



**KZR INiG System/11**

	<b>Certification system of sustainable biofuels, biomass fuels and bioliquids production</b>	Issue: 1st
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<p><b>Forest biomass</b></p> <p>by The Oil and Gas Institute - National Research Institute</p> <p>The KZR INiG System/11</p>
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## **1. Introduction.**

The document describes the KZR INiG System's requirements related to forest biomass. These requirements provide guidelines on the sustainable way to produce, process, transport and use biofuel, biomass fuels and bioliquids raw materials and feedstocks.

In accordance with the KZR INIG System, biofuels, biomass fuels and bioliquids shall fulfill requirements stated in Directive RED II, article 29 point 6, 7.

All of these requirements included in this document apply to forest biomass and shall be met by forest biomass collection point participating in the KZR INiG System.

Article 29.6 of the RED II specifies that biofuels, bioliquids and biomass fuels produced from forest biomass taken into account for national renewable energy targets 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:

- (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 and peatlands, are protected;
- (iv) That harvesting is carried out considering maintenance of soil quality and biodiversity with the aim of minimising negative impacts; and
- (v) That harvesting maintains or improves the long-term production capacity of the forest.

(b) When evidence referred to in point (a) of this paragraph is not available, the biofuels, bioliquids and 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 ensuring:

- (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 and peatlands, are protected unless evidence is provided that the harvesting of that raw material does not interfere with those nature protection purposes;

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- (iv) That harvesting is carried out considering the maintenance of soil quality and biodiversity with the aim of minimising negative impacts; and
- (v) That harvesting maintains or improves the long-term production capacity of the forest.

Article 29.7 of the RED II specifies that biofuels, bioliquids and biomass fuels produced from forest biomass taken into account for national renewable energy targets 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 is a Party to the Paris Agreement and:

- (i) it 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
- (ii) it 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 provides 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 biofuels, bioliquids and biomass fuels produced from forest biomass shall be taken into account for national renewable energy targets 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.

## **2. Normative references**

The normative references, covering all aspects of the KZR INiG System, are the following linked documents, which should be read in conjunction.

*KZR INiG System /1/ Description of INiG System of Sustainability Criteria – general rules*

*KZR INiG System /2/ Definitions*

*KZR INiG System /3/ Reference with national legislation*

*KZR INiG System /4/ Land use for raw materials production – lands with high carbon stock*

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*KZR INiG System /5/ Land use for raw materials production – biodiversity*

*KZR INiG System /6/ Land use for raw materials production – agricultural and environmental requirements and standards*

*KZR INiG System /7/ Guidance for proper functioning of mass balance system*

*KZR INiG System /8/ Guidelines for the determination of the life cycle per unit values of GHG emissions for biofuels, biomass fuels and bioliquids*

*KZR INiG System /9/ Requirements for certification bodies*

*KZR INiG System /10/ Guidelines for auditor and conduct of audit*

*KZR INiG System /11/ Forest biomass*

### **3. Definitions**

*System KZR INiG /2/ Definitions*

### **4. Harvesting criteria**

According to the KZR INiG scheme Level A it is national level, while Level B it is the forest sourcing area.

The REDII requires that biofuels, bioliquids and biomass fuels would be produced only from forest biomass that fulfils the criteria mentioned in introduction part of this document. The first five criteria are fulfilled at national or subnational level (“level A”) when legislation in the area of harvest, as well as monitoring and enforcement systems are in place (Article 29.6(a)). However, for any of these five criteria at level A for which compliance cannot be demonstrated at national or subnational level, economic operators will need to demonstrate compliance at the forest sourcing area level (“level B”).

The criteria (i), (ii), (iv) and (v) on level B are the same as on level A – thus with the difference that the economic operator is responsible for ensuring compliance with the harvesting criteria in the sourcing area(s). When criteria (iii) needs to be met at forest sourcing area level, if raw material would be harvested from designated areas, then evidence needs to be provided that the harvesting of the material does not interfere with the nature protection purposes.

If criteria on level A are not met, forest biomass collection point should follow requirement stated in this document in order to prove meeting of sustainability criteria.

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#### **4.1 National or subnational laws applicable in the area of harvest**

For “level A” compliance the harvesting criteria need to be fulfilled at national level for the country from which the biomass was harvested from a forest area. Laws, enforcement and monitoring systems can be a national or sub-national or regional competence. In the latter case, all regions need to comply with a criterion so that a country can be considered to pass it at “level A”. The regional level can be referred to differently depending on the country. In federal countries, like Austria (10 Länder), Belgium (2 regions), Canada (10 provinces), Germany (16 Bundesländer) and the United States of America (US, 50 states), or in decentralized countries like Spain (17 provinces) and Italy (20 regions), important parts of the legislative power can be transferred from the country level to the sub-national level. In the mentioned countries this also applies in the area of forestry.

When compliance cannot be guaranteed in all constituent regions of a country, then compliance will need to be checked at the forest sourcing area level.

Note that in some countries it may be the case that for some criteria the legislative power is at the country level, whereas for other criteria this would be at sub-national level, and in some cases it can be a mix, for example when different laws apply for different types of forest ownership.

Example 1. A country regulates all laws applicable in the area of harvest at national level. Compliance with the REDII criteria needs to be checked only at national level. For criteria that are non-compliant at national level, the compliance would need to be checked at forest sourcing area level.

Example 2. To pass a criterion at “level A” when any legislation in the area of harvest is not a power of the US federal level but of the state level, that criterion would need to be complied with in all of its 50 states (with the exception of e.g. forests that are owned and regulated by the US federal level). In Canada this would need to be checked for each of its 10 provinces; in Germany for each of its 16 Bundesländer and so forth.

#### **4.2. Forest sourcing area**

According to Article 2.30 of REDII, 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”: The area of origin, from which the forest biomass feedstock is sourced, is known and can be shown on a map, typically on the basis of administrative boundaries.

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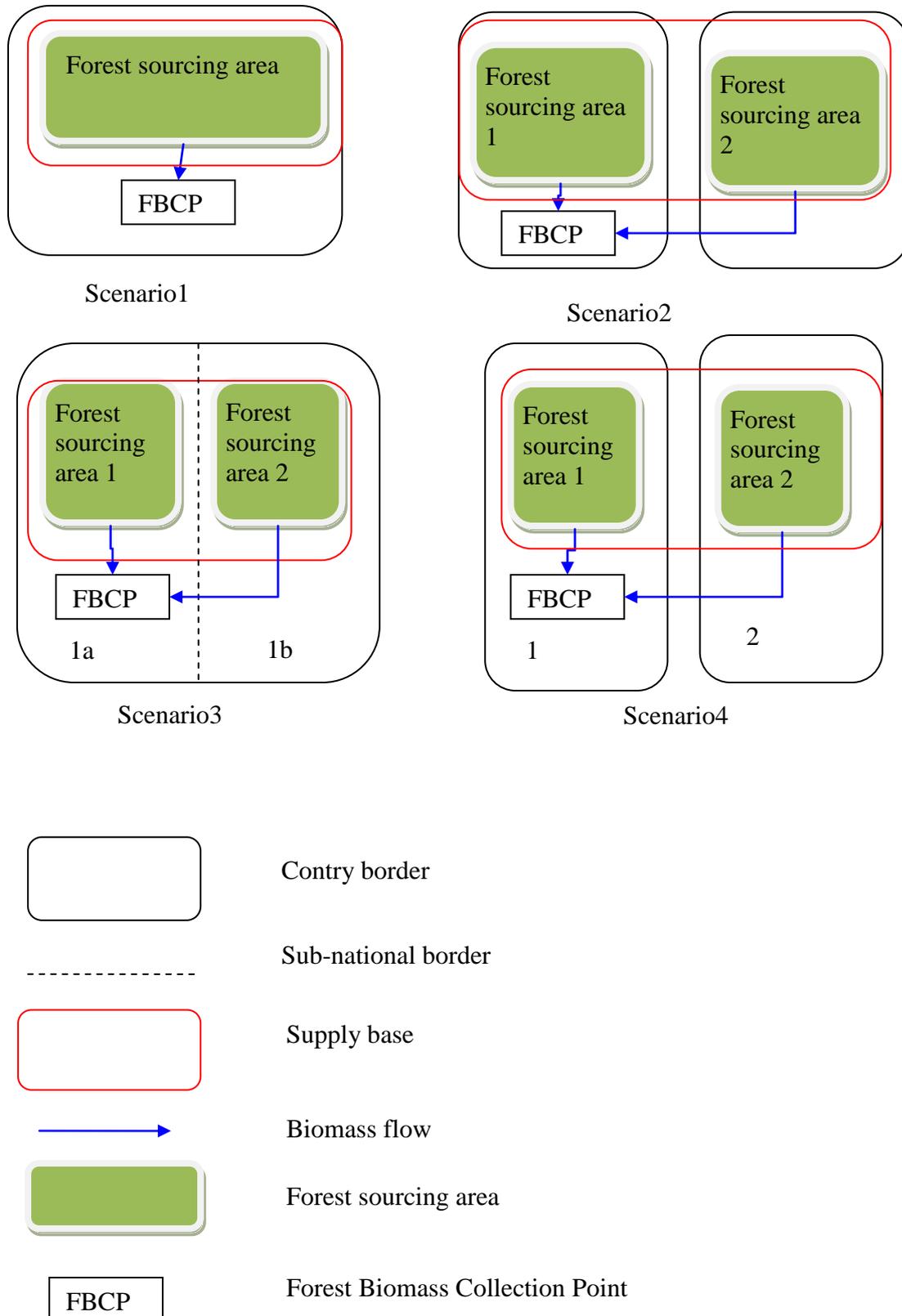
- “From which reliable and independent information is available”: information required to assess compliance with the REDII criteria is available from reputed organizations, public or private, which have the competence to produce reliable information.

- “Where conditions are sufficiently homogenous to evaluate the risk of the sustainability and legality characteristics of the forest biomass”: this means in the first place that within the area, the legislation covering the issues in the sustainability criteria, shall be the same. If an economic operator’s supply base spreads over two countries or regions where the issues addressed in REDII 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.

This definition does not refer to the size of the area, but rather to a sufficient level of information for the respective area that is required.

The Union sustainability and greenhouse gas emissions saving criteria, according to the REDII recital (104), apply only to electricity and heating from biomass fuels produced in installations with a total rated thermal input equal to or exceeding 20 MW in the case of solid biomass fuels. Such facilities, when using solid biomass fuels, can have a sourcing radius of about 70 km or even larger.

The following Figure 1 shows different scenarios for the division of an operator’s supply base into forest sourcing areas.



**Figure 1. Scenarios of risk-based assessment for different level forest sourcing area**

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### **Scenario 1**

Country 1 does not comply at level A for one or more criteria. One risk-based assessment is needed to determine compliance with those criteria for the entire supply base

### **Scenario 2**

Neither country 1 nor country 2 comply at level A for one or more criteria. Two separate risk-based assessment are needed to demonstrate compliance for the entire supply base.

### **Scenario 3**

The country has sub-national legislation in the area of harvest. Region 1a complies for level A and region 1b is non-compliant. Therefore the country does not comply at level A and two risk-based assessment are needed to demonstrate compliance for the entire supply base

### **Scenario 4**

Country 1 does not comply at level A, while country 2 does comply at level A. A risk-based assessment is needed to demonstrate compliance for forest sourcing area 1.

## **4.3 Legality of harvesting operations and forest regeneration of harvested areas**

In line with the Regulation (EU) no 995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the obligations of operators who place timber and timber products on the market – in short EU Timber Regulation or EUTR – legality of harvesting operations shall be ensured by compliance with legislation in force in the country of harvest

The Directive 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, e.g. fire or storm’ (Article 2.31).

Example 1: A final cut was applied to a forest and the biomass was removed. On the site already existing seedlings and seeding from seed trees that were left from the previous forest already will form the basis for the new forest.

Example 2: A forest was removed. On the site no seedlings exist. The forest is re-established through planting of seedlings from a nursery.

## **4.4 Areas designated by international or national law for nature protection purposes**

See documents System KZR INiG/4, System KZR INiG/5

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#### **4.5 Soil quality management**

The term 'maintenance of soil quality' means keeping the physical, chemical, biological and ecological state of the soil after an intervention at comparable level as before the harvesting intervention.

In context of soil quality, the term 'minimising negative impacts' does in practice mean keeping soil disturbance due to harvesting to a minimum by applying a site-suitable harvesting system and preventing soil erosion, while allowing established sustainable forestry practice. Special care is to be given especially in areas prone to erosion such as steep slopes, in the vicinity of waterways and soils prone to compaction, particularly wet soils.<sup>24</sup>

Example 1: Forests on wet soils that are easily compacted by heavy machinery could be harvested in winter when the ground is frozen.

Example 2: To prevent erosion on steep slopes, low-impact harvesting can be implemented by extracting the biomass via purpose-specific cableways.

#### **4.6 Maintenance of forest biodiversity**

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 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.

At forest management unit level, maintenance of biodiversity according to the harvesting criteria laid down in Article 29.6 requires that, upon biomass harvesting, the forest will re-establish with comparable or more biodiversity-favourable characteristics and sustainable forest management practice.

Example 1: Regulation can require to leave a certain number of mature trees standing on the logging site, not only to secure natural regeneration but also as old trees are important for biodiversity.

Example 2: Regulation can require to leave a certain minimum amount of standing and laying dead tree trunks as deadwood fulfils an important ecological function.

#### **4.6 Maintenance of long-term production capacity of forests**

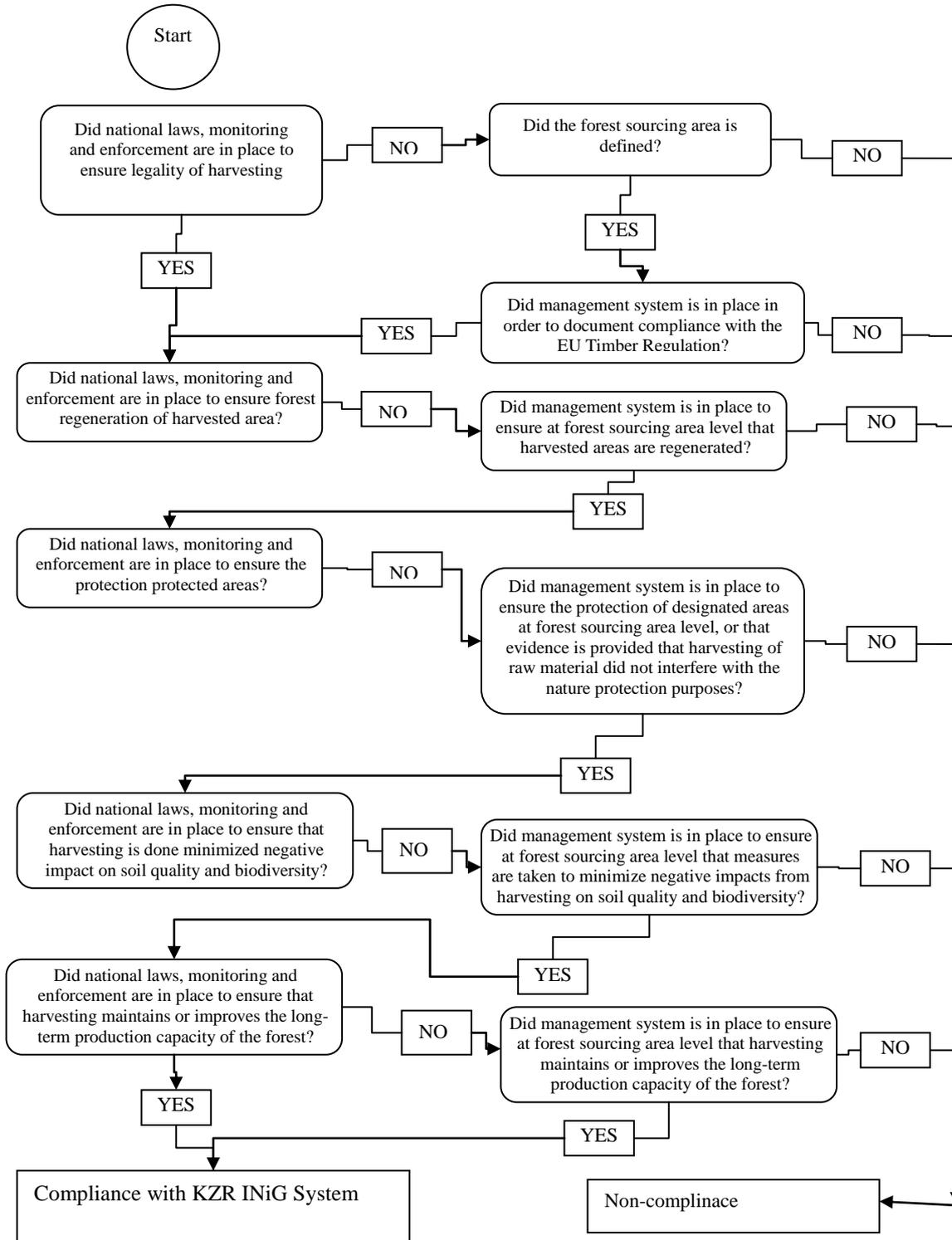
This term refers to the management of forests to sustainably deliver products and services over a long period of time bridging several successive forestry rotations. Actions which

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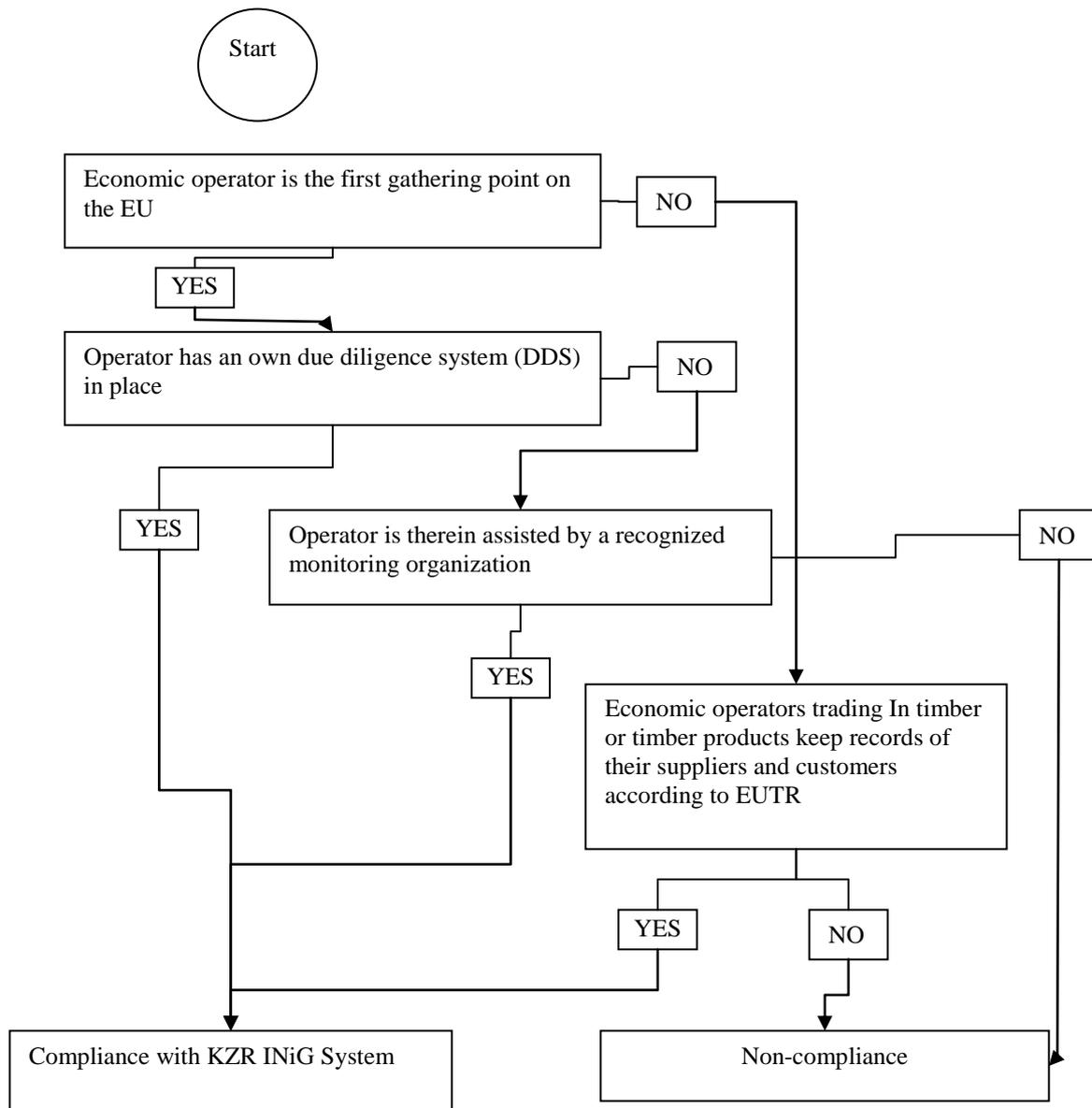
ensure long-term production capacity should be implemented in sourcing area. It may be such actions as:

- branches are extracted while the nutrient-rich foliage is left on site;
- after burning, ashes are returned to the forest;
- the harvested biomass does not exceed the net annual increment;
- residue harvest is not conducted on poor or vulnerable soils;
- harvest of foliage is omitted.

In case if the forest in a certain area has suffered storm damage, which resulted in a windthrown tree volume equivalent to several times the net annual increment, this does not result to non-compliance with the productivity criterion, however on the extraction sites measures would need to be in place to prevent high nutrient losses.



**Figure 2. Procedure for verifying of compliance with the harvesting criteria**



**Figure 3. Procedure for verifying of compliance with the legality criterion**

Own Due Diligence System is described as follows:

- **Information** – Businesses must gather information from their supply chain on their products. This must include product description (wood species, country of harvest, volume), details of the suppliers and other compliance documents.
- **Risk Assessment** – Analysis and evaluation of the information gathered against relevant criteria including: assurance of compliance with legislation, prevalence of illegal harvesting of the tree species and practices in the country of harvest and accounting for the complexity of the supply chain.

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- Risk Mitigation – If there is evidence of non-negligible risk then businesses must undertake actions to mitigate the identified risks to a negligible level.

Further info on DDS requirements: 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 organisations as provided for in Regulation (EU) No 995/2010 of the European Parliament and of the Council laying down the obligations of operators who place timber and timber products on the market. OJ L 177, 7.7.2012, p. 16–18

Due Diligence System (DDS) via recognized monitoring organization is described by Commission Delegated Regulation (EU) No 363/2012 of 23 February 2012 on the procedural rules for the recognition and withdrawal of recognition of monitoring organisations as provided for in Regulation (EU) No 995/2010 of the European Parliament and of the Council laying down the obligations of operators who place timber and timber products on the market. OJ L 115, 27.4.2012, p. 12–16

Records shall be kept by trader for the last five years.

### **Steps to confirm compliance with the regeneration criteria**

#### 1.1 Forest biomass results from final felling

If yes go to step 2

If no, go to step

#### 1.2 Forest biomass results from an intermediate thinning or felling or from a calamity (E.G. storm, fire, phytosanitary reason) and local regulation requires regeneration intervention). Operational reports/harvest protocols specify type of forest operation from which forest biomass stems from (final felling or thinning). Must be specified for each consignment.

If yes, go to step 2

If no, go to step 1.3

#### 1.3. Forest biomass results from a precommercial thinning or pruning of standing trees

If yes, compliant

If no, no compliance required

2. supplier contracts require that forest area is regenerated before or after final felling or harvest, either through natural regeneration, planting and seeding or coppice regrowth and that forest regeneration is done in a manner that ensures quality and quantity of next generation forest resources. Provision of forest management plans that include a regeneration goal regarding species composition and establishment period, as

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well as identified measures to prevent abiotic and biotic hazards. Must be specified for each stand individually.

If yes, compliant

If no, not compliant

### Steps to confirm compliance with the protected area criteria

1. The forest sourcing area includes areas designated by international or national law or by the relevant competent authority for nature protection purposes, including wetlands and peatlands.

Supplier contracts require the provision of condition statements from the relevant competent authority.

If no, compliant

If yes, go to step 2

2. Supplier contracts require the provision of condition statements from the relevant competent authority
  - Provision of condition statements by the relevant competent authority by the supplier.
  - If not present, seller must refer to the relevant legislation.
  - Must be provided upon every consignment originating partly or fully from nature protection areas.

If no, not compliant

If yes, go to step 3

3. Supplier contracts require evidence of the implementation of measures specified in the condition statements
  - Provision of relevant operational reports for measures undertaken in the respective areas, to show proof of compliance with the condition statements of the relevant competent authority.
  - Alternatively, the latest confirmation from the relevant competent authority that proves the necessary measures/prohibitions are complied with. These confirmations can for example be obtained via field-inspections with an agent of the relevant competent authority and are conducted periodically as prescribed by the relevant competent authority.

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- Must be provided upon every consignment originating partly or fully from nature protection areas.

If no, not compliant

If yes, go to step 4

- Supplier contracts require the provision of permissions for biomass removal in the protected areas including wetland and peatland obtained from the relevant competent authority, if forest operations are restricted in the respective nature protection area by legislation

- If forest operations are restricted by law in the respective nature protection area, the second party must provide a harvesting permission issued by the relevant competent authority.

- 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.

If yes, compliant

If no, not compliant

### **Steps to confirm compliance with the maintenance of soil quality and biodiversity criteria**

- In the forest sourcing area poor or vulnerable soils exists. Sensitive areas in the forest sourcing area are identified 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 with own or third-party expertise with regard to sensitivity including soil type, slope, and soil quality.

Possible sources:

- FAO/UNESCO Soil Map of the World 30
- Harmonized World Soil Database – FAO

If yes, go to step 2

If no, go to step 5

- Supplier contracts require harvesting permission of the relevant competent authority in sensitive areas un the forest sourcing and confirmation of appropriates

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precautionary measures and harvesting procedure in these areas through operational instructions/reports.

- If necessary, according to regional legislation harvesting permission, issued by the relevant competent authority are provided by the supplier.
- Otherwise confirmation of compliance with local guidelines or best practice guidelines regarding vulnerable soils through operational reports/harvest protocols are provided (e.g. justification of chosen harvesting system in respect of soil type and slope).
- If such guidelines do not exist, 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 proof that a consultation with relevant experts regarding soil vulnerability and possible harvesting systems has been conducted. Operational reports/harvest protocols of these sites specify in any of the above cases measures implemented to minimize impact on soil (e.g. means of reduced impact logging (RIL), soil protecting harvesting system, low tire pressure, residue topping on logging trails, logging when soil is frozen, no redundant driving, permanent logging trails, power shift clutch, skid chains, traction-assisting-winch, etc.).
- Must be provided upon every consignment that partially or fully consists of timber originating of such areas.

If yes, go to step 3

If no, not compliant

3. Biomass includes stumps or residues

If yes, go to step 4

If no, go to step 5

4. Supplier contracts require that evidence is provided, confirming that stumps or residues have not been harvested inappropriately from poor or vulnerable soils.

Provision of harvest protocols including information about the site of harvest. Comparison with existing maps of poor or vulnerable soils in the forest sourcing area to ensure, that stumps or residues do not origin from sensitive sites.

Must be provided upon every consignment of stumps or residues. If stumps or residues are harvested on sensitive sites a permission of the relevant competent authority must be provided by the supplier.

If no, not compliant

If yes, go to step 5

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5. Supplier contracts require that harvesting operations take biodiversity attributes into consideration and minimize the impacts on such features .

- Management plans or operational reports assess biodiversity- and habitat features (e.g. habitat features for rare and endangered species, features and prevalent species with a high biodiversity value etc.), including estimated or measured amounts of deadwood per hectare.
- Operational reports/harvest protocols capture and evaluate the impacts of harvesting operations.
- Operational reports/harvest protocols created during or after harvest include before-and-after pictures or written descriptions of the impacts on the beforehand identified biodiversity- and habitat features.
- If there are prevalent recommendations/requirements regarding types and dimensions of deadwood documents of deadwood inventory show compliance with those recommendations/ requirements.

Operational reports/harvest protocols including the postulated proof must be provided upon every consignment.

In order to minimize impacts of forest management appropriate assessment of impacts and planning to minimize impacts is necessary.

Operational reports/harvest protocols could include for example a "checklist" for the assessment of potential impacts as well as an assessment of measures to minimize them at operational level (according to e.g. regional Best Management Practices).

If no, not compliant

If yes, go to step 6

6. Supplier contracts require proof that avoidable damage due to harvesting operations has not occurred, and that negative impacts due to harvesting operations have been minimized.

- Operational reports/harvest protocols created during or after harvest show proof that precautionary measures have been implemented regarding soil protection and include before-and after-pictures or written description of impacts on logging trails and damages on the remaining stand.
- Furthermore measures implemented to minimize negative impacts on soil (e.g. means of reduced impact logging (RIL), soil protecting harvesting system, low tire pressure, residue topping on logging trails, logging when soil is frozen, no redundant driving, permanent logging trails, power shift clutch, skid chains, traction-assisting-winch, etc.) are described or depicted in the operational reports/harvest protocols.

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- Operational reports/harvest protocols confirm that local best practice guidelines or relevant legislation regarding soil protection during harvesting operations are compiled with (i.e. chosen harvesting system is justified in respect of soil type and slope).

Operational reports/harvest protocols including the postulated proof must be provided upon every consignment.

In order to minimize impacts of forest management appropriate assessment of impacts and planning to minimize impacts is necessary.

Operational reports/harvest protocols could include for example a "checklist" for the assessment of potential impacts as well as an assessment of measures to minimize them at operational level.

Operational reports/harvest protocols including the postulated proof must be provided upon every consignment.

If no, not compliant

If yes, compliant

### Steps to confirm compliance with the long-term production capacity criteria

- Data regarding harvested wood amounts and net annual increments are existing in the forest sourcing area.

Harvest levels are justified by inventory and growth data. The relevant competent authority or the first party conducts *in situ* forest inventories periodically. Detailed harvesting reports are compiled periodically for the forest management unit, region, state and/or country. Data regarding harvested wood amounts and net annual increments in the forest sourcing area are gathered by the producer and checked against each other.

Evaluation 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.

If yes, go to step 2

If no, not compliant

- Average annual harvested timber amounts do not exceed the average net annual increment (e.g. an average measures over five year period)

If yes, compliant

If no, go to step 3

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3. In the forest sourcing area average annual harvest levels exceeded the average net annual increment in that area due to: restructuring of even-aged woodlands; habitat management or restoration for biodiversity; a response to pests diseases or storm damage.

If yes, go to step 4

If no, go to step 5

4. In case exceptional higher harvest levels were required , permits/documents exists explicitly mention or justify this.

- In case exceptional higher harvest levels as a consequence of e.g. natural disturbances occurred, permits or documents exist, explicitly mention and justify this through e.g. reports of the relevant competent forest authority, explaining the reasons for the exceptional high harvest levels in the region the forest sourcing area is a part of.

- In case of a selective site with higher harvesting levels specific permits issued by the relevant competent authority allow these temporally higher harvest levels.

- If yes, compliant

- If no, go to step 5

5. In the forest sourcing area , average annual harvest levels exceeded the average net annual increment and because there is not sufficient evidence that sustainable harvesting criteria are fulfilled

If yes, compliant

If no, not compliant

#### Recommended evidences and tools to confirm of meeting harvesting criteria

- [https://ec.europa.eu/environment/forests/pdf/list\\_competent\\_authorities\\_eutr.pdf](https://ec.europa.eu/environment/forests/pdf/list_competent_authorities_eutr.pdf)
- [www.unep-wcmc.org/featured-projects/eu-timber-regulations-and-flegt](http://www.unep-wcmc.org/featured-projects/eu-timber-regulations-and-flegt)
- <http://www.fao.org/faolex>
- <https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-14>
- <http://www.protectedplanet.net>.

### **5. Criteria for Land-use, Land-use change and Forestry**

Article 29.7 of the RED II calls economic operators to ensure that biofuels, bioliquids and biomass fuels produced from forest biomass meet a number of land-use, land-use change and forestry (LULUCF) criteria. Please see introduction part.

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### **5. 1. Demonstrating compliance at national level (level A)**

To demonstrate compliance with the LULUCF criteria at national level, it must be shown that the country or regional economic integration organisation of origin of the forest biomass is a party of the Paris Agreement and:

- Should have submitted its NDC that covers emissions and removals from agriculture, forestry and land use

or:

- Has laws in place to conserve and enhance carbon stocks and sinks applicable in the area of harvest and that evidence is provided that LULUCF sector emissions do not exceed removals.

A three-step approach to estimate compliance with the LULUCF sub-criterion at a national level (Level A):

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

Step A.2: Determine if a country or a regional economic integration organisation has submitted a Nationally Determined Contribution (NDC)

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

Proofs of compliance and source of evidence are shown in table 1.

**Table 1. Proofs of compliance of meeting LULUCF criteria**

Criteria	Proof of compliance	Source
The country or regional economic integration organisation of origin of the forest biomass:		
is a Party to the Paris Agreement	The country or regional economic integration organisation 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=XVII-7-d&amp;chapter=27&amp;clang=_en">https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&amp;mtdsg_no=XVII-7-d&amp;chapter=27&amp;clang=_en</a>
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	Presence of a Nationally Determined Contribution in the UNFCCC registry, submitted by the country or regional economic integration organisation	NDC is included in the UNFCCC NDC Registry: <a href="https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs">https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs</a>

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stock associated with biomass harvest are accounted towards the country's commitment to reduce or limit greenhouse gas emissions as specified in the NDC	Emissions and removals by agriculture, forestry and land use are included in the country's or regional economic integration organisation's NDC	Information provided in the NDC
	Changes in carbon stock associated with biomass harvest are considered as a separate target or integrated into an economywide target in the NDC	Information provided in the NDC
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	Presence of national or sub-national laws to conserve and enhance carbon stocks and sinks in forests	National or sub-national legislation
	Reported LULUCF-sector emissions for the country or regional economic integration organisation 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-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2019">https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2019</a>

## **5. 2. Demonstrating compliance at forest sourcing area (level B)**

If compliance cannot be demonstrated at regional level or national level ('Level A'), then evidence needs to be provided at the level of the forest sourcing area (Level B). Based on the criterion specified in Article 29.7(b) of the RED II, an economic operator needs to demonstrate that management systems are in place to ensure that carbon stocks and sinks levels in the forest are maintained or strengthened, both over the long term. It is required that such systems include planning and periodic monitoring.

An economic operator can provide evidence of compliance with the LULUCF criterion at the level of a sourcing area, by adapting existing methodologies to assess carbon stocks and sinks in forests.

Listed in table 2 methodologies can be used to assess carbon stocks and sinks in forests in order to demonstrate compliance with LULUCF sub-criterion.

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**Table 2. Overview of selected carbon standards with relevance to REDII**

Existing carbon standards	Source
GHG Protocol LULUCF Project Accounting Guidance	<a href="https://ghgprotocol.org/sites/default/files/standards_supporting/LULUCF%20Guidance_1.pdf">https://ghgprotocol.org/sites/default/files/standards_supporting/LULUCF%20Guidance_1.pdf</a>
Verified Carbon Standard	<a href="https://verra.org/project/vcs-program/">https://verra.org/project/vcs-program/</a>
Climate Community and Biodiversity Standard	<a href="http://www.climate-standards.org/">http://www.climate-standards.org/</a>
The Gold Standard	<a href="https://www.goldstandard.org/">https://www.goldstandard.org/</a>
Plan Vivo System	<a href="https://www.planvivo.org/docs/Plan-Vivo-Standard.pdf">https://www.planvivo.org/docs/Plan-Vivo-Standard.pdf</a>
Carbon Farming Initiative	<a href="https://www.agriculture.gov.au/water/policy/carbon-farming-initiative">https://www.agriculture.gov.au/water/policy/carbon-farming-initiative</a>
American Carbon Registry	<a href="https://americancarbonregistry.org/">https://americancarbonregistry.org/</a>

A nine-step approach to estimate compliance with the LULUCF sub-criterion at forest sourcing area level (Level B):

Step B.1: Define the spatial boundaries of the compliance check

Step B.2: Define relevant carbon pools

Step B.3: Determine a historical reference period

Step B.4: Describe forest management practices in a sourcing area for a historical reference period

Step B.5: Quantify carbon stocks and sinks of the sourcing area for the historical reference period

Step B.6: Define the length of the future long-term period

Step B.7: Describe forest management practices in a sourcing area for the future long-term period

Step B.8: Quantify mean carbon stocks and sinks over the future long-term period

Step B.9: Compare future carbon stocks and sinks with the historical reference period

Potential tools that could be used for assessments to demonstrate that carbon stocks and sinks levels in the forest are maintained, or strengthened are shown in table 3.

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**Table 3. Potential tools that could be used for assessments to demonstrate that carbon stocks and sinks levels in the forest are maintained, or strengthened**

<b>Name of tool</b>	<b>Brief description</b>	<b>URL</b>
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 modeling 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/impacts-adaptations/climate-change-impacts-forests/carbon-accounting/carbon-budget-model/13107">https://www.nrcan.gc.ca/climate-change/impacts-adaptations/climate-change-impacts-forests/carbon-accounting/carbon-budget-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/casmoform/index.php">http://www.scientia.hu/casmoform/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>

## **6. Changes compared to the previous edition**

<b>Date</b>	<b>Issue No.</b>	<b>Section</b>	<b>Previous requirement</b>	<b>Current requirement</b>