-90-5113-095-9
Final editing: Patricia Halladay
Layout: Juanita Franco
Photos: Tropenbos International
Printed by: Digigrafi, Wageningen, the Netherlands
This book is printed on FSC® certified paper



Available from:
Tropenbos International
P.O. Box 232
6700 AE Wageningen, the Netherlands
e: tropenbos@tropenbos.org
www.tropenbos.org

Contents

Synopsis	1
1. Background and objectives	2
2. Definitions	4
2.1 Forest definitions	4
2.2 Definitions of agriculture	9
2.3 Choosing a definition	11
3. Forest conversion	12
3.1 Definition of conversion	12
3.2 Reasons for conversion	13
3.3 Towards an assessment framework for land-use planning	14
4. Conclusions	16



Synopsis

In April 2009, in order to ensure that bioenergy is produced sustainably, the EU issued the Renewable Energy Directive (RED, Directive 2009/28/EC). The Directive sets out the sustainability criteria for biofuels and bioliquids produced within the EU and imports of these products from elsewhere. During discussions in the context of the RED, doubts arose early in 2010 as to whether oil palm plantations should be classified as “continuously forested areas,” since the commonly used definitions of forest and agriculture define oil palm as an agricultural crop. There was a fear that if oil palm plantations in the RED fell within the definition of forests, this would open up the possibility of high-quality forests being converted into low-quality oil palm plantations.

To support discussion in the Netherlands on definitions and conversion, Tropenbos International (TBI) carried out a brief study of the literature on definitions of forest and agriculture and on forest conversion. The literature study also considered what needs to be included in a substantiated and credible assessment, in order to determine the conditions under which it is justifiable to convert forest into oil palm plantations or other types of land use.

This Policy Brief summarizes the results of the study. It is meant to stimulate dialogue and to assist in the formation of opinions within policy and operational processes.

Main findings

- » Existing international definitions of forest (almost all of which are based on the FAO/FRA¹ definition) and those drawn up for a specific purpose (namely for surveys of forested areas) are insufficient for other purposes; for example, to address the question of oil palm versus forest and more generally forest conversion versus forest preservation. We argue for a broader definition of forest: one that defines forest as a system and not merely by crown cover and height.
- » Given the definitions of agriculture and the intensive management that applies to oil palm within plantations, oil palm plantations

must be considered to be agricultural crops. Although oil palm plantations do resemble tree plantations in terms of their height and crown cover, in other aspects they are primarily an agricultural crop, due to their time cycle, nature and intensity of management.

- » The conversion of forest to oil palm, or any other agricultural or forest crop, and the question of the conditions under which forest conversion is justifiable, is an issue that goes beyond definitions of agriculture and forest. Addressing these issues involves a political decision by both producer and consumer countries.
- » Forest conversion is essentially a decision on land use, one that a country should make by weighing social and economic interests against those of biodiversity and other forest functions, bearing in mind local interests and international agreements. Rigour, credibility and fairness within these assessment processes — and the existence and application of a broadly accepted and transparent multi-stakeholder decision-making framework for land-use planning in the producer countries — are key requisites to achieving sustainability and balanced decision-making.
- » RED is a unilateral policy instrument with which the EU, as a producer and consumer of biofuels, attempts to promote sustainability of biofuels in EU and non-EU producer countries. In addition to RED, there are three complementary means of reinforcing and supporting that process outside the EU:
 - » negotiations within an international or multilateral and/or bilateral framework;
 - » more intensive stimulation of market mechanisms and market approaches that promote sustainable production and trade (by the Netherlands and in an EU context);
 - » encouragement of international and bilateral cooperation to boost capacity building, and awareness, knowledge generation and knowledge sharing to support and strengthen countries and parties involved in sustainable production and trade in biofuels.

¹ Forest Resource Assessment

1. Background and objectives

On April 23, 2009, the European Union (EU) issued Directive 2009/28/EC (Renewable Energy Directive, or RED)¹ in order to ensure that bioenergy is produced sustainably. The Directive sets out sustainability criteria for biofuels and bioliquids produced within the EU and for imports of these products from elsewhere. Article 17 of the RED defines the criteria for land use; 17-3 and 17-4 set out how land with high biodiversity or high carbon stock must be dealt with².

By means of the RED, the EU promotes the production and use of renewable energy sources. This has direct and indirect effects on the maintenance and sustainable management of forests. There is concern, particularly regarding forests in the tropics, that the increasing demand for bioenergy will put pressure on these forests and that they run the risk of being converted to another type of land use, such as oil palm plantations.

In addition to the RED, there are three complementary means of reinforcing and supporting the sustainability of biofuels outside the EU:

- » negotiations within an international, multilateral and/or bilateral framework;
- » more intensive stimulation of market mechanisms and market approaches that promote sustainable production and trade (by the Netherlands and in an EU context); and
- » encouragement of international and bilateral cooperation to boost capacity building, and awareness, knowledge generation and knowledge sharing to support and strengthen parties and countries involved in sustainable production and trade in biofuels.

During discussions in the context of the RED, doubts were expressed early in 2010 as to whether oil palm plantations should be classified as “continuously forested areas,” since oil palm is usually defined as an agricultural crop.

The Directive provides a definition of “continuously forested areas” and the draft EU Communication of early 2010 attaches an interpretation to that definition. The following underlined passages in the interpretation led to discussion and controversy:

“Continuously forested areas are defined as areas where trees have reached, or can reach, at least heights of 5 metres, making up a crown cover of more than 30%. They would normally include natural forest, forest plantations and other tree plantations such as oil palm. This means, for example, that a change from forest to oil palm plantation would not per se constitute a breach of the criterion (para 4.2.3, draft communication).”

There was a justified fear that given this interpretation, oil palm plantations would fall within the definition of “forest,” thus opening up the possibility of high-quality forests being converted into low-quality oil palm plantations (i.e., low-quality in terms of biodiversity, relevance for poverty reduction, long-term socio-economic development and carbon sequestration).



1 Directive 2009/28/EC of the European Parliament and of the council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

2 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:202:0016:0028:EN:PDF>

After political and public discussion, the final version of the Communication that was published on June 19, 2010 (2010/C 160/02)³ contained revised text, as shown in the underlined passage:

“Continuously forested area is defined as land spanning more than one hectare with trees higher than 5 meters and a canopy cover of more than 30%, or trees able to reach those thresholds in situ. It does not include land that is predominantly under agricultural or urban use: Land under agricultural use in this context refers to tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations and agroforestry systems when crops are grown under tree cover.”

To support discussion in the Netherlands on definitions and conversion, TBI carried out a brief study of the literature on definitions of forest and agriculture and on forest conversion. The literature study also considered what needs to be included in a substantiated and credible assessment, in order to determine the conditions under which it is justifiable to convert forest into oil palm plantations or other types of land use.

The literature study focused on two issues (detailed in sections 2 and 3):

- » How does the definition of forests in the Renewable Energy Directive relate to other commonly used definitions (for example, those used by the Food and Agricultural Organization (FAO), the United Nations Framework Convention on Climate Change (UNFCCC) the Convention on Biological Diversity (CBD), and the professional literature)?
 - › On the basis of these other definitions, should an oil palm plantation be classified as forest or forest plantation?
 - › What are the arguments for and against these classification options?
 - › What are the possible implications of the definition for developing countries?
- » What is conversion, and can a substantiated and credible assessment be made as to whether converting forest (or other types of land use) into oil palm plantations (or other types of land use) is acceptable? What are the arguments for and against conversion?

This Policy Brief summarizes the results of the study. It is meant to stimulate dialogue and to assist in the formation of opinions within policy and operational processes.

³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:160:0008:0016:EN:PDF>



2. Definitions

The question of what a forest is has many possible answers. Hundreds of different definitions⁴ are in circulation, based on a variety of parameters. These may be ecological, physiognomic, legal, administrative or economic, etc., and the definition may be expressed in quantitative and/or qualitative terms. The status of the definition may also differ; it may be scientific or legally binding and it may be based on the definer's opinions or broadly accepted. The great variety of definitions of forest can be explained to a large extent by the fact that they have been formulated for different purposes. Choosing a particular definition depends on the interests of the definer.

2.1 Forest definitions

2.1.1 International forest definitions

RED (2009)

Continuously forested areas with a land spanning of more than one hectare with trees higher than five metres and a canopy cover of more than 30%, or trees able to reach those thresholds in situ.

FAO (COFO 2007)⁵

Forest is a land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban use.

- » *Forest is determined both by the presence of trees and the absence of other predominant land uses. Trees should be able to reach a minimum height of 5 meters in situ.*
- » *Forest includes areas with young trees that have not yet reached but which are expected to reach a tree height of 5 meters and a canopy cover of 10 percent. It also includes areas that are temporarily unstocked due to clear-cutting as part of a forest management practice or natural disaster and that are expected to have regenerated in five years. In exceptional cases local conditions may justify a longer time frame.*
- » *Forest includes forest roads, firebreaks and other small open areas. It also includes forest in national parks, nature reserves and other protected areas, such as those of specific scientific, historical, cultural or spiritual interest.*
- » *Forest includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectares (ha) and a width of more than 20 metres.*
- » *Forest includes abandoned land that was used for shifting cultivation with a regeneration of trees that have, or is expected to reach, a height of 5 metres and a canopy cover of 10 percent.*
- » *Forest includes areas with mangroves in tidal zones, regardless of whether the area is classified as land.*
- » *Forest includes rubber-wood, cork oak and Christmas tree plantations.*
- » *Forest includes areas with bamboo and palms, provided that criteria for land use, height and canopy cover are met.*

4 A worldwide survey by Lund 2009 traced more than 950 different definitions. See Lund, H. Gyde (coord.). 2009* Definitions of Forest, Deforestation, Afforestation, and Reforestation. Gainesville, VA: Forest Information Services. <http://home.comcast.net/%7Egyde/DEFpaper.htmforest>.

5 <http://www.fao.org/docrep/009/j9345e/j9345e05.htm>



- » *Forest excludes tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations⁶ and agroforestry systems when crops are grown under tree cover. Note: Some agroforestry arrangements, such as the “taungya” system, where crops are grown only during the first years of forest rotation, should be classified as forest.*

The FAO definition of forest has the broadest acceptance worldwide. It was drawn up primarily for the purposes of the Forest Resource Assessment (FRA), which is used for monitoring and for national reporting on forest area. One important objective of the definition is to distinguish between what is and what is not forest. Most of the internationally utilized definitions given below — as well as others such as the Millennium Ecosystem Assessment — correspond to or are derived from the FAO definition.

This being said, it is striking that the definition of forest drawn up by the FAO for the FRA, which is further categorized into a number of types (e.g., primary forest, other naturally regenerated forest and plantations) only functions partly as the primary definition of forest by other organizations. Although other conventions and the EU use the FAO’s definitions of minimum area, degree of cover and minimum height (with some changes), they do this without specifying forest types. They do, however, make a distinction between forests with a crown cover between 10% and 30% and those with a crown cover of more than 30%.

United Nations Environment Programme/CBD/Subsidiary Body on Scientific, Technical and Technological Advice⁷ (2002)

Forest is a land of more than 0.5 ha with a tree canopy cover of more than 10% which is not primarily under agricultural or other specific non-forest land use. In the case of young forests or regions where tree growth is climatically suppressed the trees should be capable of reaching a height of 5 m in situ and of meeting the canopy cover requirement.

UNFCCC⁸ (also used for the Clean Development Mechanism) (2007)

Forest is a minimum area of land of 0.05–1.0 ha with tree crown cover (or equivalent stocking level) of more than 10–30 per cent with trees with the potential to reach a minimum height of 2–5 metres at maturity in situ. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10–30 percent or tree height of 2–5 metres are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as harvesting or natural causes but which are expected to revert to forest.

An entirely different internationally applied, forest-related definition can be found in the CBD under “Forest Biological Diversity”; it does not define forest directly but the sum of its parts does.

6 As mentioned in section 1, this exclusion of oil palm plantations is new. In the FAO definition of 2002 — drawn up for the previous Forest Resources Assessment (2000)— oil palm was still classified as forest. It now (FRA 2010) falls under “Other land with tree cover.”

7 See FAO/Second meeting on harmonizing forest-related definitions; discussion paper, Helsinki 2002.

8 See UNFCCC COP 7, Marrakech 2007.



CBD Conference of the Parties - COP2 (1995)⁹

Forest biological diversity results from evolutionary processes over thousands and even millions of years which, in themselves, are driven by ecological forces such as climate, fire, competition and disturbance. Furthermore, the diversity of forest ecosystems (in both physical and biological features) results in high levels of adaptation, a feature of forest ecosystems which is an integral component of their biological diversity. Within specific forest ecosystems, the maintenance of ecological processes is dependent upon the maintenance of their biological diversity.

2.1.2 Other definitions of forest

Numerous other characterizations of forest — local, national and international — are also in circulation. Lund (2009)¹⁰ distinguishes between four categories of definitions: (a) as the basis for legal or administrative classification; (b) as the basis for classifying land cover types; (c) as the basis for classifying land-use types; and (d) miscellaneous other definitions, primarily determined by ecological criteria.

Here are a few examples quoted in Lund 2009:¹¹

- » *Areas dominated by trees with a total canopy cover of 61% or more, tree crowns usually interlocking. Community dominated by trees, 80% or better average canopy cover.*
- » *An ecosystem dominated by trees. Major forest biomes include tropical evergreen forest, tropical savanna, deciduous forest and boreal forest.*
- » *An ecosystem characterized by more or less continuous tree cover. However, a forest is more than trees — a forest also includes shrubs, vines, herbs, mosses, microorganisms, insects and other animals, which interact among themselves and with their environment. The type of forest is defined by either geography or climate (e.g., tropical, boreal — another word for northern — or coastal) or for the predominant tree found in that forest (coniferous, deciduous or mixed).*
- » *An ecosystem characterized by more or less dense and extensive tree cover usually consisting of stands varying in characteristics such as species, structure, composition, age class and commonly including streams, fish and wildlife.*
- » *European Environmental Agency: A vegetation community dominated by trees and other woody shrubs, growing close enough together that the tree tops touch or overlap, creating various degrees of shade on the forest floor. It may produce benefits such as timber, recreation, wildlife habitat, etc.*
- » *Congo Basin Forest Partnership: Forests are habitats where trees are dominant, where tree crowns form a more or less continuous layer and where grasses are virtually absent in the understorey. The few grasses which are found in forests have broad leaves and are very different from savannah species.*
- » *Global Forest Coalition: Forests are complex tree dominated ecosystems with particular structural biotic and abiotic components, assembled within temporal and spatial limits and with a self sustained successional*



⁹ See annex to CBD decision II/9.

¹⁰ See Lund, H. Gyde (coord.). 2009* Definitions of Forest, Deforestation, Afforestation, and Reforestation. Gainesville, VA: Forest Information Services. <http://home.comcast.net/%7Egyde/DEFpaper.htmforest>.

¹¹ idem

dynamic determined by its own biodiversity, including the determining anthropogenic interfaces, particularly with Indigenous Peoples and peoples who adopted their knowledge.

Forest cover types

In addition to the definition of forest, the FAO (FRA 2010)¹² has drawn up a number of definitions of forest cover types. These are primarily based on ecology and extent of human intervention.

a. Primary forest

This is naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.

Some key characteristics of primary forests are:

- › *they show natural forest dynamics, such as natural tree species composition, occurrence of dead wood, natural age structure and natural regeneration processes;*
- › *the area is large enough to maintain its natural characteristics;*
- › *there has been no known significant human intervention or the last significant human intervention was long enough ago to have allowed the natural species composition and processes to have become re-established.*

b. Other naturally regenerated forest

This is naturally regenerated forest where there are clearly visible indications of human activities.

- › *Includes selectively logged-over areas, areas regenerating following agricultural land use, areas recovering from human-induced fires, etc.*
- › *Includes forests where it is not possible to distinguish whether planted or naturally regenerated.*
- › *Includes forests with a mix of naturally regenerated trees and planted/seeded trees, and where the naturally regenerated trees are expected to constitute more than 50% of the growing stock at stand maturity.*

c. Planted forest

This is forest predominantly composed of trees established through planting and/or deliberate seeding.

- › *In this context, predominantly means that the planted/seeded trees are expected to constitute more than 50% of the growing stock at maturity.*
- › *Includes coppice from trees that were originally planted or seeded.*
- › *Excludes self-sown trees of introduced species.*

The Round Table for Sustainable Palm Oil (RSPO)¹³ has taken an interesting approach to the relationship between forest and oil palm. Although the RSPO as such has little to do with definitions of forests, it is relevant because of its specific role in the discussion of oil palm. The RSPO has developed a standard and a certification system that set out the criteria for sustainably produced palm oil. The RSPO is a marketing instrument: its standard is a voluntary one and its definitions have no formal status. They



¹² <http://www.fao.org/docrep/013/i1757e/i1757e.pdf>

¹³ <http://www.rsपो.org/>

do, however, have legitimacy due to the process and the participants. Relevant definitions in the RSPO standard are those for primary forest and High Conservation Values (criterion 7.3; Box 1). Palm oil produced in areas that complied with these criteria after November 2005 is certified as being sustainable.

It is noteworthy that the RSPO, which is part of the industry, applies more far-reaching criteria and standards than the RED. The RSPO definition explicitly includes more ecological and socio-cultural aspects.

Box 1. RSPO criterion for excluding conversion

A primary forest is a forest that has never been logged and has developed following natural disturbances and under natural processes, regardless of its age. Also included as primary, are forests that are used inconsequentially by indigenous and local communities living traditional lifestyles relevant for the conservation and sustainable use of biological diversity. The present cover is normally relatively close to the natural composition and has arisen (predominantly) through natural regeneration. National interpretations should consider whether a more specific definition is required.

This is the “old” FAO definition of primary forest.

RSPO definition of High Conservation Value Forest (HCVF; see RSPO, 2007. Principles and Criteria for Sustainable Palm Oil Production): The forest necessary to maintain or enhance one or more High Conservation Values (HCVs):

- > HCV1. Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g., endemism, endangered species).
- > HCV2. Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.
- > HCV3. Forest areas that are in or contain rare, threatened or endangered ecosystems.
- > HCV4. Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control).
- > HCV5. Forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health).
- > HCV6. Forest areas critical to local communities’ traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

2.1.3 Considerations

The definitions of forests in an international context — which are also used at the national level — are in most cases based on a minimum area and thresholds for the height of trees and the spread of the crown, i.e., on determining land cover and current and future land use. Often the purpose of these definitions is to be able to determine forest and non-forest areas based on satellite images or aerial photos during surveying or monitoring of forest cover. Ecological and social criteria are not a part of these definitions.

Although these international definitions of forest are similar, because of their varying context they are not exactly the same. For example, planted forests implicitly fall under the FAO definition of forest, and plantations are



mentioned specifically in the UNFCCC definition of forests because of their potential for carbon sequestration.

Agricultural use falls within the definition of forest to varying degrees, depending on the context. Palms (both planted and natural) are generally considered to be forests. The latest FAO/FRA definition (2010),¹⁴ which considers palms to be forests, explicitly excludes oil palm plantations. In addition, the same FRA considers land cover systems that cannot intuitively be seen specifically as forest — for example, rubber, bamboo, cork oak, Christmas trees, windbreaks and shelter belts along rivers and roads — as forest.

For FAO and UNFCCC, forest areas that have been temporarily cleared (areas that are clear-cut, burned or storm-damaged) are defined as forest. The FAO/FRA 2010 interprets “forest” as being defined not by existing land use but by the current and future properties of the vegetation cover.

The RED uses the term “continuously forested areas.” Since the Communication¹⁵ says that “continuous” must be interpreted as being in space and not in time, it would seem that temporarily cleared areas are not counted as forest, as they are by the FAO. This is open to interpretation, however.

The RED definition differs from the international context in requiring 30% rather than 10% crown cover; it also runs counter to the FAO/FRA’s specific exclusion of oil palm. In the RED, areas with between 10% and 30% crown cover are considered to be continuously forested areas if they have substantial carbon stock; otherwise, they can be converted.¹⁶

Other aspects of forest, such as biodiversity, social functions and other services, are rarely included in definitions (except for genuine primary forest). Consequently, the consideration of these aspects — which still existed to some extent with the FAO/FRA 2010 definition — has disappeared, and all forest is considered to be the same. A plantation is assigned the same value as a natural forest and a boreal forest the same as a savannah; this despite the fact that there may be major differences between them from the point of view of biodiversity, ecological dynamism and the value of their functions.

2.2 Definitions of agriculture

FAO¹⁷

The narrow definition of agriculture includes crop and livestock production, land and water, agricultural inputs and services, fisheries and forestry.

The broad definition includes all elements in the narrow definition as well as research, training and extension, manufacturing of agricultural inputs, environmental protection, agro-industries, rural development and infrastructure, and regional and river development.

14 <http://www.fao.org/docrep/013/i1757e/i1757e.pdf>

15 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:160:0008:0016:EN:PDF>

16 See 17.4c: “between 10 and 30% should also be included, unless there is evidence demonstrating that their carbon stock is sufficiently low to justify their conversion in accordance with the rules laid down in this Directive.”

17 <http://faostat.fao.org/site/379/DesktopDefault.aspx?PageID=379>



Agricultural area (used for the FAO Statistical Database, or FAOSTAT)

This category is the sum of areas under

- a. **arable land**—land under temporary agricultural crops (multiple-cropped areas are counted only once), temporary meadows for mowing or pasture, land under market and kitchen gardens and land temporarily fallow (less than five years). The abandoned land resulting from shifting cultivation is not included in this category.*
- b. **permanent crops**—land cultivated with long-term crops which do not have to be replanted for several years (such as cocoa and coffee); land under trees and shrubs producing flowers, such as roses and jasmine; and nurseries (except those for forest trees, which should be classified under “forest”); and*
- c. **permanent meadows and pastures**—land used permanently (five years or more) to grow herbaceous forage crops, either cultivated or growing wild (wild prairie or grazing land).*

Organization for Economic Cooperation and Development (OECD)¹⁸

Agricultural land is land including arable land, land under permanent crops and land under permanent meadows and pastures.

2.2.1 Considerations

These definitions describe an activity that focuses on crops, plants and animals, with intensive management of the land and measures to improve production. Plants and animals are tended much more carefully in agriculture than in forests. The FAO definition explicitly excludes the production of trees for timber from the concept of permanent crops.

When distinguishing between the definition of forest and agricultural crops, the determining factor should be type of management: forests are the product of extensive management and agricultural crops are the result of intensive management.

Another difference between agriculture and forest is the time aspect. In agriculture, harvesting cycles are relatively short. Agricultural crops (including perennials) are characterized by a rapid circulation of the product. Harvesting takes place once or more annually, sometimes after a relatively short preparatory period of just a few months or years. Forest, however, is generally the result of a process of many years. The functions that the forest provides — for example, biodiversity, carbon sequestration, timber, water protection, ecotourism site — are achieved only in the longer term.

Oil palm plantations have a relatively short cycle of agricultural management. Oil palm can produce after just a few years, with a frequent and continuous harvesting regime.



¹⁸ <http://stats.oecd.org/glossary/detail.asp?ID=74>

2.3 Choosing a definition

As mentioned in 2.1, many different definitions of forest are in circulation. The criteria used in the definition depend on one or more of the following factors, which are often related:

- › the purpose for which the definition of forest is to be used;
- › the values that various interested parties assign to the forest or the perspective from which they view it;
- › the interest that the definer has in the forest; and
- › the context for the definition.

The ultimate use of the definition can vary; for instance, global forest statistics (FAO) or determining baselines for carbon stock emission and capture (UNFCCC, Reducing Emissions from Deforestation and Forest Degradation), but the common denominator is determining the type of land cover and land use.

In order to determine land cover and land use, restricted definitions with a specific use are utilized, which focus above all on determining whether an area on the map is “green” or “not green.” They say hardly anything about the nature of the forest type, its ecological function or its degree of biodiversity. They also provide a great deal of leeway for negotiating what can and cannot be counted as forest. There is a need for a broader definition of forest, one that also incorporates other criteria that characterize a forest as a system (for example, time factor, dynamism and biodiversity).

We realize that choosing a definition to apply, and the situation in which it will apply, depends on what the definer is trying to achieve. It is ultimately a political choice.

An associated issue is whether using a particular definition of forest will achieve the desired effect. In the case of the RED — a document focusing on energy — it was felt that including oil palm plantations in the definition of “continuously forested areas” in the draft Communication would have an impact on the likelihood and extent of conversion of certain types of tropical forest into oil palm plantations.

Different interest groups interpreted the draft text in different ways. Much of this range of interpretation had to do with the question of what should be counted as forest and what should be seen as agriculture or an agricultural crop. The final version of the Communication is no longer unclear regarding this matter.

As stated above, we would distinguish between forest and agriculture based on whether intensive or extensive management was involved. On this basis, an oil palm plantation — as well as coconut, date or sugar palm, with their intensive fertilization, pruning, weed control and genetic techniques to increase production — would be classified as an agricultural crop. Christmas trees, bamboo and planted rubber must also be considered agricultural crops. Under the FAO definition, these are currently classified as forests.



3. Forest conversion

As stated above, the choice of a particular definition of forest is underlain by a determination of whether it is acceptable for certain types of forest to be converted to a different type of land use. This is particularly relevant to the conversion of certain types of tropical forest into oil palm, but it also relates to conversion for other reasons. The decision to convert is primarily made by producer countries. Although consumer countries and bodies can influence this decision — for example, by means of a mechanism such as the RED — they cannot lay down the law, unless by means of agreement in an international framework. It is therefore important for policy to develop in producer countries to support sustainability and for a framework to be created that supports assessment and guidance of conversion.

This discussion is not fundamentally different whether it concerns the tropics or countries such as Finland and Sweden. The weight given to various factors will differ because of their different socio-economic and ecological backgrounds and effects of forests and forest management, but the main concern is that development be sustainable. In today's world, it is a shared global responsibility to create the conditions that make possible such sustainable development. The question then arises whether the Netherlands and Europe — important importers of bioenergy — can do enough through directives such as the RED alone to ensure sustainable production in developing countries.

3.1 Definition of conversion

Conversion means changing forest to a different kind of land use or reducing the tree canopy cover to such a low level that the area can no longer be considered forest. The FAO definition of conversion (2005)¹⁹ is the one that is most frequently used internationally: “the conversion of forest to another land use, or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold” (see also Box 2).

Box 2. Deforestation

1. The term “deforestation” implies the long-term or permanent loss of forest cover and implies transformation into another land use. Such a loss is caused only by a continued human-induced or natural perturbation.
2. Deforestation includes areas of forest converted to agriculture, pasture, water reservoirs and urban areas.
3. The term “deforestation” specifically excludes areas where trees have been removed as a result of harvesting or logging, and where the forest is expected to regenerate naturally or with the aid of silviculture measures. Unless logging is followed by the clearing of the remaining logged-over forest for the introduction of alternative land uses, or the clearings are maintained through continued disturbance, forests commonly regenerate, although often to a different, secondary condition. In areas of shifting agriculture, forest, forest fallow and agricultural lands are part of a dynamic pattern where deforestation and the return of forest occur frequently in small patches (to simplify reporting of such areas, the net change over a larger area is typically used).
4. Deforestation also includes areas where, for example, the impact of disturbance, overutilization or changing environmental conditions affects the forest to an extent that it cannot sustain a tree cover above the 10 percent threshold.



19 <http://www.fao.org/docrep/007/ae156e/ae156e00.htm>

3.2 Reasons for conversion

Conversion happens in numerous different ways. It can be official or chaotic, legal or illegal, large-scale or small-scale, and may or may not be linked to land-use planning. It occurs on a massive scale in all tropical forest areas. Poverty is an important driver in many places, especially where non-sustainable shifting cultivation or invasion of forest areas by landless people has led to deforestation and degradation. In other cases, deforestation results from conversion to large-scale commercial agriculture, such as soya (Argentina, Brazil, Bolivia), oil palm and planted rubber (Malaysia, Indonesia, Colombia) and livestock farming (Brazil and many other countries). There are also many intermediate types of conversion to a different kind of land use.

Although the term “forest conversion” comprises a range of changes from forest to different kinds of land use, it can also mean a change from one type of forest to another; i.e., natural forest can be converted into planted forest. Examples include the conversion of natural forest into plantations of *Pinus radiata* for the pulp industry in Chile and Uruguay and into *Eucalyptus* plantations in Brazil to produce timber for energy generation. Under the current 2010 FAO definition, the latter is not considered to be conversion.

It is justifiable to ask what the costs and benefits of conversion are from the point of view of biodiversity and social and economic considerations, and to question how any benefits are distributed among stakeholders. Whether something is an advantage or disadvantage depends on the indicators chosen, the perspective adopted and the period over which this is determined.

A number of arguments are used to justify conversion, including poverty reduction and carbon sequestration in palms (considered as forest):

- » Poverty reduction: The creation of large oil-palm plantations can lead to greater economic development for the region or country, but in many cases it is impossible to demonstrate that impoverished target groups have benefitted. One exception in the case of oil palm is probably outgrower’s schemes²⁰ (a great deal of labour is often necessary, at least in the planting phase, which is why oil palm planting is not really successful in sparsely populated areas).
- » Carbon sequestration in palms: Categorizing palms in the same way as forests is incorrect where biomass production and carbon sequestration are concerned. Table 1 presents the results of two studies which show that the values for primary and harvested forest and plantations are up to four times as high as for palm plantations^{21,22}.

20 In these initiatives, small producers grow trees for big companies.

21 IPCC: http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_04_Ch4_Forest_Land.pdf

22 ICRAF: <http://www.worldagroforestrycentre.org/sea/Publications/files/leaflet/LE0153-09.PDF>



Table 1. Comparative values for primary and harvested forest and plantations (tonnes per hectare)

	Above-ground biomass (t/ha)	Corresponding above-ground carbon stock (t/ha)	source
Primary forest	280–350 and (120–680)*	130–165 and (60–340)*	IPCC
Disturbed forest	n/a	75–200	ICRAF study
Oil palm plantation (average over course of cycle)	n/a	39 (25-year cycle); 60–100 at end of cycle	ICRAF study
Industrial plantation (>20 years)	150–300	70–140	IPCC
Industrial plantation (<20 years)	60–100	28–47	IPCC

* the first pair is the range of continental averages; the latter pair (between brackets) are the extremes

Perhaps the most important question is why oil palm necessitates conversion. Oil palm can be planted on marginal land and in non-forest areas, where it will grow well and contribute to economic development. When the creation of oil palm plantations leads to the conversion of tropical forests, then questions will arise — in our opinion, justifiably — as to whether the conversion is in fact necessary. In such cases, a thorough and transparent assessment will need to be made.

3.3 Towards an assessment framework for land-use planning

Just as important as precise definitions of forest and conversion, and determining whether oil palm should be classified as forest, is the decision regarding the circumstances under which the conversion of forest to a different type of land use is acceptable. This is relevant not only to the conversion of natural forest into oil palm plantations but in the case of natural forest into planted forest and forest plantation into agricultural land or vice versa.

Whether, where, to what extent, and under what conditions conversion is acceptable or desirable ultimately depends on choices and assessments. These assessments will depend on who is making them; they should be made in the context of political priorities.

A broad, transparent and internationally accepted assessment framework at the national level for land-use planning, including conversion, is essential. So is the willingness to apply it. The framework should incorporate a set of unambiguous criteria for weighing ecological, social and economic interests. It should involve the active participation of the relevant stakeholder groups and have transparent procedures and decision points.

Different considerations apply to economic development and poverty reduction than to biodiversity. The choices made in the assessment will depend on the value that stakeholders attach to certain types of forest



and land use, and on their objectives and interests. Goals such as poverty reduction, economic development and preservation of biodiversity will always be at odds with one another, but in the context of a transparent and democratic national assessment framework, weighing them fairly and effectively should lead to an acceptable and reasonable alternative.

In the absence of such a framework, policy involving major incentives that can have an impact on other objectives — for example, biodiversity and poverty reduction — should be accompanied by measures aimed at preventing undesirable effects. Insofar as it falls within the EU's sphere of influence, this includes trade policy based on a comprehensive view of what constitutes acceptable conversion and a clear definition of forest. In addition, consumer countries should do more to encourage the use of sustainably produced palm oil.



4. Conclusions

Most existing definitions of forests and agriculture consider oil palm to be an agricultural crop. Although oil palm plantations resemble tree plantations in terms of their physiognomy (height and crown cover), they are otherwise primarily an agricultural crop, specifically in terms of their time cycle, nature and intensity of management. Oil palm plantations are regularly fertilized, harvesting is frequent and weeds are controlled.

We conclude that oil palm plantations should not be classified as continuously forested areas. That is not to say, however, that planting oil palm is by definition a bad thing. There is enough marginal land and non-forest areas where oil palm will grow well and contribute to economic development.

Converting forest to oil palm or any other agricultural crop is primarily a national political decision. Producer countries will need to weigh social and economic interests against those of biodiversity and other functions of forest, bearing in mind relevant international agreements that they have signed.

Rigour, credibility and fairness within assessment processes, along with the existence and application of a broadly accepted and transparent decision-making framework in the producer countries, are the key to sustainability.

Although this Policy Brief focuses on oil palm, a broader discussion on converting natural forest into tree crops, and the criteria for doing so, is advisable. It should include issues such as the conversion of natural forest for energy crops, timber plantations, rubber plantations and other types of palm.

Other options are also available for promoting the sustainable production of biofuels, including responsible assessment of forest conversion:

- » negotiations within an international or multilateral and/or bilateral framework, such as a kind of “Voluntary Partnership Agreement for conversion” between the EU and producer countries;
- » more intensive stimulation of market mechanisms and approaches that promote sustainable production and trade (by the Netherlands and in an EU context), involving efforts such as sustainable

purchasing, promotion of certification, and labelling (initiatives such as the RSPO and sustainability criteria, which have already been developed, offer a good starting point for this option);

- » encouragement of international and bilateral cooperation to boost capacity building and awareness, and generation and sharing of knowledge to support and strengthen countries and parties involved in sustainable production and trade in bioenergy.

One important conclusion is that the existing international definitions of forest (almost all of which are based on the FAO/FRA 2010 definition) and those drawn up for a specific purpose (e.g., for surveys of forest cover) are not necessarily appropriate in other circumstances, such as the conversion of forest to oil palm and more generally conversion versus forest preservation.

We argue for a broader definition of forest, one that goes beyond land cover and height infill and applies more ecological criteria. It is not sufficient to use an assessment tool for forest cover — which is what the FAO/FRA is — as the sole distinguishing criterion for defining a dynamic ecological system such as forest, with all its functions, values and interests.

By making knowledge work for forests and people, Tropenbos International contributes to well-informed decision making for improved management and governance of tropical forests. Our longstanding local presence and ability to bring together local, national and international partners make us a trusted partner in sustainable development.



www.tropenbos.org