

# **Addendum Better Biomass**

(en)

Sustainability framework for biomass - Specific  
requirements for forest biomass

Duurzaamheidskader voor biomassa – Specifieke  
eisen voor biosbiomassa

**Contents**

**1 Scope ..... 5**

**2 Normative references ..... 6**

**3 Terms and definitions ..... 6**

**4 General ..... 12**

**5 Assessment of compliance with sustainable harvesting criteria (Art 29.6).... 13**

**6. Assessment of compliance with LULUCF criteria (art 29.7) .....23**

**Annex A (normative) Relevant concepts for demonstrating compliance with sustainability requirements for forest biomass .....35**

**Annex B (informative) Information sources for demonstrating compliance with the harvesting criteria through national or sub-national laws .....46**

**Annex C (informative) Stepwise approach for demonstrating compliance of harvesting criteria at forest sourcing area level (Level B) .....51**

**Annex D (informative) Tools and data sources to demonstrate LULUCF criteria compliance at forest sourcing area level..... 62**

## Foreword

This standard specifies how Better Biomass certified operators can comply with the sustainability requirements for forest biomass as specified in revised Directive EU/ 2018/2001, including the related requirements in Implementing Regulation (EU) 2022/996 and (EU) 2022/2448.

Implementing Regulation (EU) 2022/2448 establishes operational guidance on the evidence for demonstrating compliance with the sustainability criteria for forest biomass laid down in Article 29 of revised Directive EU/2018/2001, where as Implementing Regulation (EU) 2022/996 sets rules to verify sustainability and greenhouse gas emission saving criteria and low indirect land-use change-risk criteria.

Revised Directive EU/2018/2001 includes two sets of sustainability requirements specifically for forest biomass:

- requirements in relation to the sustainable harvest of forest biomass. These requirements have been specified in revised Directive EU/2018/2001 Article 29(6). In addition, land use criteria specified in Article 29.3-29.5 apply *directly* if the conditions in Article 29(6) (a) (vi) and (vii) are not fulfilled. More specifically, this means that forests in which the forest biomass is harvested do not stem from the lands that have the statuses referred to in Article 29(3) points (a), (b), (d) and (e); Article 29(4), point (a), and Article 29(5), respectively under the same conditions of determination of the status of land specified in those paragraphs. Please refer to Section 5.1 for a more detailed explanation.
- requirements in relation to Land use, Land-use Change and Forestry (LULUCF). These requirements have been specified in Article 29(7).

Revised Directive EU/2018/2001 allows two options to demonstrate compliance with the forest biomass requirements:

- Level A: the harvesting criteria are complied with by complying with the national or subnational legislation applicable in the area of harvest, as well as monitoring and enforcement systems;
- Level B: for each criterion for which compliance cannot be demonstrated by means of national or subnational level legislation (or for which an approved Level A risk assessment is not available), compliance needs to be demonstrated through management systems applicable to the forest sourcing area level.

These two ways of demonstrating compliance are the result of the risk-based approach specified in revised Directive EU/2018/2001. If a country has legislation and proper monitoring and enforcement in place at a national or sub-national level (Level A), there is a low risk of forest biomass derived from unsustainable production. Which elements this legislation should comprise in detail is not defined, since sustainable forest practices can differ significantly between regions and thus between countries.

If this legislation and/or monitoring and enforcement and is not in place, the risk on a national or sub-national level is higher, and thus it is important to assure on the level of the sourcing area that forest biomass is derived from sustainable production only (Level B). For any of the criteria for which compliance can not be demonstrated by means of legislation and/or monitoring and enforcement systems at national or sub-national level, economic operators will need to demonstrate compliance at the level of the forest sourcing area (Level B).

This approach is intended to balance administrative burden while minimising the risk that unsustainably produced forest biomass is used for energy production under revised directive EU/2018/2001 . For Level B the criteria need to be checked in more detail and locally by the first gathering point, so more is required than checking whether a law is in place, monitored and enforced. In order to ensure high level of credibility and unified risk-based approach,

# 1 Scope

This document specifies the requirements for organisations to demonstrate compliance with the sustainability requirements for forest biomass as specified in revised Directive EU/ 2018/2001, including the related requirements in Implementing Regulation (EU) 2022/996 and (EU) 2022/2448.

This document is complementary to the Better Biomass scheme documents, which consist of:

NTA 8080-1:2024+A1:2025, *Sustainability framework for biomass — Part 1: Terminology, overview and general requirements*

NTA 8080-1:2024+A1:2025, *Sustainability framework for biomass — Part 1: Terminology, overview and general requirements*

NTA 8080-2:2024+A1:2025, *Sustainability framework for biomass — Part 2: Sustainability requirements*

NTA 8080-3:2024+A1:2025, *Sustainability framework for biomass — Part 3: Requirements for greenhouse gas calculations*

NTA 8080-4:2024+A1:2025, *Sustainability framework for biomass — Part 4: Chain-of-custody requirements*

NCS 8080-1:2024+A1:2025, *Better Biomass — Part 1: Conformity assessment requirements related to sustainability framework for biomass*

NCS 8080-2:2024+A1:2025, *Better Biomass — Part 2: Specific requirements for scheme management*

This document applies to the following types of organizations:

— 'producers': organizations that produce forest biomass or collect biomass residues and waste to be used for energy or in products. Producers fall into four sub-types:

'primary producers';

'smallholders';

'collectors of primary residues and waste';

'collectors of non-primary residues and waste';

The operations of these types of organizations include the following materials:

— Ligno-cellulosic (woody) material from forests;

— Biomass fuels produced from forest biomass, in particular wood pellets and wood chips;

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NTA 8080-1:2024+A1:2025, *Sustainability framework for biomass — Part 1: Terminology, overview and general requirements*

NTA 8080-2:2024+A1:2025, *Sustainability framework for biomass — Part 2: Sustainability requirements*

NTA 8080-3:2024+A1:2025, *Sustainability framework for biomass — Part 3: Requirements for greenhouse gas calculations*

NTA 8080-4:2024, +A1:2025 *Sustainability framework for biomass — Part 4: Chain-of-custody requirements*

NCS 8080-1:2024+A1:2025, *Better Biomass — Part 1: Conformity assessment requirements related to sustainability framework for biomass*

NCS 8080-2:2024+A1:2025, *Better Biomass — Part 2: Specific requirements for scheme management*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions of NTA 8080-1:2024+A1:2025 apply. For improved readability of this document, the relevant terms and definitions have been copied below. This is followed by a section containing explanations of key concepts related to sustainable harvest of forest biomass and Land use, Land-use Change and Forestry.

### Terms and definitions from NTA 8080-1:2024+A1:2025

#### 3.1

##### **carbon pool**

whole or part of a biogeochemical feature or system within the territory of a Member State and within which carbon, any precursor to a greenhouse gas containing carbon, or any greenhouse gas containing carbon is stored

[SOURCE: Regulation EU/2018/841, Article 3(3).]

#### 3.2

##### **carbon stock**

mass of carbon stored in a carbon pool

[SOURCE: Regulation (EU) 2018/841, Article 3(4)]

### 3.3

#### **country of harvest**

country or territory where the forest biomass was harvested

[SOURCE: Commission Implementing Regulation (EU) 2022/2448]

### 3.4

#### **deadwood**

all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil, including wood lying on the surface, coarse debris, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country concerned;

[SOURCE: Commission Implementing Regulation EU/2022/2448 on forest biomass]

### 3.5

#### **first gathering point**

storage or processing facility managed directly by an economic operator or other counterpart under contractual agreement that is sourcing raw material directly from producers of agricultural biomass, forest biomass, wastes and residues or, in the case of renewable fuels of non-biological origin, the plant producing such fuels

[SOURCE: Commission Implementing Regulation EU/2022/996]

### 3.6

#### **forest biomass**

*biomass* (3.14) produced from forestry

[SOURCE: Revised Directive (EU) 2018/2001]

### 3.7

#### **first party auditing**

self-declaration by an economic operator supplying to the first gathering point

### 3.8

#### **forest regeneration**

re-establishment of a forest stand by natural or artificial means following the removal of the previous stand by felling or as a result of natural causes, including fire or storm

### **3.9**

#### **greenhouse gas emission**

release of a *greenhouse gas* (3.38) into the atmosphere

[SOURCE: ISO 14064-1:2018, 3.1.5]

### **3.10**

#### **long-term production capacity**

health and ability of a forest to continuously and sustainably deliver goods, such as wood of various quality grades, and non-wood-forest products and ecosystem services, including air and water purification, maintenance of wildlife habitat, recreation or cultural capital, over a long period of time, and where applicable, bridging several successive forestry rotations

### **3.11**

#### **LULUCF**

land use, land-use change and forestry

Note 1 to entry: **LULUCF criteria at national level** are laid down in point (a) of Article 29(7) of revised Directive EU/2018/2001.

Note 2 to entry: **LULUCF criteria at sourcing area level** are laid down in point (b) of Article 29(7) of revised Directive EU/2018/2001.

### **3.12**

#### **management system**

information collected on the forest area at the sourcing area level, including in the form of text, maps, tables and graphs, and strategies or management activities planned and implemented to reach the forest resource management or development goals

### **3.13**

#### **natural disturbance**

non-anthropogenic event or circumstance that causes significant emissions in forests and the occurrence of which is beyond the control of the relevant Member State, and the effects of which the Member State is objectively unable to significantly limit, even after their occurrence, on emissions

### **3.14**

#### **net annual increment**

annual growth in volume of the stock of living trees available minus the average natural mortality of that stock

### **3.15**

#### **planted forest**

forest predominantly composed of trees established through planting and/or deliberate seeding provided that the planted or seeded trees are expected to constitute more than 50 % of the growing stock at maturity

Note 1 to entry: This includes a coppice from trees that were originally planted or seeded.

[SOURCE: Commission Implementing Regulation 2022/2448 on forest biomass]

### **3.16**

#### **plantation forest**

planted forest that is intensively managed and, at planting and stand maturity, has one or two species of an even age class, and at regular spacing

Note 1 to entry: It includes short rotation plantations for wood, fibre and energy, and excludes forests planted for protection or ecosystem restoration, as well as forests established through planting or seeding which at stand maturity resemble or will resemble naturally regenerating forests.

[SOURCE: Commission Implementing Regulation 2022/2448 on forest biomass]

### **3.17**

#### **second party auditing**

the auditing of a supplier by the economic operator managing the first gathering point

[SOURCE: Commission Implementing Regulation 2022/2448 on forest biomass]

### **3.18**

#### **sink**

process, activity or mechanism that removes a greenhouse gas, an aerosol, or a precursor to a greenhouse gas from the atmosphere

[SOURCE: Regulation (EU) 2018/841, Article 3(1)]

### **3.19**

#### **sourcing area**

geographically defined area from which the forest biomass feedstock is sourced, from which reliable and independent information is available and where conditions are sufficiently homogeneous to evaluate the risk of the sustainability and legality characteristics of the forest biomass

### **3.20**

#### **stumps and roots**

parts of the whole tree volume, excluding the volume of the above-stump woody biomass, considering the height of the stump as that at which the tree would be cut under normal felling practices in the relevant country or region

### **3.21**

#### **third party auditing**

means the auditing of an economic operator carried out by a third party that is independent from the organisation subject to the auditing

[SOURCE: Commission Implementing Regulation 2022/2448 on forest biomass]

## **Key concepts used in this document**

### **Forest**

land spanning more than 0,5 hectares with trees higher than 5 m and a canopy cover of more than 10 %, or trees able to reach these thresholds in situ, not including land that is predominantly under agricultural or urban land use

Note 1 to entry: Includes areas with young trees that have not yet reached but which are expected to reach a canopy cover of 10 % and tree height of 5 m. It also includes areas that are temporarily unstocked due to clear-cutting as part of a forest management practice or natural disasters, and which are expected to be regenerated within five years. Local conditions may, in exceptional cases, justify that a longer time frame is used.

Note 2 to entry: Includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific environmental, scientific, historical, cultural or spiritual interest.

Note 3 to entry: Includes windbreaks, shelterbelts and corridors of trees with an area of more than 0,5 hectares and width of more than 20 m.

Note 4 to entry: Includes abandoned shifting cultivation land with a regeneration of trees that have, or are expected to reach, a canopy cover of 10 % and tree height of 5 m.

Note 5 to entry: Includes areas with mangroves in tidal zones, regardless whether this area is classified as land area or not.

Note 6 to entry: Includes rubber-wood, cork oak and Christmas tree plantations.

Note 7 to entry: Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.

Note 8 to entry: Includes areas outside the legally designated forest land which meet the definition of 'forest'.

Note 9 to entry: Excludes tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations, olive orchards and agroforestry systems when crops are grown under tree cover.

Note 10 to entry: Some agroforestry systems such as the 'Taungya' system where crops are grown only during the first years of the forest rotation should be classified as forest.

[SOURCE: FRA 2020 Terms And Definitions, Forest Resources Assessment Working Paper 188]

**Nationally determined contribution (NDC)**

Nationally determined contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC) embody planned efforts by each country to reduce national emissions and adapt to the impacts of climate change. Each NDC reflects a country's ambition for reducing emissions, taking into account its domestic circumstances and capabilities. NDCs may include emissions and removals from agriculture, forestry and land use (AFOLU) to ensure that changes in carbon stock associated with biomass harvest are accounted towards the country's commitment to reduce or limit greenhouse gas emissions as specified in the NDC.

NOTE The Paris Agreement (Article 4, paragraph 2) requires each Party to prepare, communicate and maintain successive nationally determined contributions (NDCs) that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.

**Paris Agreement**

The Paris Agreement, inter alia, sets out a long-term goal in line with the objective to keep the global temperature increase well below 2°C above pre-industrial levels and to pursue efforts to keep it to 1,5°C above pre-industrial levels. Forests, agricultural land and wetlands will play a central role in achieving this goal.

**Regional economic integration organization**

A regional economic integration organization maintains a process of overcoming barriers that divide neighboring countries, by common accord, and of jointly managing shared resources and assets. Regional integration essentially is a process by which groups of countries liberalize trade, creating a common market for goods, people, capital and services. For example, the European Union advocates regional integration as an effective means of achieving prosperity, peace and security.

**Removals**

Anthropogenic (i.e. originating from human activity) removals of greenhouse gases from the atmosphere by sinks.

**Other**

In addition to the above definitions, Annex A explains a number of relevant concepts/definitions in more detail, i.e.:

- National or sub-national laws applicable in the area of harvest
- Monitoring and enforcement systems
- Management system
- Sourcing area
- Legality of harvesting operations

- Forest regeneration of harvested areas
- Areas designated by international or national law by the relevant competent authority for nature protection purposes, including wetlands and peatland
- Long-term production capacity of forests

## **4 General**

### **4.1 Operators which shall prove compliance with forest biomass sustainability requirements**

In the Better Biomass scheme, the first gathering point for forest biomass is the first organisation in the chain of custody which shall prove compliance with the forest biomass sustainability requirements laid down in Articles 29.6 and 29.7 of revised Directive (EU) 2018/2001.

The first gathering point is typically the organisation which collects the forest biomass from forest owners. Forest owners in the forest sourcing area shall submit self-declarations to the first gathering point to confirm compliance with relevant requirements.

### **4.2 Management system**

The first gathering point shall implement and maintain a management system which contains all evidence required to show compliance with Articles 29.6 and 29.7.

### **4.3 Audits to verify compliance against forest biomass sustainability requirements**

The Better Biomass certificate is issued for a maximum period of five years. During this period, surveillance audits shall be conducted at least annually. The frequency of surveillance audits shall be increased if the risk analysis and the results of previous audits indicate a higher risk of non-conformities, as specified in 7.9 of NCS 8080-1: 2024+A1:2025.

If an operator uses the Level A approach to show compliance with Article 29.6 and/or Article 29.7 and that approach is no longer possible (e.g. because Article 29.6 and/or Article 29.7 requirements at national or subnational level are no longer fulfilled), then a surveillance audit is required within a period of three months to check that the operator complies with the requirements at forest sourcing area level (Level B).

Note: First or second party auditing may be used up to the first gathering point for the audit of Article 29(3), points (a), (b), (d) and (e), Article 29(4), point (a), Article 29(5), point (a) of Article 29(6) and point (a) of Article 29(7). In this context, first party auditing refers to the acceptance of self declarations of the forest owner or first gathering point. Second party auditing refers to the auditing of a supplier by the economic operator managing the first gathering point. This applies to both Level A and Level B approach.

## 5 Assessment of compliance with sustainable harvesting criteria (Art 29.6)

### 5.1 General

This chapter specifies the requirements to assess compliance with the sustainable harvesting criteria laid down in revised Directive EU/2018/2001 Article 29.6.

With the 2023 amendment of this Directive, the sustainability criteria for forest biomass have been strengthened. The so-called 'no-go areas' for agricultural biomass (revised Directive EU/2018/2001 Articles 29(3) -29(5) have been extended and now also apply to forest biomass. This means that, as a general rule, equally strict requirements apply to forest biomass as apply for agricultural biomass, unless (1) the country in which the forest biomass originates has legislation and enforcement systems in place to ensure that biomass used for energy is not sourced from these areas AND (2) the relevant energy companies provide a statement of assurance that the forest biomass does not originate from those 'no-go areas'. This means that it shall be ensured, at company level, that the supply contracts include restrictions as to the origin of the forest biomass. If these conditions are complied with, the country is considered a 'Level A' country.

If there is no evidence that these conditions are fulfilled and therefore the forest biomass cannot benefit from the Article 29(6)(a) 'low-risk' status, it is a 'Level B' country and verification of compliance with the sustainability criteria shall be carried out at forest sourcing area level and the revised Directive EU/2018/2001 land use criteria apply *directly* (as it already does for agricultural biomass), i.e. it shall be verified that consignments do not include biomass that is sourced from the no-go areas

Box 1 below includes the text of Article 29.6 on sustainable harvesting criteria for forest biomass:

#### **Box 1: Sustainable harvesting criteria (revised Directive EU/2018/2001, Article 29.6)**

*Biomass fuels produced from forest biomass taken into account for the purposes referred to in points (a), (b) and (c) of the first subparagraph of paragraph 1 [of Article 29] shall meet the following criteria to minimise the risk of using forest biomass derived from unsustainable production:*

- (a) The country in which forest biomass was harvested has national or sub-national laws applicable in the area of harvest as well as monitoring and enforcement systems in place ensuring (Level A):*
  - (i) The legality of harvesting operations*
  - (ii) Forest regeneration of harvested areas*
  - (iii) That areas designated by international or national law or by the relevant competent authority for nature protection purposes, including in wetlands, grasslands, heathlands and peatlands, are protected with the aim of preserving biodiversity and preventing habitat destruction*
  - (iv) That harvesting is carried out considering maintenance of soil quality and biodiversity in accordance with sustainable forest management principles, with the aim of preventing any adverse impact, in a way that avoids harvesting of stumps and roots, degradation of primary forests, and of old growth forests as defined in the country where the forest is located, or their conversion into plantation forests, and harvesting on vulnerable soils, that harvesting is carried out in compliance with maximum thresholds for large clear-cuts as defined in the country where the forest is located and with locally and ecologically appropriate retention thresholds for deadwood extraction and that harvesting is carried out in compliance with requirements to use logging systems that minimise any adverse impact on soil quality, including soil compaction, and on biodiversity features and habitats;*
  - (v) That harvesting maintains or improves the long-term production capacity of the forest;*

*(vi) that forests in which the forest biomass is harvested do not stem from the lands that have the statuses referred to in Article 29(3) points (a), (b), (d) and (e); Article 29(4), point (a), and Article 29(5), respectively under the same conditions of determination of the status of land specified in those paragraphs<sup>1</sup>; and*  
*(vii) that installations producing biofuels, bioliquids and biomass fuels from forest biomass, issue a statement of assurance, underpinned by company-level internal processes, for the purpose of the audits conducted pursuant to Article 30(3), that the forest biomass is not sourced from the lands referred to in point (vi).*

*(b) When evidence referred to in point (a) of this paragraph is not available, the biomass fuels produced from forest biomass shall be taken into account for the purposes referred to in points (a), (b) and (c) of the first subparagraph of paragraph 1 [of Article 29] if management systems are in place at forest sourcing area level ensuring (Level B):*

*(i) The legality of harvesting operations*

*(ii) Forest regeneration of harvested areas*

*(iii) That areas designated by international or national law or by the relevant competent authority for nature protection purposes, including in wetlands, grasslands, heathlands and peatlands, are protected with the aim of preserving biodiversity and preventing habitat destruction, unless evidence is provided that the harvesting of that raw material does not interfere with those nature protection purpose*

*(iv) That harvesting is carried out considering the maintenance of soil quality and biodiversity in accordance with sustainable forest management principles, with the aim of preventing any adverse impact, in a way that avoids harvesting of stumps and roots, degradation of primary forests, and of old growth forests as defined in the country where the forest is located, or their conversion into plantation forests, and harvesting on vulnerable soils, that harvesting is carried out in compliance with maximum thresholds for large clear-cuts as defined in the country where the forest is located, and with locally and ecologically appropriate retention thresholds for deadwood extraction and that harvesting is carried out in compliance with requirements to use logging systems that minimise any adverse impact on soil quality, including soil compaction, and on biodiversity features and habitats; and*

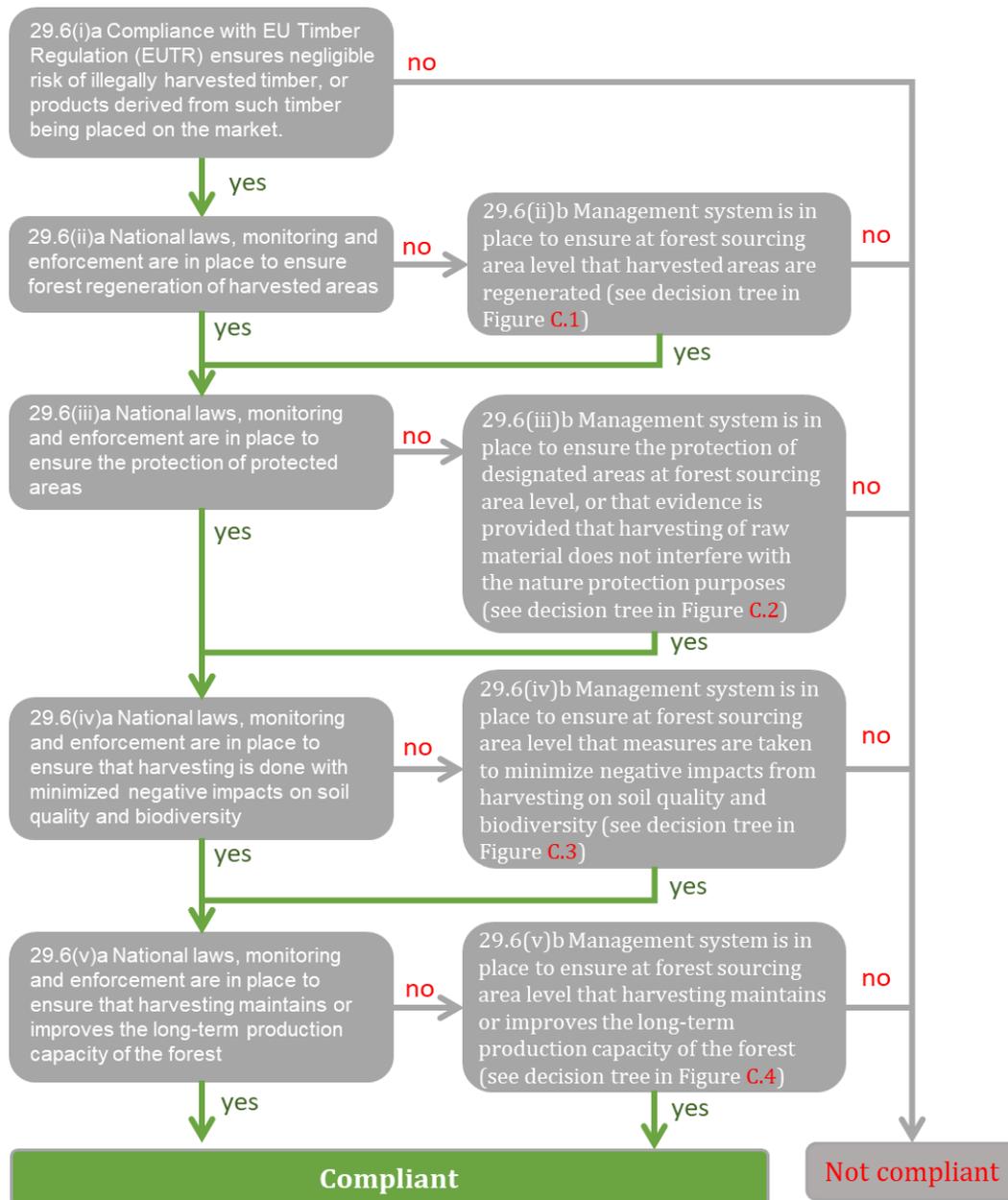
*(v) That harvesting maintains or improves the long-term production capacity of the forest.*

*(vi) that forests in which the forest biomass is harvested do not stem from the lands that have the statuses referred to in Article 29(3) first subparagraph with the exception of point (c), Article 29(4) with the exception of point (b) and (c) and Article 29(5), respectively under the same conditions of determination of the status of land specified in those paragraphs<sup>1</sup>*

Figure 1 presents a stepwise approach for economic operators for demonstrating compliance with the sustainable harvesting criteria of revised Directive EU/2018/2001, Article 29.6. It shows that compliance shall be demonstrated at national or sub-national level (level A), or, if compliance cannot be demonstrated at national or subnational level, evidence shall be sought at forest sourcing area level (level B).

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<sup>1</sup>Primary forests and old growth forests are defined by Article 29(3)(a) as 'no-go' areas, which should be interpreted as an absolute prohibition to harvest in these areas. The references in Article 29(6)(a)(iv) and Article 29(6)(b)(iv) to those areas should be read in conjunction with Article 29(3)(a). The references in Article 29(6)(a)(iv) and Article 29(6)(b)(iv) should be considered as a description of sustainable harvesting practices. They should not be interpreted as an exception to the specific – and absolute – rule that forest (and agricultural) biomass should not be sourced from these areas.



**Figure1 — Decision-tree for demonstrating compliance with the harvesting criteria through national or sub-national legislation (Level A) or at forest sourcing area (Level B).**

NOTE The numbers between brackets refer to the harvesting criteria from Article 29 (6) of revised Directive EU/2018/2001. The textboxes on the left concern the country level criteria (level A) and the text boxes on the right concern the criteria at the level of the forest sourcing area (level B).

## 5.2 Approach for demonstrating compliance through national or subnational laws (level A)

5.2.1 The level A assessment shall include two main elements:

- Assessment if legislation is in place;

— Assessment of systems for monitoring and enforcement.

The requirements for assessing legislation and monitoring and enforcement have been further detailed in the following sections.

### 5.2.2 Element 1: Assessment if legislation is in place

Economic operators shall provide audited information establishing compliance with the harvesting criteria at national or sub-national level. To that end, economic operators shall carry out a risk-based assessment which provides accurate, up-to-date and verifiable evidence of all of the following elements:

- a) the country of harvest, and, where applicable, the sub-national region where the forest biomass was harvested; and
- b) that the national or sub-national law applicable in the area of harvest ensure:
  - i) the legality of harvesting operations, which shall be proven by providing evidence of compliance of harvesting with the applicable legislation in the country of harvest, as set out in point (h) of Article 2 of Regulation (EU) No 995/2010.
  - ii) forest regeneration, which may be proven by providing evidence that the applicable laws require natural or artificial regeneration, or a combination of both, aiming at the establishment of a new forest in the same area and within a period of maximum 10 years after the harvesting;
  - iii) the effective protection of areas designated by international or national law, or by the relevant competent authority, for nature protection purposes, including in wetlands, grasslands, heathland and peatlands, with the aim of preserving biodiversity and preventing habitat destruction.
- iv) that forest harvesting is carried out in a way that aims at least at preventing negative impacts on soil quality and biodiversity. This may be proven by providing evidence that the relevant risks associated with the harvesting of forest biomass for energy production have been identified in advance; and that, appropriate mitigation actions have been implemented such as the following:
  - primary forests and old growth forests as defined in the country where the forest is located are not degraded to or replaced by plantation forests;
  - harvesting of stumps and roots is avoided;
  - no harvesting is carried out on vulnerable soils;
  - harvesting is carried out through logging systems that minimise impacts on soil quality, including soil compaction;
  - harvesting is carried out in a way that minimises impacts on biodiversity features and habitats, including plants and animals protected under international or national legislation;
  - a locally and ecologically appropriate retention thresholds for deadwood extraction; and
  - harvesting is carried out in compliance with maximum thresholds for large clear-cuts as defined in the country where the forest is located.

- v) that the long-term production capacity of the forest is maintained or increased, which may be proven by providing evidence that the applicable law at national or sub-national level ensures that, based on average annual data, the fellings do not exceed the net increment over an appropriate period according to the relevant national legislation, except in cases where it is temporarily justified due to documented forest pests, storms or other natural disturbances. That may be proven by using:
  - 1) national forest inventory reports;
  - 2) providing the evidence via an NDC that meets the requirements laid down in Chapter 4;
  - 3) similar inventory reports at sub-national level.
  
- vi) that the forests in which the forest biomass is harvested do not stem from the lands that have the statuses referred to in revised Directive EU/2018/2001 Article 29(3) points (a), (b), (d) and (e); Article 29(4), point (a), and Article 29(5), respectively under the same conditions of determination of the status of land specified in those paragraphs.
  
- vii) that installations producing biofuels, bioliquids and biomass fuels from forest biomass, issue a statement of assurance, underpinned by company-level internal processes, for the purpose of the audits conducted pursuant to Article 30(3), that the forest biomass is not sourced from the lands referred to in point (vi).

Several countries are organized in such a way that several topics of legislation are not nationally regulated but regionally (for example Belgium, Italy or Germany). In those cases, a country as a whole can only pass the criterion if legislation is present in each underlying region to comply with that criterion. So, in these cases, all underlying regions would need to be reviewed for relevant legislation, or the presence of an overarching framework with the criterion is present.

As it would be beyond the legal requirement of revised Directive (EU) 2018/2001, which only requires active legislation to address the criteria topic, this step does not require to assess the effectiveness of the laws (e.g. if the regulation on the longer term actually obtains the objective of the criteria in the manner the regulation is currently formulated). The assessment only aims to identify whether laws exist that explicitly or implicitly aim to achieve the criteria and sub-criteria. In this assessment the concept the criterion covers, needs to be identified in legislation, regulation or underlying technical codes. It could be in different terminology, as long as the essence is the same and regulation is in place to safeguard the criteria. Since sustainable forest management is detailed differently in different countries (influenced by management practices, climate impacts and forestry types), the details of the regulations are not prescribed or included in the assessment. The main objective is to identify countries which are 'low risk', because they have legislation and monitoring/enforcement in place covering the forest sustainability criteria. It is the responsibility of the country to identify which sustainable management practices and resulting regulatory details are suitable for their specific forests.

Annex B contains information sources for demonstrating compliance with the harvesting criteria through national or sub-national laws.

### 5.2.3 Element 2: Assessment of systems for monitoring and enforcement

Economic operators shall assess the existence of systems for ensuring monitoring of implementation and enforcement of the national and sub-national laws referred to under Element 1 above, including information on the following aspects:

- the authorities competent for carrying out monitoring, implementation and enforcement;
- sanctions for non-compliance;
- systems for appealing against decisions; and
- public access to information.

Economic operators shall also check the absence of robust evidence of significant and systematic lack of enforcement. This is done by:

- a) Review if there is an ongoing infringement procedure by the European Commission against the country in any field relevant to the criteria (e.g. illegal logging, insufficient conservation of protected areas). If there is an active infringement procedure, the enforcement element of the criteria will be set to No and thus the criterion regarded as non-compliant;
- b) Secondly, review the UNEP-WCMC “briefing notes on the implementation of the EU Timber Regulation” of the past two years to check for any mention of serious offenses. If these are mentioned, it is important to review if the briefing notes later report that the issues have been resolved. These briefing notes consider forest sector governance broadly so its reporting can be of relevance for the assessment of any of the sustainable harvesting criteria. If offenses were reported in these briefing notes, the description of these offenses can be used to assess for which criteria enforcement will be set to No. If the comment indicates ‘corrupt or dysfunctional forest governance’ or a similar statement, all criteria on sustainable harvesting will be set to No;
- c) Any other evidence from (international) governmental organisation can be used to substantiate a lack of compliance once this evidence is recent and structural.

### **5.3 Process requirements for developing Level A assessments against Article 29.6 requirements**

**5.3.1** Level A assessments shall not be undertaken by individual operators or by Better Biomass, but by in country expert organisations, e.g. competent ministries, qualified national-level organisations or associations, qualified academic researchers and consultants, or an independent body specifically set up to undertake the risk assessment. Information on the professional background and competencies of the authors of the assessment shall be included in the assessment report, together with signed declarations confirming absence of any conflict of interest.

**5.3.2** The completed risk assessment shall be reviewed by an independent committee. This review shall confirm that the risk assessment has followed the process requirements laid down in this standard, that it is complete and that it meets quality requirements. If it appears that the process requirements have not been followed, that elements are missing or that the quality is insufficient, the risk assessment shall not be published for public consultation. Instead, it must be adjusted and resubmitted for independent review.

The independent review committee will be composed by Better Biomass, and comprise of 3-5 experts. Representatives of individual operators or other experts with a potential conflict of interest shall not be included in this committee.

**5.3.3** Once the risk assessment has successfully passed the committee's review, it shall be subject to a public consultation process of four weeks. The risk assessment shall be published on both the author's website and on the Better Biomass website. Furthermore, Better Biomass will notify stakeholders through its newsletters and email.

All feedback received during the stakeholder consultation shall be reviewed by the authors of the risk assessment and, where needed, lead to amendments in the risk assessment report. All feedback received will be documented in an annex to the risk assessment report. .

**5.3.4** Following the evaluation of the stakeholder feedback, the assessment report can be finalised by the authors and submitted to Better Biomass for formal approval by the Better Biomass Committee of Experts. After this, Better Biomass will publish the assessment report on its website.

**5.3.5** The risk assessment report shall be prepared in a standard format developed by Better Biomass. The template for the report format is available on the Better Biomass website.

**5.3.6** Completed risk assessment reports including stakeholder feedback will be published on the Biomass website

**5.3.7** The validity of the approval is 5 years, unless the evidence basis changes. If Better Biomass receives information which suggests that the evidence basis has changed, it will immediately notify the assessment report's authors and request an update of the report. For this update, steps 1-4 as outlined above shall be followed. Where needed, this will be done in exchange with other voluntary schemes to ensure a consistent approach.

**5.3.8** Better Biomass will accept risk assessments approved by other voluntary schemes. Better Biomass will check the Level A assessment of other schemes by means of an internal assurance process before accepting them.

**5.3.9** Better Biomass publishes on its website an up-to-date list of voluntary schemes which are recognised to forest biomass, and which Level A risk assessments these schemes have

published and are accepted under Better Biomass. Economic operators and certification bodies will be informed by Better Biomass of any changes to this list in a timely manner.

#### **5.3.10 Audit reports must specify which risk assessment has been used.**

NOTE: The recognition status of voluntary schemes covering forest biomass can be found on the European Commission's Voluntary schemes webpage: [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en)

NOTE: Several country sheets were developed as test cases of the Level A methodology within the RED II BIO project. The country sheets do not hold any legal value and were solely used for the purpose of testing the methodology developed for the level A.

### **5.4 Approach for demonstrating compliance through management systems at the sourcing area level (level B)**

**5.4.1** This section provides the approach to demonstrate compliance with the harvesting criteria of Article 29.6 at the forest sourcing area level (level B).

The first gathering point shall implement the risk assessment and, if necessary, risk mitigation on a forest sourcing area level (level B) if:

- a. there is no official national/sub-national level (Level A) risk assessment available;
- b. If any sustainability criterion is designated as specified risk at the national/sub-national level (Level A risk assessment does not indicate low risk for all indicators)

**5.4.2** In other words: if evidence of compliance with one or several harvesting criteria at national or subnational level is not available (i.e., it is not possible to justify low risk), the first gathering point shall demonstrate that those criteria have been complied with through management systems that are in place and implemented at the level of the sourcing area. To that end, first gathering points shall provide accurate, up-to-date, and verifiable evidence of the following elements:

- a) The spatial boundaries of the sourcing area for which compliance needs to be demonstrated, and on which management systems referred to in point (b) apply, including by means of geographical coordinates or parcels.
- b) Management systems applicable to the sourcing area ensuring:
  - (i) the legality of harvesting operations, which shall be proven by providing evidence of the compliance of harvesting with the due diligence system defined in Article 6 of Regulation (EU) No 995/2010;
  - (ii) that forest regeneration is carried out in a manner that at least maintains the quality and quantity of the harvested forest areas, which may be proven by providing evidence of the establishment of a new forest in the same area within a maximum of 10 years after the harvesting. That may be proven by using forest management plans, operational protocols, environmental impact assessments, and results of relevant compliance audits and inspections;
  - (iii) that forest biomass does not originate from areas designated by international or national law or by relevant competent authority for nature protection, including in wetlands, grasslands, heathlands and peatlands, with the aim of preserving biodiversity and preventing habitat destruction, unless evidence is provided that

the harvesting of that raw material does not interfere with those nature protection purposes. That may be proven by using international and national databases, official maps, forest management plans, operational protocols, harvesting protocols, satellite imaging, environmental impact assessments, and official logging permits including conditions or restrictions ensuring that there is no conflict with the relevant nature protection objectives, and the results of relevant compliance audits and inspections;

(iv) that forest harvesting is carried out in a way that aims at least at preventing negative impacts on soil quality and biodiversity. This may be proven by providing evidence that the relevant risks associated with the harvesting of forest biomass for energy production have been identified in advance; and that, appropriate mitigation actions have been implemented such as the following:

- primary forests and old growth forests as defined in the country where the forest is located are not degraded to or replaced by plantation forests;
- harvesting of stumps and roots is avoided;
- no harvesting is carried out on vulnerable soils;
- harvesting is carried out through logging systems that minimise impacts on soil quality, including soil compaction;
- harvesting is carried out in a way that minimises impacts on biodiversity features and habitats, including plants and animals protected under international or national legislation;
- a locally and ecologically appropriate retention thresholds for deadwood extraction; and
- harvesting is carried out in compliance with maximum thresholds for large clear-cuts as defined in the country where the forest is located.

Those mitigation actions may be proven by using international and national databases, official maps and satellite imaging, forest management plans, operational protocols, and harvesting protocols, results of relevant compliance audits and inspections;

(v) the harvest maintains or improves the forest's long-term production capacity. This may be proven by providing evidence that the annual fellings do not exceed the net annual increment in the relevant sourcing area on average within the 10-year period prior to the harvesting intervention, unless different amounts are duly justified in order to enhance the future production capacity of the forest; or because of documented forest pests, storms or other natural disturbance. That may be proven by using public or private forest inventory data.

(vi) That the forests in which the forest biomass is harvested do not stem from the lands that have the statuses referred to in revised Directive EU/2018/2001 Article 29(3) points (a), (b), (d) and (e); Article 29(4), point (a), and Article 29(5), respectively under the same conditions of determination of the status of land specified in those paragraphs.

Annex C provides a stepwise approach and guidance for first gathering points undertaking the Level B risk assessment for Article 29(6).

**5.4.3** The risk assessment report shall be prepared in a standard format developed by Better Biomass. The template for the report format is available on the Better Biomass website.

## 6. Assessment of compliance with LULUCF criteria (art 29.7)

### 6.1 General

This chapter specifies the requirements to assess compliance with the land use, land use change and forestry (LULUCF) criteria laid down in revised Directive EU/2018/2001, Article 29.7.

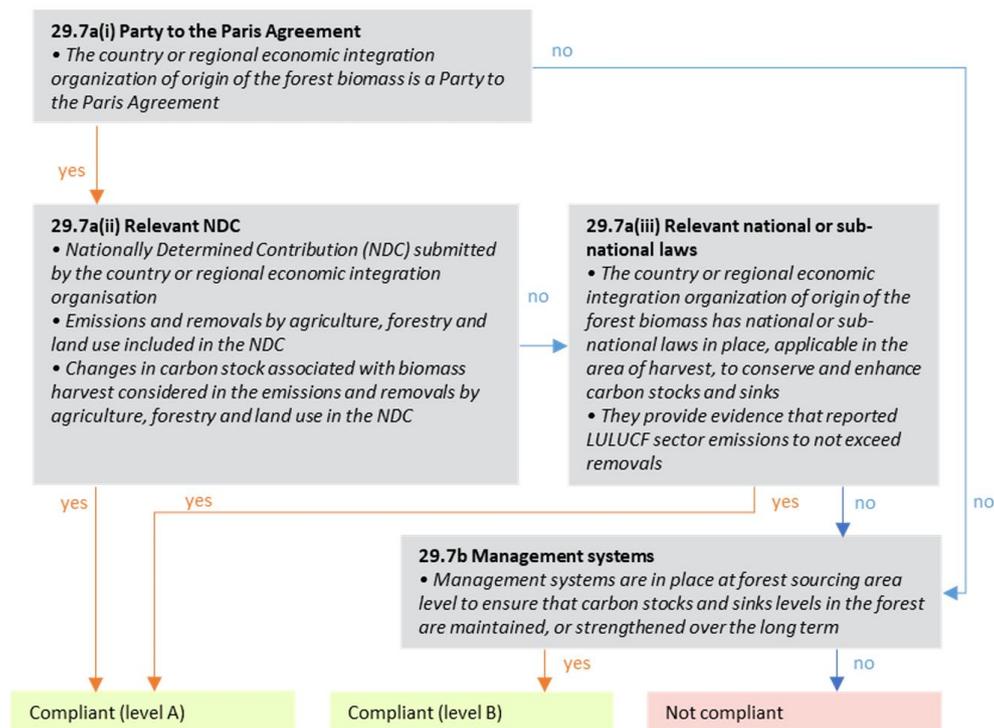
Box 2 below includes the text of Article 29.7 on land use, land use change and forestry (LULUCF) criteria:

**Box 2: Land use, land use change and forestry criteria (revised Directive EU/2018/2001, Article 29.7)**

*Biomass fuels produced from forest biomass taken into account for the purposes referred to in points (a), (b) and (c) of the first subparagraph of paragraph 1 shall meet the following land-use, land-use change and forestry (LULUCF) criteria:*

- a) The country or regional economic integration organisation of origin of the forest biomass:
  - (i) is a Party to the Paris Agreement and;*
  - (ii) has submitted a nationally determined contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC), covering emissions and removals from agriculture, forestry and land use which ensures that changes in carbon stock associated with biomass harvest are accounted towards the country's commitment to reduce or limit greenhouse gas emissions as specified in the NDC; or*
  - (iii) has national or sub-national laws in place, in accordance with Article 5 of the Paris Agreement, applicable in the area of harvest, to conserve and enhance carbon stocks and sinks, and providing evidence that reported LULUCF-sector emissions do not exceed removals;**
- b) Where evidence referred to in point (a) of this paragraph is not available, the biomass fuels produced from forest biomass shall be taken into account for the purposes referred to in points (a), (b) and (c) of the first subparagraph of paragraph 1 if management systems are in place at forest sourcing area level to ensure that carbon stocks and sinks levels in the forest are maintained, or strengthened over the long term.*

Figure 2 presents a stepwise approach for economic operators for demonstrating compliance with the LULUCF criteria of revised Directive EU/2018/2001, Article 29.7. It shows that compliance shall be demonstrated at national or sub-national level (level A), or, if compliance cannot be demonstrated at national or subnational level, evidence shall be sought at forest sourcing area level (level B).



**Figure 2 — Decision-tree for demonstrating compliance with the LULUCF criteria through national or sub-national legislation (Level A) or at forest sourcing area (Level B).**

## 6.2 Approach for demonstrating compliance through national or subnational laws (level A)

**6.2.1** This section specifies a three-step approach that shall be followed to demonstrate compliance with the LULUCF criteria at national or sub-national level, i.e.:

- Step 1: Determine if a country or a regional economic integration organisation is a party to the Paris Agreement;
- Step 2: Determine if a country or a regional economic integration organisation has submitted a Nationally Determined Contribution (NDC) to the 2015 Paris Agreement on Climate Change following the 21<sup>st</sup> Conference of the Parties to the United Nations Framework Convention on Climate Change;
- Step 3: Determine if national or sub-national laws that aim to conserve and enhance carbon stocks and sinks in forests are in place.

These steps have been detailed further below:

**6.2.2 Step 1:** Determine if a country or a regional economic integration organisation is a party to the Paris Agreement

As a first step, it is necessary to check whether the country or regional economic integration organisation is listed as a Party to the Paris Agreement. This could be verified from the United Nations list of parties to the Paris Agreement. If this condition is not met, demonstrating compliance at national level (level A) is not possible and an economic operator should proceed with demonstrating compliance at forest sourcing area level (level B).

**6.2.3 Step 2:** Determine if a country or a regional economic integration organisation has submitted a Nationally Determined Contribution (NDC) to the 2015 Paris Agreement on Climate Change following the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change.

In the second step, it is necessary to determine whether the country or regional economic integration organisation from which forest biomass is originating has submitted a Nationally Determined Contribution and if the NDC meets the following requirements:

- a. the NDC includes the agriculture, forestry and land use sectors, either combined as one agriculture, forestry and other land use (AFOLU) sector, or as agriculture and LULUCF sectors separately;
- b. the NDC explains how the agriculture, forestry and land use sectors have been considered in the NDC;
- c. the NDC counts the emissions and removals from the agriculture, forestry and land use sectors against the country's overall emission reduction target, including emissions associated with the harvesting of forest biomass.

The mere existence of a submitted NDC mentioning the AFOLU sector (or the agriculture and the LULUCF sectors) is not enough for demonstrating compliance with the criteria of Art. 29.7).

In case that three requirements are met, forest biomass from any forestry operator in the country/region assessed complies with the LULUCF requirements laid down in Article 29.7. In case one or more requirements are not met, the Level A assessment should proceed with Step 3.

Please note that countries and regional economic integration organisations are requested to submit the next round of NDCs (new or updated NDCs) by 2020 and every five years thereafter (i.e. by 2020, 2025, 2030), regardless of their respective implementation time frames. Some countries have already submitted new NDCs and more countries will submit them towards the end of 2020. As NDCs are nationally determined and there are no mandatory accounting methods for LULUCF in the Paris Agreement, but only provisions aimed at ensuring transparency of the method used. Hence, countries will have different approaches to setting national targets in their NDCs and apply different methods to account AFOLU emissions and removals towards their climate targets. Similarly, also the approaches addressing the AFOLU sector in the NDCs may differ; countries might exclude the AFOLU sector from their NDC at all, they might include the AFOLU sector within the overall target for emission reductions, or they might have a separate target for the AFOLU sector (or even separately for agriculture and the LULUCF sectors).

**6.2.3 Step 3:** Determine if national or sub-national laws that aim to conserve and enhance carbon stocks and sinks in forests are in place

For the third step, it is necessary to check whether national or sub-national laws are in place that aim to conserve and enhance carbon stocks and sinks in forests. For example, such laws could be

(sub-)national laws implementing the LULUCF Regulation, or other climate change or protection-related laws in case they require that forest carbon stocks and sinks are maintained or enhanced. The presence of a law that merely requires that forest area should be maintained is not sufficient as it does not guarantee that the carbon stocks and sinks are maintained or enhanced.

The presence of such laws must be accompanied with evidence that reported LULUCF sector emissions do not exceed removals. Such information can be obtained from National Greenhouse Gas Inventory Reports submitted to UNFCCC. It is recommended to consider emissions and removals data from a period of the last 10 years, but can be shorter or longer to mitigate the impact of annual disturbance or any eventual stochastic events on the levels of carbon emissions and removals.

Compliance is demonstrated when the sum of reported LULUCF sector emissions (reported as positive values) and removals (reported as negative values) is zero or negative. If this condition is not met, demonstrating compliance at national level (level A) is not possible and an economic operator should proceed with demonstrating compliance at forest sourcing area level (level B).

Table 1 below summarises LULUCF criteria, related proof of compliance and possible sources of evidence when demonstrating compliance at national level.

**Table 1 — Summary of LULUCF criteria, related proof of compliance and possible sources of evidence, when demonstrating compliance at national level (Level A) (source: REDIIBIO – Final report)**

Criteria	Evidence of compliance	Source
The country or regional economic integration organization of origin of the forest biomass:		
(i) is a Party to the Paris Agreement	The country or regional economic integration organization is listed as a Party to the Paris Agreement	United Nations list of parties to the Paris Agreement: <a href="https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&amp;mtdsg_no=XXVII-7-d&amp;chapter=27&amp;clang=_en">https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&amp;mtdsg_no=XXVII-7-d&amp;chapter=27&amp;clang=_en</a>

<p>(ii) has submitted a nationally determined contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC), covering emissions and removals from agriculture, forestry and land use which ensures that changes in carbon stock associated with biomass harvest are accounted towards the country's commitment to reduce or limit greenhouse gas emissions as specified in the NDC</p>	<p>Presence of a Nationally Determined Contribution in the UNFCCC registry, submitted by the country or regional economic integration organization</p>	<p>NDC is included in the UNFCCC NDC Registry:  <a href="https://unfccc.int/process-andmeetings/the-parisagreement/nationallydetermined-contributions-ndcs">https://unfccc.int/process-andmeetings/the-parisagreement/nationallydetermined-contributions-ndcs</a></p>
	<p>Emissions and removals by agriculture, forestry and land use are included in the country's or regional economic integration organization's NDC</p>	<p>Information provided in the NDC</p>
	<p>Changes in carbon stock associated with biomass harvest are considered in the emissions and removals by agriculture, forestry and land use</p>	<p>Information provided in the NDC</p>
<p>iii) has national or sub-national laws in place, in accordance with Article 5 of the Paris Agreement, applicable in the area of harvest, to conserve and</p>	<p>Presence of national or subnational laws to conserve and enhance carbon stocks and sinks in forests</p>	<p>National or sub-national legislation</p>

enhance carbon stocks and sinks, and providing evidence that reported LULUCF-sector emissions do not exceed removals	Reported LULUCF-sector emissions for the country or regional economic integration organization do not exceed removals	Compare emissions and removals for the LULUCF sector, as reported in National Inventory Reports submitted to UNFCCC: <a href="https://unfccc.int/process-andmeetings/transparency-andreporting/reporting-and-reviewunder-theconvention/greenhouse-gasinventories-annex-iparties/national-inventorysubmissions-2019">https://unfccc.int/process-andmeetings/transparency-andreporting/reporting-and-reviewunder-theconvention/greenhouse-gasinventories-annex-iparties/national-inventorysubmissions-2019</a>
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### 6.3 Process requirements for developing Level A assessments against Article 29.7 requirements

**6.3.1** Level A assessments shall not be undertaken by individual operators or by Better Biomass, but by in country expert individuals or organisations, e.g. competent ministries, qualified national-level organisations or associations, qualified academic researchers and consultants. Information on the professional background and competencies of the authors of the assessment shall be included in the assessment report, together with signed declarations confirming absence of any conflict of interest.

**6.3.2** The completed risk assessment shall be reviewed by an independent committee. This review shall confirm that the risk assessment has followed the process requirements laid down in this standard, that it is complete and that it meets quality requirements. If it appears that the process requirements have not been followed, that elements are missing or that the quality is insufficient, the risk assessment shall not be published for public consultation. Instead, it must be adjusted and resubmitted for independent review.

The independent review committee will be composed by Better Biomass. Representatives of individual operators or other experts with a potential conflict of interest shall not be included in this committee.

**6.3.3** Once the risk assessment has successfully passed the committee's review, it shall be subject to a public consultation process of four weeks. The risk assessment shall be published on both the author's website and on the Better Biomass website. Furthermore, Better Biomass will notify stakeholders through its newsletters and email.

All feedback received during the stakeholder consultation shall be reviewed by the authors of the risk assessment and, where needed, lead to amendments in the risk assessment report. All feedback received will be documented in a separate document, which will be made available on the Better Biomass website.

**6.3.4** Following the evaluation of the stakeholder feedback, the assessment report can be finalised by the authors and submitted to Better Biomass for formal approval by Better Biomass Committee of Experts. After this, Better Biomass will publish the summary of the assessment report on its website.

**6.3.5** The validity of the approval is 5 years, unless the evidence basis changes. If Better Biomass receives information which suggests that the evidence basis has changed, it will immediately notify the assessment report's authors and request an update of the report. For this

update, steps 1-4 as outlined above shall be followed. Where needed, this will be done in exchange with other voluntary schemes to ensure a consistent approach.

**6.3.6** Better Biomass will accept risk assessments approved by other voluntary schemes. Better Biomass will check the Level A assessment of other schemes by means of an internal assurance process before accepting them.

**6.3.7** Better Biomass publishes on its website an up-to-date list of voluntary schemes which are recognised to forest biomass, and which Level A risk assessments these schemes have published and are accepted under Better Biomass. Economic operators and certification bodies will be informed by Better Biomass of any changes to this list in a timely manner.

**6.3.8** Audit reports must specify which risk assessment has been used.

NOTE: The recognition status of voluntary schemes covering forest biomass can be found on the European Commission's Voluntary schemes webpage: [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en)

NOTE: Several country sheets were developed as test cases of the Level A methodology within the RED II BIO project. The country sheets do not hold any legal value and were solely used for the purpose of testing the methodology developed for the level A.

## **6.4 Approach for demonstrating compliance through management systems at the sourcing area level (level B)**

**6.4.1** This section provides the approach to demonstrate compliance with the harvesting criteria of Article 29.7 at the forest sourcing area level (level B).

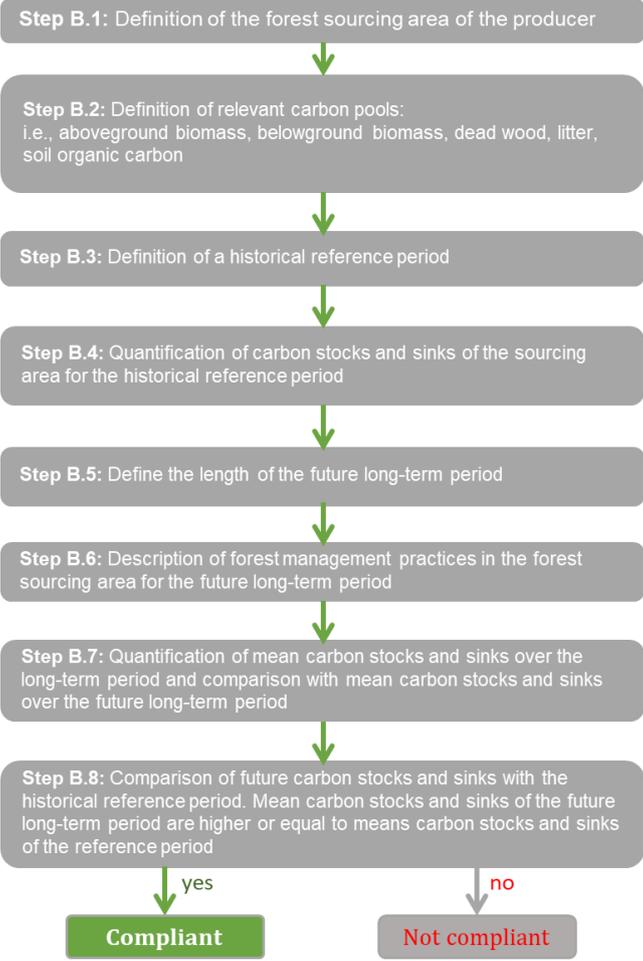
The first gathering point shall implement the risk assessment and, if necessary, risk mitigation on a forest sourcing area level (level B) if:

- a. there is no official national/sub-national level (Level A) risk assessment available;
- b. any sustainability criteria is designated as specified risk at the national/sub-national level (Level A risk assessment does not indicate low risk for all indicators)

**6.4.2** In other words: if evidence of compliance with one or several LULUCF criteria at national or subnational level is not available (i.e., it is not possible to justify low risk), the first gathering point shall demonstrate that those criteria have been complied with through management systems that are in place and implemented at the level of the sourcing area. Those management systems shall ensure that carbon stocks and sinks levels in the forest are maintained or strengthened, both over the long term. Such systems shall include information from (forward-looking) planning and periodic monitoring of the development of forests and their carbon stocks and sinks.

**6.4.3** Methodologies to assess carbon stocks and sinks in forests already exist and could be adapted by an economic operator to provide evidence of compliance with the LULUCF criterion at the level of a sourcing area. Such methodologies are used for national level reporting and assessments to UNFCCC (see IPCC supporting documents) under the LULUCF Regulation (see supporting documents by Grassi et al. (2018) and Forsell et al. (2018)) and by voluntary carbon standards for certifying carbon emissions reductions through AFOLU activities at landscape or stand level. These methodologies serve as a useful starting point for developing approaches to demonstrate compliance with the LULUCF sub-criterion, but they need to be adapted as they have not been designed for demonstrating compliance with revised Directive EU/2018/2001.

**6.4.4** Building on existing methodologies, the following section describes a stepwise approach, including 8 steps (see also Figure 3), to demonstrate compliance with the LULUCF criterion on the level of a forest sourcing area (level B). The approach builds on existing methods for which tools and data can be used that are freely available from public sources. However, it is considered that familiarity with calculations on forest carbon stocks and sinks is needed to be able to provide evidence for compliance. Furthermore, the approach described below requires an economic operator to ensure that a forest management is implemented in the forest sourcing area that will result in equal or higher carbon stocks in the long-term period.



**Figure3 — Steps to demonstrate LULUCF criteria compliance at forest sourcing area level**

**6.4.5 Step 1: Define the spatial boundaries of the sourcing area**

The economic operator shall define the spatial boundaries of the sourcing area. The sourcing area of an economic operator comprises the area for which compliance needs to be demonstrated e.g. by means of geographical coordinates, plots or parcels, including stands and tracts of land (see B.3.4 for the definition of a sourcing area).

To satisfy the requirements as set out in revised Directive EU/2018/2001, Article 2.30, it is recommended that the compliance check is conducted for a geographically explicit area belonging to a single country or a region, depending on which level forest legislation is regulated.

Furthermore, it is recommended to conduct the compliance check for a geographically explicit area having common forest management practices that ensure implementation of sustainable yield management in the sourcing area during the assessment period. Please note that spatial boundaries are not necessarily relating to a continuous, unfragmented patch of land, but may comprise several mutually unconnected areas.

#### **6.4.6 Step 2: Identify relevant carbon pools**

The economic operator shall identify the relevant forest carbon pools in the sourcing area, including:

1. Aboveground biomass
2. Belowground biomass
3. Litter
4. Dead wood
5. Soil (mineral and organic soils)

These pools also encompass the carbon pools considered relevant by the LULUCF Regulation except the Harvested Wood Products pool. The Harvested Wood Products pool can be excluded because it is not a forest carbon pool.

#### **6.4.7 Step 3: Determine a historical reference period and quantify carbon stocks**

The economic operator shall calculate the average forest carbon stocks and sinks over a historical reference period with the purpose of establishing a benchmark for the comparison of maintenance or strengthening of forest carbon stocks and sinks of a sourcing area. Economic operators shall use the reference period 2000-2009, or another period of similar length and as close as possible to 2000-2009, to facilitate the use of forest inventory data or to mitigate the impacts of natural disturbances or other extreme events. The economic operators shall duly justify the choice of their reference period.

The economic operator shall estimate reference values for all relevant carbon pools individually identified in Step 2. In case an economic operator is not able to quantify one of the relevant carbon pools, he shall duly justify why a pool cannot be quantified.

Data on carbon stocks and sinks in the sourcing area may be obtained from (repeated) forest inventories or forest management plans, provided they are transparent, accurate and reliable. If there are no existing data on carbon stocks and sinks in the sourcing area, an economic operator can estimate mean carbon stocks and sinks of the sourcing area for the historical reference period, for example by applying forest carbon calculators or models (see Table E.1 in Annex E). Data (tree species, growing stock, age-structure, increment rate, see Table E.2 in Annex E) to be used in these tools can be obtained from historical forest management plans or inventories conducted in the sourcing area, but additional data (e.g. basic wood density, carbon content, factors to estimate whole-tree biomass) may be needed to provide necessary information on all of the relevant carbon pools (see Step 2).

It is recommended that an economic operator provides or estimates reference values for all the relevant carbon pools individually. When estimating historical carbon stocks and sinks, it is recommended to further stratify the sourcing area in homogenous units. Stratification is not an

explicit requirement of revised Directive EU/2018/2001 but is suggested to improve accuracy of the estimates. When stratifying the sourcing area, an economic operator can consider some of the following factors:

a. Administrative/legal conditions:

- Administrative region where sourcing level is located (e.g. region, province, municipality);
- Ownership type (e.g., private, public);

b. Biophysical conditions:

- Topography;
- Site conditions (e.g. forest site index);

c. Forest characteristics:

- Tree species composition;
- Forest management regime.

**6.4.7 Step 4:** Describe forest management practices in a sourcing area for the future long-term period

The economic operator shall describe the scenario of the expected forest management practices in a sourcing area for a projected long-term period covering at least 30 years after the harvesting event from which the biomass is sourced. The scenario shall be constructed on the basis of the forest management practices in a sourcing area documented for the historical reference period, or on existing forest management plans or other verifiable evidence. The future forest management practices shall as a minimum comply with legal requirements that are valid in a sourcing area.

When describing the future forest management practices in the sourcing area, the following factors could be considered that may affect the development and calculation of forest carbon balances and sinks in subsequent steps:

- Annual harvest level;
- Tree species composition;
- Forest reproductive material used (provenance);
- Thinning intensity and frequency;
- Cutting regime (e.g. even-aged clearcutting, shelterwood, group or tree selection, coppice);

- Other management decisions (e.g. fertilization, drainage, herbicide and pesticide application, etc.);
- Average minimum and maximum rotation length.

Potential data sources for these factors are listed in Table C.3 in Annex C.

#### **6.4.8 Step 5: Quantify average carbon stocks and sinks over the projected long-term period**

The economic operator shall estimate the average carbon stocks and sinks of the sourcing area over the projected long-term period, covering at least 30 years depending on the forest growth rate, after the harvesting of the forest biomass. In order to ensure comparability with the historical reference period, those estimates shall use the same carbon pools, data and methods referred to in Step 2.

In a case when an economic operator is not able to quantify any of the abovementioned pools (e.g. litter or soil carbon, see step 2), the economic operator shall provide a justification why a pool cannot be quantified (e.g. absence of data on the litter or soil carbon pools). Also, relevant secondary data and information shall be considered to explain how forest biomass removals are expected to affect these carbon pools in the long term at the forest sourcing area.

To assess how carbon stocks and sinks will develop over the long term, economic operators shall develop a projection of the development of carbon stocks and sinks in the forest sourcing area, based on forest growth and planned management practices. Assumptions on the effects of future impact of policies and markets should be avoided as much as possible. Economic operators can apply forest carbon calculators and models (for an overview of potential tools, see Table C.4 in Annex C) as a basis for these calculations. Such tools will require information on future forest management practices (see Step 4), forest structure (e.g., tree species, growing stock, age structure) and growth (increment), as well as additional data (e.g. basic wood density, carbon content, factors to estimate whole-tree biomass) (for an overview of potential data sources, see Table 9). In line with the recommendations provided in Step 3, it is recommended to stratify the sourcing area in homogenous units to improve accuracy of the estimates.

Finally, the temporal development of all carbon pools shall be documented to facilitate the comparison with results obtained from monitoring, as a basis for the verification of compliance under revised Directive EU/2018/2001, Article 30.

#### **6.4.9 Step 6: Compare future carbon stocks and sinks with the historical reference period**

The economic operator shall compare the average carbon stock and sinks in the relevant forest sourcing area of the projected long-term period (Step 5) with the forest carbon stocks and of the historical reference period (Step 3). If the average forest carbon stocks and sinks of the projected long-term period are equal or higher than the average forest carbon stocks and sinks of the historical reference period, the economic operator is compliant with the LULUCF criteria at the forest sourcing area level.

Economic operators shall put in place adequate monitoring and verification systems of the actual development of carbon stocks and sings in demonstrated compliance with the requirements specified in this standard.

## **6.5 Challenges related to demonstrating compliance at the sourcing area level**

**6.5.1** There are several distinct challenges that must be pointed out with respect to the above described compliance assessment approach. The challenges are related to how to respond to **uncertainties, non-permanence, and time dynamics**.

It is essential that the above-described approach is supported by monitoring activities that would verify estimates of future carbon stocks and sinks as estimated by carbon models. This is because actual forest developments might differ from the modelled development, for example as a result of changes in forest management objectives and practices or natural disturbances. A monitoring and verification system actual development of carbon stocks and sinks should be used to support documentation of compliance.

**6.5.2** Deviations between the projected and actual development of stocks and sinks due to natural disturbances would require adaptive responses by the management of the forest. Management plans need to consider such circumstances and be flexible enough to respond and assessments of likely disturbances need to be an integral part of the plan. Emissions caused by natural disturbances are to be excluded from the accounts of an economic operator, only if a disturbance event represents a statistical outlier in a natural disturbance regime of a supply area. To prove that a disturbance represents a statistical outlier, an economic operator can adapt the methodology described in Article 10 and Annex VI of revised Directive EU 2018/841.

**6.5.3** Some tree species may be negatively affected by climate change through changes in productivity or through natural disturbances, which could negatively affect the development of their carbon stocks and sinks levels over the long term. Revised Directive (EU) 2018/2001 does not specify how climate change impacts should be considered. A change of tree species (or provenance), or another change in the management of the future stand to anticipate or adapt to new conditions, may result in a (temporary) decrease in carbon stocks and sinks in the short term with the aim to maintain or strengthen carbon stocks and sinks in the long term. It may be necessary to allow for a temporary reduction of carbon stock and sinks if this will result in maintaining or strengthening carbon stocks and sinks in the long term. At the forest sourcing area level, carbon stocks and sinks levels in the forest are considered to be maintained, or strengthened over the long term if forest management will be continued or improved on the basis of regionally adopted specific site-suitable practices under current and future conditions.

## **Annex A**

(normative)

### **Relevant concepts for demonstrating compliance with sustainability requirements for forest biomass**

#### **A.1 General**

This annex explains relevant concepts for demonstrating compliance with the sustainability requirements for forest biomass, as specified in Articles 29.6 and 29.7 of revised Directive (EU) 2018/2001, in addition to the definitions provided in Chapter 3 and in NTA 8080-1:2024+A1:2025, chapter 3.

#### **A.2 National or sub-national laws applicable in the area of harvest**

For level A compliance, the harvesting criteria need to be fulfilled at national level, for the country where the biomass was harvested. Laws, enforcement and monitoring systems can be a national, or a sub-national competence. In the latter case, such sub-national areas are referred to as regions. All regions shall comply with a criterion for a country to be considered to pass it at "level A". The regional level can be referred to differently depending on the country. In federal countries, such as for example Austria (10 Länder), Belgium (3 regions), Canada (10 provinces), Germany (16 Bundesländer) and the United States of America (US, 50 states), or in decentralized countries such as for example Spain (17 regions) and Italy (20 regions), important parts of the legislative power in the area of forestry have been transferred from the country level to the sub-national level. It shall be noted that different laws may apply for different types of forest ownership. For example, private forests in the US are regulated at State level, while federally owned forests are regulated through federal (national) legislation.

#### **A.3 Monitoring and enforcement systems**

Revised Directive (EU) 2018/2001 requires **monitoring and enforcement systems** to be in place for all five harvesting criteria. **Monitoring systems** assess the correct implementation of the legislation through various possible forms of assessment (for example: field checks, inventory, remote sensing), while **enforcement systems** seek to remedy infringements of the legislation. Enforcement systems can include sanctions and other mechanisms designed to punish (enforcement through deterrence), as well as remedial actions to bring a private or economic actor into compliance (enforcement through cooperation). Mandated competent authorities that monitor and enforce adherence to legislation in the area of harvesting and forest management are typically ministries responsible for forest, national forest agencies, forest directorates, nature protection agencies etc.

The monitoring and enforcement criteria may be considered satisfied when:

- a. The relevant legislation includes mandatory monitoring and enforcement provisions, including that a competent authority to monitor and enforce legislation is specified in relevant legislation as well as sanctions which are enforced in case of infraction (source of information would be relevant national laws/regulations); and
- b. There is no substantiated alert or evidence from international or national governmental organizations of a *significant* and a *systematic* lack of enforcement, caused for instance by widespread corruption of forest enforcement authorities or continued unaddressed illegality.

Possible sources of information are reports from international government organisations, such as the UNEP-WCMC briefing notes for third countries, or the Commission infringement procedures for EU Member States, as well as national governmental sources. In the context of the legality criterion, the EU Member States have implemented the EU Timber Regulation (EUTR, Regulation EU 995/2010), for which they have mandated a variety of public agencies to perform checks on operators and monitoring organizations. This is done to ensure that they fulfil their obligations under the EUTR, and to sanction if obligations would not be fulfilled. According to the EUTR, the placing on the market of illegally harvested timber or timber products derived from such timber is prohibited. Operators shall exercise due diligence when placing timber or timber products on the market and through adequate due diligence ensure negligible risk of illegally harvested timber or timber products entering the market. The EUTR requires Member States to lay down the rules on penalties applicable to infringements of the provisions of the regulation. The well-functioning of the EUTR itself is also being monitored and transparently reported through regular monitoring and review processes. Ultimately the EU can launch infringement procedures against a Member State that has demonstrated lacking implementation of the regulation.

#### **A.4 Management system**

The term '**management system**' means an information management system run by an economic operator to demonstrate that biomass sourcing is in compliance with the sustainability criteria at forest sourcing area level defined in Articles 29.6(b) and 29.7(b) of revised Directive EU/2018/2001. The management system shall document management practices with relevance to the sustainability criteria (as further described in this annex) that have been and are planned to be applied by forest managers/owners in the sourcing area. The management system is thus not to be confused with a forest management system, as in most cases the economic operator will have no legal power or mandate to manage the forests where it sources the biomass from.

The management system shall ensure that information necessary to demonstrate compliance with all sustainability criteria through a risk-based approach is collected, verified, assessed, securely stored by the economic operator and appropriately passed down the supply chain using a mass balance chain of custody (see Chapter 4). The system needs to be accurate, reliable and protected against fraud, including verification ensuring that materials are not intentionally modified or discarded so that consignments or part thereof could become a waste or residue (revised Directive EU/2018/2001, Article 30.3).

Stepwise approaches such as specified in B.5, help to define the information requirements, identify available information sources, and assess the available information.

#### **A.5 Sourcing area**

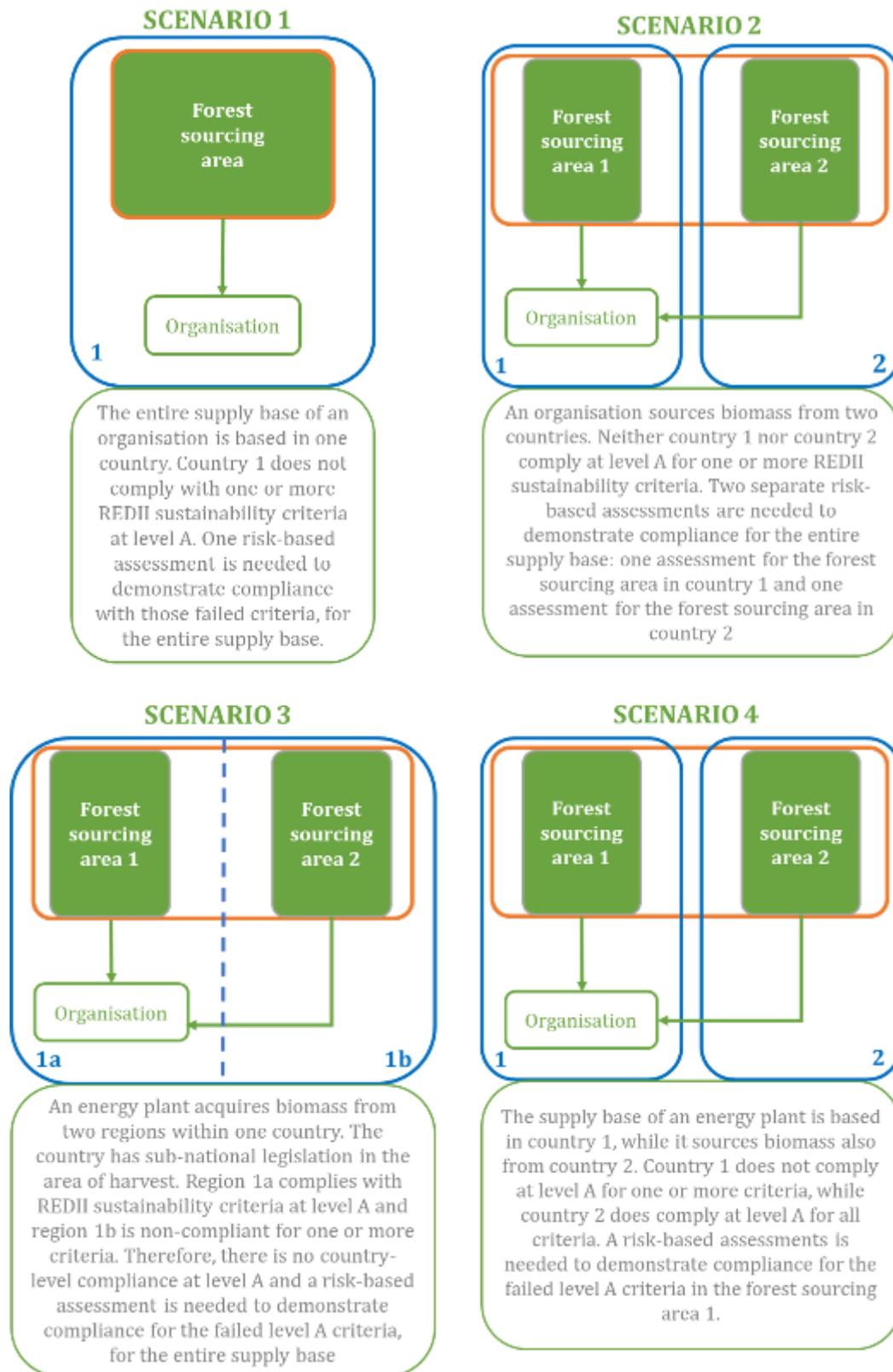
According to Article 2(30) of revised Directive EU/2018/2001, the term '**sourcing area**' is defined as "the geographically defined area from which the forest biomass feedstock is sourced, from which reliable and independent information is available and where conditions are sufficiently homogeneous to evaluate the risk of the sustainability and legality characteristics of the forest biomass". This definition implies:

- A "*geographically defined area*" means that the area of origin from which the forest biomass feedstock is harvested, is known and can be shown on a map, typically on the basis of administrative boundaries.
- "*From which reliable and independent information is available*" means that the information required to assess compliance with revised Directive EU/2018/2001 criteria is available from competent organizations, public or private, which have the legal

mandate to produce reliable information. For public forests this could concern the competent forest management authority. For private forests, this could concern e.g. forest extension organisations, or those directly responsible for the forest management.

- “Where conditions are sufficiently homogenous to evaluate the risk of the sustainability and legality characteristics of the forest biomass”: this means that within the administrative area, the set of legislative conditions covering the elements of the sustainability criteria, shall be the same (e.g. regions as corresponding to ISO 3166-2). If an economic operator’s supply base spreads over two countries or regions where the elements addressed in revised Directive EU/2018/2001 are governed through different sets of legislation, then that results in two separate sourcing areas for which the risk-based approach would have to be implemented separately. The supply base comprises the sourcing area or assembly of all sourcing areas from which a biomass operator sources its forest biomass feedstock.

Figure A.1. shows four examples of different scenarios for the division of an operator’s supply base into sourcing areas.



**Figure A.1 — Examples of sourcing areas**

NOTE: the location of the bioenergy plant does not affect the compliance requirements – it can be located within a sourcing area or outside the sourcing areas.

## A.6 Legality of harvesting operations

In line with the EUTR, the term '**legality of harvesting operations**' means that forest biomass harvesting activities shall comply with applicable legislation in force in the country of harvest. This includes the following requirements:

- Rights to harvest timber within legally gazetted boundaries;
- Payments for harvest rights and timber including duties related to timber harvesting;
- Timber harvesting, including environmental and forest legislation including forest management and biodiversity conservation, where directly related to timber harvesting;
- Third parties' legal rights concerning use and tenure that are affected by timber harvesting;
- Trade and customs, in so far as the forest sector is concerned.

For complete and legally applicable information concerning EUTR compliance requirements, please refer to the Commission implementing Regulation (EU) No 607/2012 of 6 July 2012 on the detailed rules concerning the due diligence system and the frequency and nature of the checks on monitoring organizations, the guidance documents as well as to the country risk profiles available on the Commission website.

## A.7 National or sub-national laws in accordance with Article 5 of the Paris Agreement

One of the criteria, which, when fulfilled, can in part assure national-level compliance with the requirements of revised Directive EU/2018/2001, Article 29.7(a), stipulates that national or sub-national laws need to be in place, in accordance with Article 5 of the Paris Agreement, applicable in the area of harvest, to conserve and enhance carbon stocks and sinks, and evidence is provided that reported LULUCF-sector emissions do not exceed removals. This implies that comprehensive national or sub-national monitoring frameworks need to be in place to report on carbon emissions and removals by the LULUCF sector.

NOTE This could be checked for example from a country's annual greenhouse gas inventory report submitted to the UNFCCC. Greenhouse gas inventory data can be checked e.g. from [https://di.unfccc.int/detailed\\_data\\_by\\_party](https://di.unfccc.int/detailed_data_by_party).

## A.8 Forest regeneration of harvested areas

Revised Directive EU/2018/2001 defines the term '**forest regeneration**' as the 're-establishment of a forest stand by natural or artificial means following the removal of the previous stand by felling or as a result of natural causes, including fire or storm' (Article 2.31 of revised Directive EU/2018/2001). Some of the possible scenarios are described in the following examples:

**Example 1:** A final cut was applied to a forest stand and the biomass was removed. Seed trees are left from the previous tree generation, which will form the foundation from which the new forest will establish;

**Example 2:** A forest was harvested. On the site no seedlings exist. The forest is regenerated through planting of seedlings originating from a tree nursery.

In the spirit of the revised Directive EU/2018/2001 sustainability criteria, highly biodiverse forests cannot be converted into forest stands that would in one rotation evolve into stands of significantly lower biodiversity values. Land-use change, i.e. a conversion from forest to another land-use type, would imply that the forest regeneration criterion cannot be fulfilled.

### **A.9 Areas designated by international or national law or by the relevant competent authority for nature protection purposes, including wetlands, grassland, heathland and peatlands**

The term ‘**designated areas**’ means land areas – which can include wetlands, grassland, heathland and peatlands – that are managed for nature protection purposes. The geographical boundaries of the protected areas need to be clearly defined. In case biomass extraction would be permitted, it can only be done with official approval that the intervention would comply with the nature protection purposes and management objectives of the area (see item iii of B.2.3).

Designated areas can be classified according to management or protection objective categories, either following official national or sub-national classifications, and/or following the classification system of the International Union for Conservation of Nature (IUCN):

(Ia) strict nature reserve;

(Ib) wilderness area;

(II) national park;

(III) natural monument or feature;

(IV) habitat/species management area;

(V) protected landscape/seascape; and

(VI) protected area with sustainable use of natural resources.

IUCN maintains the World Database on Protected Areas (WDPA). This most comprehensive global database on protected areas contains information on location and boundaries of protected areas, legal status and other indicators.

Several other international networks of designated areas exist, e.g. the UNESCO Biosphere Reserves promote solutions reconciling the conservation of biodiversity with its sustainable use. There are currently 701 biosphere reserves in 124 countries, including 21 transboundary sites, that belong to the World Network of Biosphere Reserves. Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located. Biosphere Reserves are designated under the intergovernmental MAB Programme by the Director-General of UNESCO following the decisions of the MAB International Coordinating Council (MAB ICC). Their status is internationally recognized.

### **A.10 Areas designated by international or national law or by the relevant competent authority for nature protection purposes, including in wetlands, grassland, heathland and peatlands, are protected unless evidence is provided that the harvesting of that raw material does not interfere with those nature protection purposes**

The requirement that ‘harvesting (...) **does not interfere with nature protection purposes**’ means that harvesting is only allowed if the intervention does not contravene, or helps to achieve

or maintain the nature protection purposes. In case harvesting is lawfully carried out in a designated area, it must meet the protection requirements of the designated site.

The objectives of habitat specific or species-specific nature protection legislation need to be complied with in order to avoid detrimental impacts of harvesting regarding any such objectives. To this end, it has to be assessed if designated areas are included in the sourcing area. Means of verification can include country-specific information systems on nature protection or international sources such as the IUCN World Database on Protected Areas (WDPA), a comprehensive global database on terrestrial and marine protected areas.

For example, the Habitats Directive 92/43/EEC 25 for the conservation of natural habitats and of wild fauna and flora has established the so-called Natura2000 network of protected habitats. In these areas, forest harvesting has to be carried out in such a way that it meets the requirements of the designated site<sup>26</sup>. Another example of when harvesting could be implemented on a protected site is when for phytosanitary reasons the removal of infected trees will safeguard the remaining forest, or when the removal of trees creates a more structurally diverse landscape.

#### **A.11 Harvesting is carried out considering maintenance of soil quality and biodiversity with the aim of minimising negative impacts**

The term **'maintenance of soil quality'** means keeping the physical, chemical, biological and ecological state of the soil after an intervention at comparable level to before the harvesting intervention. A simple method for maintaining the forest soil nutrient balance is to exclude residue harvest on poor or vulnerable soils (according to local soil maps and guidelines); and that harvest and extraction of foliage is omitted.

The JRC European Soil Data Centre defines soil quality as “an account of the soil's ability to provide ecosystem and social services through its capacities to perform its functions under changing conditions”.

**'Preventing negative impacts'** means preventing soil disturbance due to harvesting by applying a site-suitable harvesting system and preventing soil erosion, while allowing established sustainable forestry practice. Low-impact harvesting can for example be implemented by extracting the biomass via purpose-specific cableways in order prevent erosion on steep slopes or in the vicinity of waterways. Furthermore, forests on wet soils that are easily compacted by heavy machinery could be harvested e.g. by applying low harvesting impact techniques or in winter when the ground is frozen. Heavy machinery for logging or extracting timber should not be used in situations when that would result in irreversible damage to soil structure and productive capacity. Harvesting on vulnerable soils shall be avoided.

The term **'maintenance of forest biodiversity'** means that genetic and diversity of animal and plant species is unharmed during an intervention or can establish again after an intervention. This would include measures directly targeted at the conservation of habitats and species or indirectly by ensuring species can re-establish. This leads to consider e.g. genetic diversity and species richness that relate to the dominant plant and animal species that characterize a given forest ecosystem, while also vegetation structure (height, density, complexity) and age of the trees play an important role. Protecting and restoring biodiversity serves to maintain resilience in forests, in time and space.

**'Preventing negative impacts'** requires that biodiversity and habitat features are identified (e.g. habitat features for rare and endangered species, features and prevalent species with a high biodiversity value), and that harvesting operations are planned in such manner that these features are left unharmed or their establishment encouraged as much as possible. Measures could include exclusion of rare tree species from harvesting, maintaining a minimum amount of standing and laying deadwood of mature dimensions or a prohibition of harvesting during breeding season. It also includes the application of locally and ecologically appropriate retention thresholds for deadwood extraction, and avoiding the harvesting of stumps and roots.

### **A.13 Long-term production capacity of forests**

The term **'long-term production capacity'** refers to the ability of forest land to sustainably deliver products (such as wood of various quality grades, and non-wood-forest products) and services (such as forest recreation, air and water purification) over a long period of time, bridging several successive forestry rotations. A single forestry rotation lasts in duration from the forest regeneration to the final logging event, which can be 20 years for coppice and some fast-growing plantation species or up to 100 years and more in forests for the production of quality sawn timber.

The production capacity of forests is influenced by the tree species, variety and provenance, and climate and soil quality (determined by among others mineral composition, texture, nutrients, organic matter, soil moisture). But also, forest management influences the extent and condition (amount and quality) of ecosystem services that a forest can deliver. For example, it can impact the amount of wood and/or the amount of non-wood forest products.

Under sustainable harvesting intensity, the impact of forest harvesting on the forest production capacity will be low to non-significant when either the nutrient-rich foliage is left behind on the harvesting site, or that after ashes resulting from wood-based bio-energy production are returned to the forest in a way that nutrients are slowly released back into the ecosystem. It is to be noted that the impact of harvesting on the long-term production capacity depends strongly on local soil conditions. Long-term studies are not available in sufficient numbers to conclude clear implications of residue harvesting on long-term productive capacity.

A typical indicator for maintenance of the long-term production capacity, at country level or at forest sourcing area level, is that the harvested biomass should not exceed the net annual increment. An estimate of the net annual increment (NAI) of the forest - i.e. the net amount of stem wood that grows over a year's time - determines the maximum volume of wood that timber companies can harvest without endangering future possible harvesting levels. A maximum annual allowable cut (AAC) can be country-specific or applicable to smaller areas. This AAC is a very basic guidance to help maintain the long-term production capacity of the forest in a country. Estimates of NAI and AAC can be derived from national forest inventory data or yield tables for example, or they can be prescribed by a local forest management authority.

Forest biomass that results from salvage logging after natural disturbances will need to be taken into account when reporting the harvesting and increment levels. Temporary higher harvesting levels due to natural disturbances and salvage logging operations in an area must be justified and compensated for in the long term.

### **A.14 Forests in which the forest biomass is harvested do not stem from lands with a high biodiversity value and high carbon stock**

Forests in which the forest biomass is harvested do not stem from lands with a high biodiversity value and high carbon stock, specifically;

**(a) Primary forest and other wooded land**, namely forest and other wooded land of native species, where there is no clearly visible indication of human activity and the ecological processes are not significantly disturbed; **and old growth forests** as defined in the country where the forest is located<sup>2</sup>.

In the case that a definition for old growth forest is not available in the Member State or third country, the following definition for old growth forest shall be applied; An old growth forest is defined as a forest stand or area consisting of native tree species that have developed, predominantly through natural processes, structures and dynamics normally associated with late-seral developmental phases in primary or undisturbed forests of the same type. Signs of former human activities may be visible, but they are gradually disappearing or too limited to significantly disturb natural processes<sup>3</sup>. Raw material shall not be obtained from land that was primary forest or old growth forest in or after January 2008, whether or not the land continues to have this status.

Tree species are defined as native, if they grow within their natural geographical range and under climatic conditions to which they have adapted naturally and without human interference. Thus, primary forests and other wooded land consists of tree species that have not been introduced by humans or that, nevertheless would occur nonetheless in the area, e.g. due to the climatic conditions of the region.

Clear visible indication of human activity could be for instance land management (i.e. wood harvesting, forest clearance, land use change), heavy fragmentation through infrastructural constructions or disturbances to the natural biodiversity (e.g. significant occurrence of non-native plant or animal species). Activities of indigenous people or other humans managing the land in a traditional way do not count as clearly visible indications of human activity if they manage the forest on a subsistence level and their influence on the forested area is minimal (e.g. the collection of wood and non-timber products, the felling of a few trees as well as small-scale forest clearance according to traditional management systems);

**(b) Highly biodiverse forest and other wooded land** which is species-rich and not degraded, and has been identified as being highly biodiverse by the relevant competent authority, unless evidence is provided that the production of that raw material did not interfere with those nature protection purposes<sup>4</sup>. Highly biodiverse forest and other wooded land means that:

(1) Is not degraded, that is to say it is not characterised by long term loss of biodiversity due to for instance overgrazing, mechanical damage to the vegetation, soil erosion or loss of soil quality; and

(2) Is species-rich, that is to say it is:

a. A habitat of significant importance for critically endangered, endangered or vulnerable species as classified by the International Union for the Conservation of Nature Red List of Threatened Species or other lists with a similar purpose for species or habitats laid down in national legislation or recognised by a competent national authority in the country of origin of the raw material; or

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<sup>2</sup> As set out in Article 29(3) point (a) of Revised Directive EU/2018/2001

<sup>3</sup> European Commission (2023). COMMISSION STAFF WORKING DOCUMENT Commission Guidelines for Defining, Mapping, Monitoring and Strictly Protecting EU Primary and Old-Growth Forests. SWD(2023) 62 final. <https://data.consilium.europa.eu/doc/document/ST-7736-2023-INIT/en/pdf>

<sup>4</sup> As set out in Article 29(3) point (b) of Revised Directive EU/2018/2001

- b. A habitat of significant importance to endemic or restricted range species; or
- c. A habitat of significant importance to intra-species genetic diversity; or
- d. A habitat of significant importance to globally significant concentrations of migratory species or congregatory species; or
- e. A regionally or nationally significant or highly threatened or unique ecosystem;

**(C) Highly biodiverse grassland** spanning more than one hectare<sup>5</sup> that is:

- (i) **natural**, namely grassland that would remain grassland in the absence of human intervention and that maintains the natural species composition and ecological characteristics and processes. Raw material shall not be obtained from land that had the status of natural highly biodiverse grassland in or after January 2008, whether or not the land continues to have this status; or
- (ii) **non-natural**, namely grassland that would cease to be grassland in the absence of human intervention and that is species-rich and not degraded. Raw material shall not be obtained from land that had the status of natural highly biodiverse grassland in or after January 2008. The status of the land as being “non-natural highly biodiverse grassland” is to be identified as being highly biodiverse by the relevant competent authority, unless evidence is provided that the harvesting of the raw material is necessary to preserve its status as highly biodiverse grassland. When raw material is obtained from non natural highly biodiverse grassland to preserve its status as highly biodiverse grassland, the biodiversity status of the grassland shall be at least maintained, a degradation of the biodiversity status of the grassland due to an unsustainable management shall be avoided;

**(d) Heathlands**<sup>6</sup>, defined as vegetation with low and closed cover, dominated by bushes, shrubs, dwarf shrubs (heather, briars, broom, gorse, laburnum etc.) and herbaceous plants, forming a climax stage of development<sup>7</sup>. If a definition for heathland does not exist in the corresponding Member State or third country, then this definition applies. Raw material shall not be obtained from land that was heathland in or after January 2008, whether or not the land continues to have this status;

**(e) Wetlands**<sup>8</sup>, namely land that is covered with or saturated by water permanently or for a significant part of the year. Covered with water means that water is visible on the surface as water surface. Saturated by water is a soil that shows also water at the surface, but not as a closed water surface. Areas that are permanently covered by or saturated with water show this state throughout the year. Areas that are covered by or saturated with water during a considerable part of the year are saturated long enough, so that organisms dominate, which are adapted to wet or anaerobic conditions. These conditions can be found in areas of shallow water, shores, low-moor bog, marsh, fen and moor. They apply to natural or artificial wetland areas with water that is static or flowing, fresh, brackish or salt, including areas of marine water, at which

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<sup>5</sup> As set out in Article 29(3) point (d) of Revised Directive EU/2018/2001

<sup>6</sup> As set out in Article 29(3) point (e) of Revised Directive EU/2018/2001

<sup>7</sup> EU Copernicus. CORINE Land Cover Nomenclature Guidelines: Index CLC 322, <https://land.copernicus.eu/content/corine-land-cover-nomenclature-guidelines/html/index-clc-322.html>

<sup>8</sup> As set out in Article 29(4) point (a) of Revised Directive EU/2018/2001

the depth of low tide does not exceed six meters. The evidence of verification should reflect seasonal changes within a year.

The definition of wetlands can include, but is not restricted to the definition laid down in the Convention on Wetlands of International Importance, especially as Waterfowl Habitat, adopted on 2 February 1971 in Ramsar (Ramsar Convention on Wetlands). Raw material shall not be obtained from land that was wetland in or after January 2008 and no longer has this status. The provisions of this paragraph shall not apply if, at the time the raw material was obtained, the wetland had the same status as it had in January 2008. Thus, raw material can be obtained from wetlands, as long as the status is not changed or compromised and all applicable constraints are followed;

**(f) Peatland<sup>9</sup>**, namely soils with horizons of organic material (peat substrate) of a cumulative thickness of at least 30 cm at a depth of down to 60 cm. The organic matter contains at least 20 mass percent of organic carbon in the fine soil. Raw material shall not be obtained from land that was peatland in January 2008 or thereafter and no longer had this status. The obtaining of raw material is only possible if evidence is provided that the soil was completely drained in January 2008, or there has been no deeper draining of the soil since January 2008. Drainage means a drawdown of the mean annual level due to an increased water loss or a reduced water supply resulting from human activities or constructions within or outside of the area. For peatland that was partially drained in January 2008, a subsequent deeper drainage, affecting soil that was not already fully drained, is not allowed. It is allowed to use biomass from peatland, if evidence is provided that the cultivation and harvesting of that raw material does/did not involve drainage of previously undrained soil. Peat itself is not considered biomass.

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<sup>9</sup> As set out in Art. 29(5) of Revised Directive EU/2018/2001

**Annex B**  
(informative)

**Information sources for demonstrating compliance with the harvesting criteria through national or sub-national laws**

**Table B.1 — Information sources for demonstrating compliance with the harvesting criteria through national or sub-national laws**

Harvesting criteria	Type of evidence/verified information		Possible information sources
Harvesting legality (B.2.2, item i)	Laws	Adequate and efficient due diligence as required under the EU Timber Regulation (EUTR, (EU) 995/2010) has determined negligible risk of illegal logging	Legislation in the area of forestry can be checked from national official legislation journals and databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land & soil, agriculture and natural resources management, amongst other.  <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a>
Harvesting legality (B.2.2, item i)	Monitoring/ Enforcement	Proof that there is no evidence from national or international governmental organizations that there is significant and continued lack of enforcement  NOTE: NGO based sources shall be included only indirectly (for example through the UNEP-WCMC briefing notes) as to ensure a quality check has taken place on the information in these sources and ensuring no conflicting findings and outcomes.	The UNEP-WCMC briefing notes on EUTR implementation: <a href="http://www.unepwcmc.org/featured-projects/eu-timber-regulations-and-flegt">www.unepwcmc.org/featured-projects/eu-timber-regulations-and-flegt</a>
		Evidence that the relevant Member State	Legislation in the area of forestry can be checked from national official

		is not subject to any ongoing EU infringement procedure for non-compliance with the EU Timber Regulation	legislation journals and databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land & soil, agriculture and natural resources management, amongst other.  <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a>
Forest regeneration (B.2.2, item ii)	Laws	Legal analysis showing that the relevant legislation complies with the forest regeneration criteria	Legislation in the area of forestry can be checked from official national legislation journals and databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land & soil, agriculture and natural resources management, amongst other.  <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a>
Forest regeneration (B.2.2, item ii)	Monitoring/ Enforcement	Legal analysis showing that the relevant forest legislation includes monitoring and enforcement requirements for forest regeneration	Legislation in the area of forestry can be checked from official national legislation journals and databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land & soil, agriculture and natural resources management, amongst other.  <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a>
		Proof that there is no evidence from national or international governmental organizations that there is significant and continue lack of enforcement	The UNEP-WCMC briefing notes on EUTR implementation: <a href="http://www.unepwcmc.org/featured-projects/eu-timber-regulations-and-flegt">www.unepwcmc.org/featured-projects/eu-timber-regulations-and-flegt</a> . Other recent and relevant official information from national governmental or international inter-governmental sources, such as World Bank, FAO, UNEP.
Protected areas including in wetlands, grassland, heathland and peatlands,	Laws	Legal analysis showing that the relevant legislation complies with the protect areas requirement	Legislation in the area of forestry can be checked from official national legislation journals and databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land & soil, agriculture and natural resources management,

(B.2.2, item iii)			<p>amongst other.  <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a></p> <p>European Environment Agency  Common Database on Designated Areas for all its 36 member countries.  <a href="https://www.eea.europa.eu/data-and-maps/data/nationallydesignated-areas-national-cdda-14">https://www.eea.europa.eu/data-and-maps/data/nationallydesignated-areas-national-cdda-14</a></p> <p>World Database on Protected Areas (WDPA), including reports on the effective management of protected areas for most countries in the World.  <a href="http://www.protectedplanet.net">http://www.protectedplanet.net</a></p>
Protected areas (B.2.2, item iii)	Monitoring/ Enforcement	Legal analysis showing that the relevant forest legislation includes monitoring and enforcement requirements for protected areas	<p>Legislation in the area of forestry can be checked from official national legislation journals and databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land &amp; soil, agriculture and natural resources management, amongst other.  <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a></p>
		Proof that there is no evidence from national or international governmental organizations that there is significant and continue lack of enforcement	<p>The UNEP-WCMC reports on EUTR implementation:  <a href="http://www.unepwcmc.org/featured-projects/eu-timber-regulations-and-flegt">www.unepwcmc.org/featured-projects/eu-timber-regulations-and-flegt</a></p> <p>World Database on Protected Areas (WDPA), including reports on the effective management of protected areas for most countries in the World.  <a href="http://www.protectedplanet.net">http://www.protectedplanet.net</a></p> <p>Other recent and relevant official information from national governmental or international inter-governmental sources, such as World Bank, FAO, UNEP.</p>
Maintenance of soil quality and biodiversity	Laws	Legal analysis showing that the relevant legislation complies with the maintenance	Legislation in the area of forestry can be checked from national legislation databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral

(B.2.2, item iv)		of soil quality and biodiversity criteria	agreements on environment, forestry, land & soil, agriculture and natural resources management, amongst other. <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a>
Maintenance of soil quality and biodiversity (B.2.2, item iv)	Monitoring/ Enforcement	Legal analysis showing that the relevant forest legislation includes monitoring and enforcement requirements for protected areas	Legislation in the area of forestry can be checked from national legislation databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land & soil, agriculture and natural resources management, amongst other. <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a>
Long-term production capacity (B.2.2, item v)	Laws	Legal analysis showing that the relevant legislation complies with the long-term production capacity criteria	Legislation in the area of forestry can be checked from national legislation databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land & soil, agriculture and natural resources management, amongst other. <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a>
Long-term production capacity (B.2.2, item v)	Monitoring/ Enforcement	Legal analysis showing that the relevant forest legislation includes monitoring and enforcement requirements for long-term production capacity	Legislation in the area of forestry can be checked from national legislation databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land & soil, agriculture and natural resources management, amongst other. <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a>
		Proof that there is no evidence from national or international governmental organizations that there is significant and continue lack of enforcement	The UNEP-WCMC reports on EUTR implementation: <a href="http://www.unepwcmc.org/featured-projects/eu-timber-regulations-and-flegt">www.unepwcmc.org/featured-projects/eu-timber-regulations-and-flegt</a>  Other recent and relevant official information from national governmental or international inter-governmental sources, such as World Bank, FAO, UNEP
Land use criteria Article 29(3) points (a), (b), (d) and (e); Article 29(4), point	Laws	Legal analysis showing that the relevant legislation complies with the land use criteria specified.	Legislation in the area of forestry can be checked from national legislation databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land & soil, agriculture and natural

<p>(a), and Article 29(5)</p> <p>(B.2.2, item vi)</p>		<p>Proof that there is no evidence from national or international governmental organizations that there is significant and continue lack of enforcement</p>	<p>resources management, amongst other. <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a></p> <p>Legislation in the area of forestry can be checked from national legislation databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land &amp; soil, agriculture and natural resources management, amongst other. <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a></p>
<p>Statement of assurance</p> <p>(B.2.2, item vii)</p>	<p>Laws</p>	<p>Legal analysis showing that the relevant legislation complies with the requirement on statement of assurance.</p> <p>Proof that there is no evidence from national or international governmental organizations that there is significant and continue lack of enforcement</p>	<p>Legislation in the area of forestry can be checked from national legislation databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land &amp; soil, agriculture and natural resources management, amongst other. <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a></p> <p>Legislation in the area of forestry can be checked from national legislation databases or from the UN-FAO FAOLEX database of national legislation, policies and bilateral agreements on environment, forestry, land &amp; soil, agriculture and natural resources management, amongst other. <a href="http://www.fao.org/faolex">http://www.fao.org/faolex</a></p>

## Annex C (informative)

### Stepwise approach for demonstrating compliance of harvesting criteria at forest sourcing area level (Level B)

#### C.1 General

This Annex presents the approach to demonstrate compliance with the harvesting criteria at forest sourcing area level. These compliance checks have to be implemented at forest sourcing area level for those criteria for which level A evidence could not be provided. For each criterion, a stepwise approach is presented, as well as guidance with specific indicators and sources for verification of the indicators. The guidance was prepared based on a review of best practices applied in the industry. Given that legal systems, silvicultural approaches and available information approaches and sources differ considerably between countries and regions, the guidance is not exhaustive.

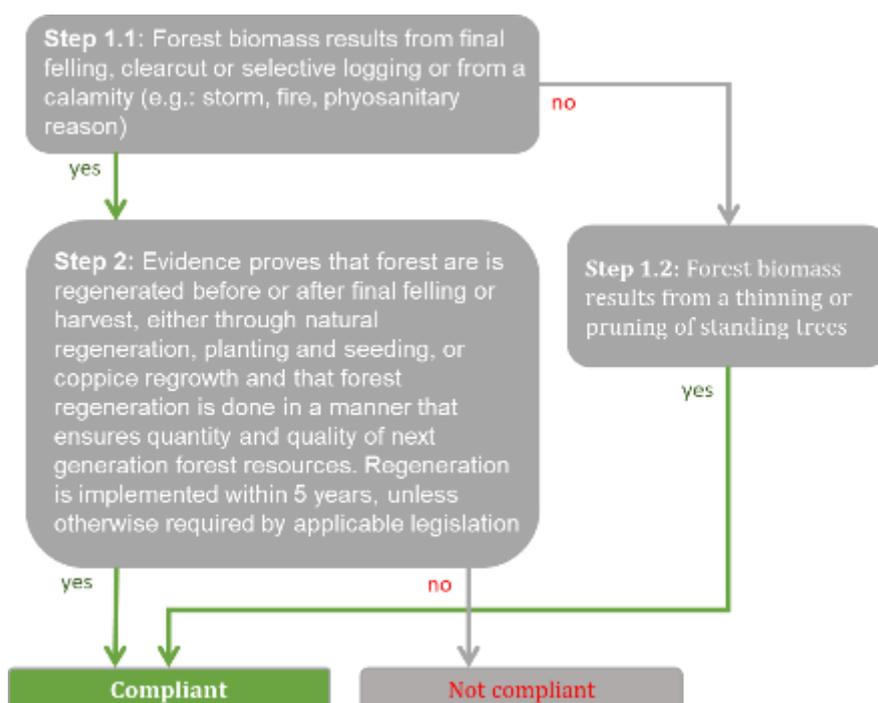
#### C.2 (i) Legality criterion

As mentioned in preceding sections, any wood and products made of wood that are placed on the EU market, need to comply with EUTR requirements. The procedure to comply with the legality criterion is the same for level A and level B. For further clarification on the link between revised Directive EU/2018/2001 and EUTR see Annex I.

The following guidance therefore applies to the harvesting criteria (ii) to (v).

#### C.3 (ii) Regeneration criterion

Figure C.1 summarises the stepwise approach for demonstrating compliance with the regeneration criterion.



### Figure C.1 — stepwise approach regeneration

Key steps include:

**Step 1.1:** The economic operator shall identify whether the forest biomass results from final felling, clearcutting or selective logging, or from a calamity (such as storm, fire, or for phyto-sanitary reasons to prevent the spread of biotic pests and diseases). In this case, regeneration is required.

**Step 1.2:** When biomass results from thinning or from the pruning of trees, then regeneration would not be an issue and the biomass would be considered automatically compliant with the criterion. Thinning means a reduction of the number of stems to give more space for the crowns of the main trees of interest to develop to maturity. This is undertaken while maintaining a maximum possible tree cover, not leading to forest degradation and instead ensuring quantity and quality of next generation forest resources.

The information to assess these first steps should be specified in forest management plans/operational reports/harvest protocols by specifying the type of forest operation from which forest biomass stems from (e.g. final felling, thinning, salvage cuttings). The information must be specified for each stand individually. The relevant information could be obtained e.g. from the forest owner directly, or from a competent authority that compiles such information from forests within the sourcing area.

**Step 2:** If regeneration is required, the operator shall provide evidence to make sure that regeneration will be carried out in an appropriate manner. This means that it is implemented either through natural regeneration, planting and seeding, or coppice regrowth. Also, evidence is required that forest regeneration is done in a manner that ensures quantity and quality of next generation forest resources. This also means that forest composed of site-natural species shall not be replaced with non-site natural plantations (e.g. site-natural forests will not be replaced by agriculturally managed monocultural plantations). Regeneration should be implemented at least within five years upon timber harvesting, unless otherwise required by the applicable legislation. This to have a limited time period without forest cover, ensuring the maintenance of forest productivity as well as the carbon sink.

This information required in this step should be available from forest management plans. These shall include a regeneration goal regarding species composition and establishment period, as well as identified measures to prevent abiotic and biotic hazards. The information must be specified for any stand individually. The information could be obtained e.g. from the forest owner directly, or from a competent authority that compiles such information from forests within the sourcing area.

Table C.1 summarises guidance for demonstrating compliance with the regeneration criterion.

**Table C.1 — Guidance for demonstrating compliance with the regeneration criterion**

Step	Indicator	Sources of information
1.1 and 1.2	Type of forest operation from which biomass results	Forest management plans obtained e.g. from the forest owner directly, or from a competent authority that compiles such information from forests within the sourcing area

2	Quality and quantity of next generation forest resources	Forest management plans obtained e.g. from the forest owner directly, or from a competent authority that compiles such information from forests within the sourcing area
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#### C.4 (iii) Protected area criterion

Figure C.2 summarises the stepwise approach for demonstrating compliance with the criterion on protected areas.

Figure C.2 Stepwise approach for compliance with the criterion on protected areas.

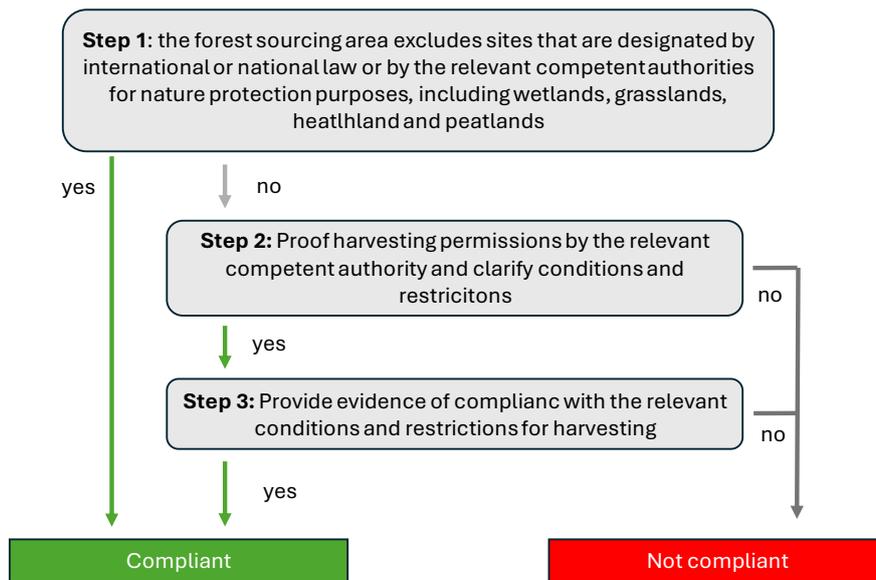


Figure C.2 — stepwise approach protected areas

Key steps include:

**Step 1:** Ensure whether areas designated for nature protection, including wetlands, grasslands, heathland and peatlands, are excluded from the forest sourcing area. If no biomass is sourced from such areas, then the criterion on protected areas is de facto complied with. If the sourcing

area does however include such areas, then it needs to be ensured that the interventions were permitted and that all conditions and restrictions are followed, as laid out in the following steps.

The information required in Step 1 can be queried e.g. from the IUCN maintains the World Database on Protected Areas (WDPA). This most comprehensive global database on protected areas contains information on location and boundaries of protected areas, legal status and other indicators. Other international networks of designated areas include e.g. the UNESCO Biosphere Reserves, which promotes solutions reconciling the conservation of biodiversity with its sustainable use. There are currently 701 biosphere reserves in 124 countries, including 21 transboundary sites, that belong to the World Network of Biosphere Reserves.

**Step 2:** Provide evidence that an official permission for biomass harvesting was granted by the relevant competent authority, and clarify the conditions and restrictions that apply to the harvesting from such areas, the species, amounts and locations where these can be logged from. Restrictions could include specification of certain time periods within which the harvesting should or should not be implemented, equipment specifications, protective measures to be implemented with methods for felling and timber extractions, etc.

This information must be provided upon every consignment originating partly or fully from nature protection areas. Otherwise, proof of compliance with relevant legislation is provided through operational reports/harvest protocols describing amounts and harvesting systems in the respective type of nature protection area.

**Step 3:** Provide evidence of compliance with the relevant conditions and restrictions for harvesting, by means of operational reports that describe measures undertaken in the respective areas, in order to ensure compliance with the condition statements of the relevant competent authority.

Such reports are either implemented by a second or third party and endorsed by the competent authority, or the reports are implemented via field-inspections with an agent of the relevant competent authority. The information must be provided upon every consignment originating partly or fully from nature protection areas.

When all three steps are backed-up with credible evidence, then the biomass is considered compliant with this criterion.

Table C.2 summarises guidance for demonstrating compliance with the criterion **on protected areas**.

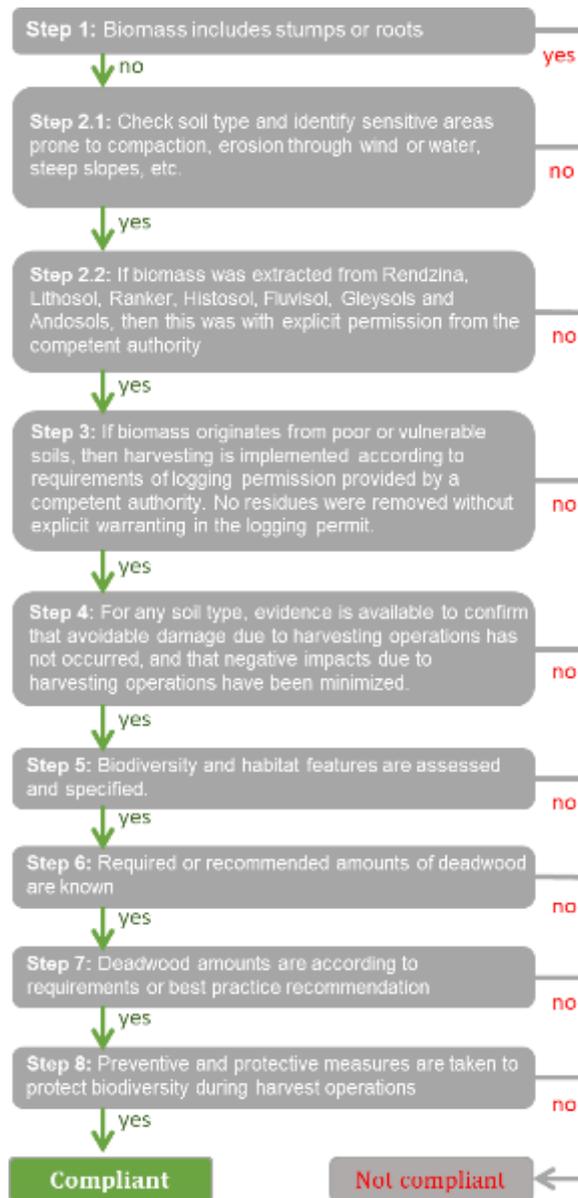
**Table C.2 — Guidance for demonstrating compliance with the protected areas criterion**

Step	Indicator	Sources of information
1	Presence of designated areas for nature protection, including wetlands, grasslands, heathland and peatlands	IUCN maintains the World Database on Protected Areas (WDPA)  Other international networks of designated areas, e.g. the UNESCO Biosphere Reserves
2	Permission for biomass removal in the protected areas	Harvesting permission issued by the relevant competent authority

		Alternatively, proof of compliance with relevant legislation is provided through operational reports/harvest protocols
3	Implementation of plans/measures in the protected areas	Operational reports describe compliance measures undertaken in the respective areas, obtained via field-inspections with an agent of the relevant competent authority; or  The confirmations are implemented by second or third party and thereafter endorsed by the competent authority

### **C.5 (iv) Maintenance of soil quality and of biodiversity criterion**

Figure C.3 shows the stepwise approach for demonstrating compliance with **the soil and biodiversity criterion**.



**Figure C.3 — Stepwise approach soil quality and biodiversity**

Steps 1 to 4 concern the part of the criterion that requires minimizing harvesting impacts on soil quality, while step 5 to 8 relate to impacts on biodiversity:

**Step 1:** Removal of stumps and roots can detrimentally affect soil structure, soil proneness to water and wind erosion, reduce soil fertility and reduce soil carbon. Therefore, in order to protect any soil type, ensure that stumps and roots are excluded from the biomass harvested.

**Step 2.1:** Identify sensitive areas in the forest sourcing area (prone to compaction, erosion through wind or water, steep slopes etc.). This can be done e.g. on the basis of soil maps, soil sensitivity maps by the operator or supplier or through the provision of detailed field inventory data. Areas must first be identified before forest biomass can be acquired. If no detailed field inventory data for the forest sourcing area is available. The operator has to interpret (digital) available soil maps or on-site analysis with own or third-party expertise with regard to sensitivity including soil type, slope, and soil quality.

**Step 2.2:** As a general guideline, no biomass extraction is allowed from soil types Rendzina, Lithosol, Ranker, Histosols, Fluvisols, Gleysols and Andosols, unless with explicit permission from the competent authority.

**Step 3:** When the sourcing area does comprise poor or vulnerable soils, then evidence needs to be provided that logging on such areas is implemented with the correct logging permit and according to specifications mentioned in the permit. Residues cannot be removed unless explicitly permitted in documentation provided by the competent authority.

Otherwise confirmation of compliance with local guidelines or best practice guidelines regarding vulnerable soils through operational reports/harvest protocols is provided (e.g. justification of chosen harvesting system in respect of soil type and slope). If such guidelines do not exist, the operator may require suppliers and forest owners to adopt specific Best Management Practices for certain tasks. These should be specified in supply contracts, or the suppliers and forest owners include a report from qualified experts regarding soil vulnerability and possible harvesting systems endorsed with a statement that harvesting practices were implemented according to required standards. Officially approved forest management plans specify measures to be taken and operational reports confirm implementation of required protocols.

**Step 4:** Requires for any soil type that measures are planned and implemented to minimize impact on soils (e.g. by means of low or reduced impact logging (RIL), soil protecting harvesting system, low tire pressure, residue topping on logging trails, logging and removal when soil is frozen or under protective snow cover, optimized trail location without redundant driving, permanent logging trails, power shift clutch, skid chains, traction-assisting-winch, exclusion of logging within a certain distance from water bodies, exclusion of logging of forests smaller than a certain size, etc.). In order to minimize impacts of forest management, appropriate assessment of impacts and planning to minimize impacts is necessary. The measures have to be in accordance with the level of vulnerabilities of respective soil types.

At sourcing area level, maintenance of biodiversity according to the harvesting criteria laid down in Article 29.6 requires that, after biomass harvesting, the forest will be re-established with comparable or more biodiversity-favourable characteristics.

**Step 5:** Assess biodiversity and habitat features so they can be appropriately addressed during planning and implementation of harvesting operations (e.g. habitat features for rare and endangered species, features and prevalent species with a high biodiversity value, including estimated or measured amounts of standing and laying deadwood per hectare, veteran trees, occurrence of rare tree species etc.).

**Step 6:** Ensure that deadwood is recognized as an important indicator and substrate for many plant and animal species. Recommended or required levels for standing and laying deadwood, including of mature dimensions, need to be left in the forest. The amounts shall either depend on official regulations or on scientifically based recommendations.

**Step 7:** Verify if during the harvesting operations, the level of deadwood was kept at least at the recommended level, or if the present amounts of deadwood are lower than the recommended level, then biomass sourcing should incur measures to allow deadwood amounts and dimensions to increase.

**Step 8:** Verify if preventive and protective measures were taken to protect biodiversity and habitat features, as identified in Step 5, during harvesting operations.

Example: A pre-harvesting inventory or forest management plan (or equivalent) of a logging site which registered the occurrence of endangered tree species. The harvesting plan should then

document the practical steps taken during the harvesting intervention to retain the endangered trees in a viable micro habitat. A second example is that standing and laying large dead tree trunks fulfil important ecological functions as substrate e.g. for rare fungi and saproxylic beetles. Harvesting is therefore implemented according to plans that specify minimum amounts of these dead tree trunks to be left in the forest, which is confirmed afterwards as part of a post-harvest inspection.

Protecting biodiversity also means that site-natural forests should not be replaced by agriculturally managed monocultural plantations. This issue is more related to the forest regeneration criterion and referred to that section of this report.

Table C.3 summarises guidance for demonstrating compliance with **the soil and biodiversity criterion**.

**Table C.3 — Guidance for demonstrating compliance with the soil and biodiversity criterion**

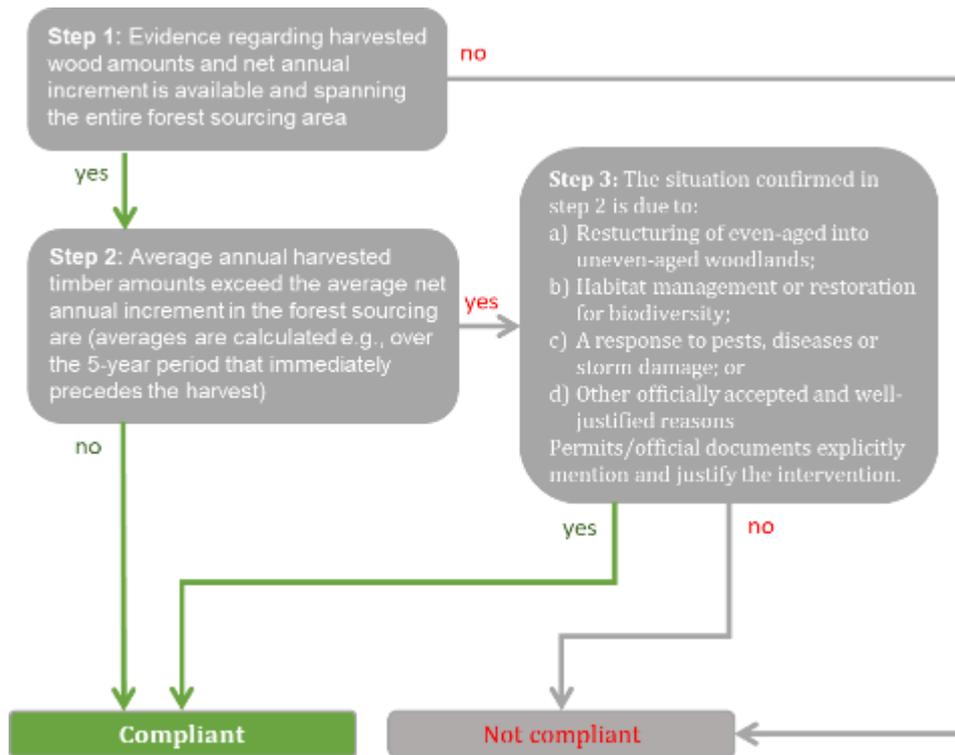
Step	Indicator	Sources of information
1	Biomass includes stumps or roots	<ul style="list-style-type: none"> <li>Operational post-harvest reports confirm that stumps or roots were not harvested in the sourcing area</li> </ul>
2.1; 2.2	Existence of poor or vulnerable soils in the forest sourcing area	<ul style="list-style-type: none"> <li>FAO/UNESCO Soil Map of the World</li> <li>Harmonized World Soil Database – FAO</li> <li>National or regional soil maps</li> <li>Identification of poor or vulnerable soils in forest management plans</li> </ul>
3	Harvesting on poor or vulnerable soils is implemented according to requirements of logging permissions	<ul style="list-style-type: none"> <li>Post-harvest report issued or approved by the competent authority</li> </ul>
4	Impacts on soil quality are minimized during and after harvesting	<ul style="list-style-type: none"> <li>Forest management plans/operational reports/harvest protocols could include a “checklist” for the assessment of potential impacts as well as an assessment of measures to minimize such at operational level</li> <li>Operational reports created during or after harvest show proof that precautionary measures have been implemented regarding soil protection and include dated and geo-tagged pictures before -and after- the intervention or written description of impacts on logging trails and damages on the remaining stand</li> <li>Operational reports/harvest protocols confirm that local best practice guidelines or relevant legislation regarding soil protection during harvesting operations are complied with (i.e.</li> </ul>

		chosen harvesting system is justified in respect of soil type and slope)
5	Biodiversity and habitat features are assessed and specified	<ul style="list-style-type: none"> <li>• Forest management plans</li> <li>• Operational reports</li> <li>• Pre-harvest inventory</li> <li>• Regional biodiversity assessments</li> </ul>
6	Required or recommended amounts of deadwood are known	<ul style="list-style-type: none"> <li>• Applicable legislation or regulation</li> <li>• Regionally applicable best practices</li> <li>• Scientific recommendations</li> </ul>
7	Deadwood amounts are according to requirements or best practice recommendation	<ul style="list-style-type: none"> <li>• Harvesting protocols</li> <li>• Operational reports</li> <li>• Pre-harvest inventory</li> <li>• Post-harvest assessment</li> </ul>
8	Preventive and protective measures are taken to protect biodiversity during harvesting operations	<ul style="list-style-type: none"> <li>• Harvesting protocols</li> <li>• Operational reports</li> <li>• Post-harvest assessment</li> </ul>

### **C.6 (v) Long-term production capacity criterion at sourcing area level**

The proposed approach is to retrospectively consider average sustainable harvesting levels in the sourcing area over the five-year period preceding harvesting. When observed in isolation from the requirements to fulfil the first four revised Directive EU/2018/2001 sustainable harvesting criteria, this approach could be seen as oversimplifying the issue of long-term productivity. However, as all sustainable harvesting criteria need to be fulfilled at all times, the combined requirements are reinforcing one another. While one of the weaknesses of the approach is that climate change impacts are not explicitly considered, the possible need for climate change adaptation measures does need to be taken into account in context of the regeneration criterion and of the LULUCF criterion.

Figure C.4 shows the stepwise approach that economic operators should follow to demonstrate compliance with the criterion on long-term production capacity at the forest sourcing area level (level B), following a retrospective approach.



**Figure C.4 — Stepwise retrospective approach for compliance with the long-term production capacity criterion**

**Step 1:** Requires that data for ‘annually logged wood amounts’ and for ‘net annual increment’ are available for the forest sourcing area in its entirety. Inventory and growth data must cover the entire forest sourcing area and should be based on regional markers, such as growth/drain, harvest level, mortality, and age class distribution, relative to forest types. This requires that a relevant competent party conducts forest inventories periodically, based on in-situ measurements and/or state of the art remote sensing. Detailed harvesting reports need to be compiled periodically for the forest management unit or geographical unit that is as close as possible to the forest sourcing area.

When national or regional forest inventory data are used, it is important to consider data only for forest available for wood supply. Harvested wood amounts from any illegal logging in the forest sourcing area, also needs to be accounted for. The forest inventory information should be considered for an area that is congruent as much as possible with the forest sourcing area.

**Step 2:** The average annual felled timber amounts is compared to the average net annual increment (e.g. an average measured over a 5-year period preceding the harvesting intervention). When the amount of felled timber does not exceed the net annual increment, current wood extraction is assumed not to impede the long-term production capacity.

**Step 3:** Evidence and well-argued reasons need to be presented to exceptionally justify if logged amounts would exceed net annual increment. Examples of such justifying reasons include e.g. restructuring of for example exotic intensively managed monocultural single-species even-aged forests into site-natural multi-species uneven-aged woodlands, habitat management or

restoration of biodiversity, or that increased extraction took place to counter the effect of biotic or abiotic forest disturbances.

**Table C.4 — Guidance for demonstrating compliance with the long-term production capacity criterion, following a retrospective approach**

Step	Indicator	Sources of information
1; 2	Sustainable harvest levels on forest available for wood supply	<ul style="list-style-type: none"> <li>Regional data for net annual increment is published by national or regional forest inventories but can also be calculated on the basis of forest growth models specifically for the forest sourcing area</li> <li>Regional data for annual harvested timber amounts can be obtained from national or regional forest inventories, or from forest authorities</li> </ul>
3	Harvest amounts exceed net annual increments	<ul style="list-style-type: none"> <li>Permits or documents including reports of the relevant competent forest authority</li> <li>Specific permits issued by the relevant competent authority allow these temporally higher harvest levels, for one of the reasons as indicated in Figure B.6 Step 3</li> </ul>

**C7 (vi) Compliance with land use requirements**

Forests in which forest biomass is harvested shall not stem from the lands that have the statuses referred to in Article 29(3) first subparagraph with the exception of point (c), Article 29(4) with the exception of point (b) and (c) and Article 29(5), respectively under the same conditions of determination of the status of land specified in those paragraphs<sup>10</sup>. In short, this includes the following lands as further defined in NTA 8080-2: 2024+A1:2025, Sections 6 and 7 and in Annex B of this document:

- Primary forest, old growth forest and other wooded land;
- Highly biodiverse forest and other wooded land;
- Highly biodiverse grassland
- Heathland
- Wetlands
- Peatland.

The following documentation and records can be used as evidence that the land did not have the statuses mentioned above: geographical documentation, photographic documentation, sufficiently close satellite images, official government documents or comparable documents, provided that these sources contain sufficient detail from which the status of land can be objectively verified.

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<sup>10</sup> Primary forests and old growth forests are defined by Article 29(3)(a) as ‘no-go’ areas, which should be interpreted as an absolute prohibition to harvest in these areas. The references in Article 29(6)(a)(iv) and Article 29(6)(b)(iv) to those areas should be read in conjunction with Article 29(3)(a). The references in Article 29(6)(a)(iv) and Article 29(6)(b)(iv) should be considered as a description of sustainable harvesting practices. They should not be interpreted as an exception to the specific – and absolute – rule that forest (and agricultural) biomass should not be sourced from these areas.

**Annex D**  
(informative)

**Tools and data sources to demonstrate LULUCF criteria compliance at forest sourcing area level**

**Table D.1 — Checklist of possible tools to demonstrate LULUCF criteria compliance at forest sourcing area level (source: REDIIIBIO – Final report)**

Name of tool	Brief description	URL
CO2FIX	Stand level simulation model, which quantifies the C stocks and fluxes in the aboveground biomass, belowground forest biomass, soil organic matter and the wood products chain	<a href="http://dataservices.efi.int/casfor/models.htm">http://dataservices.efi.int/casfor/models.htm</a>
CBM-CFS3	Stand- and landscape-level modelling framework that simulates the dynamics of all forest carbon stocks required under the Kyoto Protocol (aboveground biomass, belowground biomass, litter, dead wood and soil organic carbon)	<a href="https://www.nrcan.gc.ca/climate-change/impactsadaptations/climatechange-impactsforests/carbonaccounting/carbonbudget-model/13107">https://www.nrcan.gc.ca/climate-change/impactsadaptations/climatechange-impactsforests/carbonaccounting/carbonbudget-model/13107</a>
YASSO soil carbon model	Dynamic model of the cycling of organic carbon in soil. Yasso calculates the amount of soil organic carbon, changes in the amount of soil organic carbon and heterotrophic soil respiration	<a href="https://en.ilmatieteenlaitos.fi/yasso">https://en.ilmatieteenlaitos.fi/yasso</a>
CASMOFOR	Tool to assess the amount of carbon sequestered in a forest system (aboveground biomass, belowground biomass, litter, dead wood and soil organic carbon)	<a href="http://www.scientia.hu/casmofofor/index.php">http://www.scientia.hu/casmofofor/index.php</a>

FORMIND	Individual tree-based vegetation model that simulates the growth of forests on the hectare scale. It allows to explore forest dynamics and forest structure	<a href="http://formind.org/model/">http://formind.org/model/</a>
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**Table D.2 — Potential data sources to demonstrate LULUCF criteria compliance at forest sourcing area level (source: REDDIOBIO – Final report)**

Variable affecting carbon stock and sinks in forests	Potential source of information
Tree species composition	Forest inventories Forest management plan
Age structure	Forest inventories Forest management plan
Forest reproductive material used (provenance)	Forest management plan
Growth rate of the selected tree species and forest reproductive material used	Forest inventories National or regional yield tables Producer of seedlings or seeds used for regeneration
Basic wood density	IPCC 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol
Carbon content	IPCC 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol
Whole-tree biomass in relation growing stock volume	IPCC 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol National GHG inventory report to UNFCCC FAO method collection, see <a href="http://www.fao.org/3/w4095e/w4095e06.htm">http://www.fao.org/3/w4095e/w4095e06.htm</a> . Scientific literature
Thinning intensity and frequency	Forest management plan Forest management recommendations applicable to the forest sourcing level
Rotation length	Forest management plan Forest management recommendations Empirical historic data for the sourcing area on rotation cycles applied

Cutting regime	Forest management plan Forest management recommendations
Other management decisions	Forest management plan Forest management recommendations