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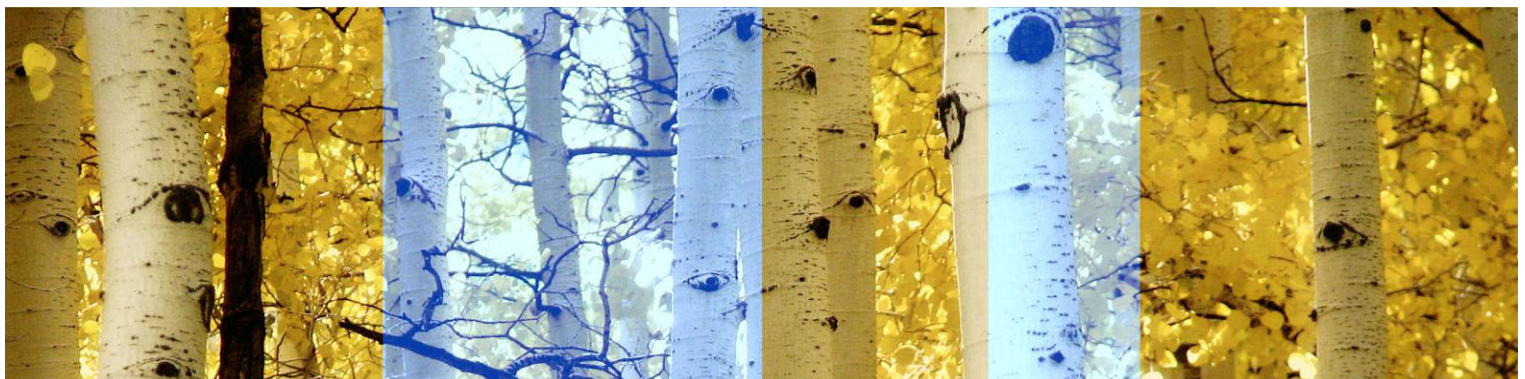
Finnish Energy

Application of EUTR Compatible Due Diligence in Sustainable Biomass Sourcing

Final report

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ABBREVIATIONS

DDS	Due Diligence System
EC	European Commission
EU	European Union
EUTR	European Timber Regulation
FSC	Forest Stewardship Council
GHG	Greenhouse gas
PEFC	Programme for the Endorsement of Forest Certification schemes
RES	Renewable energy sources
SME	Small and medium size enterprises
UN	United Nations



EXECUTIVE SUMMARY

Background

The European Union (EU) is preparing sustainable bioenergy policy for the period after 2020. The EU aims at maximising the benefits of using biomass while avoiding negative impacts on the environment. It set sustainability criteria for bio-liquids in 2009 when the directive on the promotion of the use of energy from renewable sources (RES Directive (2009/28)¹) was published. The EU has discussed several years about the establishment of similar criteria for solid biomass and a decision on the criteria is planned to be part of the new policy on bioenergy.

Forest residues are the main sources of biomass for energy purposes in the EU, although small diameter wood is also used directly for biomass. Woody biomass is produced under a forest management regime complying to national forestry legislation.

This paper discusses the possibilities to apply Due Diligence assessments in verification of sustainable sources of woody biomass. The conclusions focus on information requirements and flow in a supply chain, and will not take any position in defining sustainable biomass production. The applied approach refers to the Due Diligence Systems (DDS) required by the European Timber Regulation (995/2010)^[1] (EUTR) for timber producers and timber product importers.

Environmental sustainability of woody biomass is defined mostly by the land use and the quality of forest management operations in timber and biomass production. The requirements set for forest management define the environmental quality of biomass production because the procedures for timber and biomass production are parallel. Solid biomass production introduces a number of new management measures (e.g. stump removal, whose environmental impact shall be considered in forest management regulations and standards). It is important that regulatory framework and voluntary certifications in energy sector are fully compatible with those applied by forestry sector. Currently there are numerous different normative and voluntary standards for sustainable production of timber or woody biomass, which set overlapping and sometimes incompatible requirements for forest managers. DDS approach allow the operator to assess the most effective and cost efficient ways to get evidence on legal and sustainable sourcing of biomass. Operators may use compliance to legislation and standards as evidence to minimise the risk of illegal or unsustainable sourcing.

Enforcement procedures also vary depending if the regulation relates to bioenergy or timber production. The EUTR defines the minimum requirements for the DDS operators shall have to minimize the risk for laying illegal timber to the EU markets. Operators may contract on a voluntary basis EU recognized Monitoring Organisations to support them in DDS development and implementation. Thus, timber producers and importers have access to support but they are not bound to third party verifications. National competent authorities enforce the EUTR requirements including the measures operators take in application of their DDS.

In bio-liquid production the approach is different, as the RES Directive (2009/28) sets minimum requirements for sustainable woody biomass production and requires a national or voluntary system to implement the requirements. The biomass producers invite a third party auditor to assess their compliance with the system annually. The audit procedures are not linked to any established forestry or environmental legislation or to voluntary forest certification. As such, additional third party audits increase the costs of biomass production that is often a side product of more profitable timber production. In countries where timber and biomass producers are typically private households or small enterprises, individual consignments are small and

¹ DIRECTIVE 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0028&from=EN> (RES Directive)

^[1] 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. <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010R0995> (the EU Timber Regulation, EUTR)



numerous. In such supply chains third party verification adds little value to sustainable biomass sourcing and it may compromise the profitability of the business.

Due Diligence System in Sustainable Biomass Sourcing

The key elements of a EUTR compatible DDS are (i) adequate information on the origin of the biomass and its supply chain up to the operator that places it into the EU market, (ii) risk assessment and (iii) risk mitigation to minimise the possibility of illegal procurement. Operators are the parties that place domestic or imported biomass into the EU market for the first time. Due diligence obligation does not apply to the subsequent trading and processing entities that shall only document information on the trading partners and traded material for the traceability of the biomass. This approach is feasible given the fact that the environmental sustainability of biomass is determined before and at the time of harvesting. All relevant information shall be available and assessed at that stage. The core sustainability requirements that a DDS must address should be defined within the EU. In addition, risk assessment may identify additional sustainability elements that need due consideration in the supply chain. It is important to note that requirements for the reduction of greenhouse gas (GHG) emissions and the calculation of carbon footprints require information not only from operators but also from subsequent stages of the bioenergy supply chain.

The due diligence approach in to the verification of sustainably sourced biomass is cost efficient when operating within countries and biomass assortments that have negligible risk of originating from illegal or unsustainable sources. In such conditions, aggregated national level information can be used in risk assessment, i.e., administrative procedures give reliable evidence that biomass is not produced on ecologically valuable sites defined in appropriate legislation. National level evidence is valid only if legislation is up-to-date to protect environmental values and well-enforced. In countries or regions where there is a risk for sourcing unsustainable biomass, verification should focus more on the supply chain or even on a consignment, which increases the costs of due diligence assessment.

The information and monitoring measures may be different to domestic biomass production and imported biomass, if the risk assessment justifies e.g. more detailed and supply chain specific assessment to imported biomass. In domestic procurement the due diligence assessment of sustainable sourcing is easily based on existing documentation on forest management planning and harvesting. The Finnish Forest Use Declaration, submitted to authorities prior to the harvest, includes most of the relevant information on site identification, characteristics, planned activities, natural values and sales number for tracing the flow of timber/biomass. Finnish authorities have mapped information on the valuable habitats and areas that are protected by law and with good mapping tools they have the possibility to double check the risk the planned activity has on these sites. They may also prohibit the planned operation for further survey. Countries with developed nature conservation and forest legislation and efficient preventive enforcement measures, protection of habitats, forest resources and carbon stocks are monitored and safeguarded at a national level. In that case, the forest manager or bioenergy producer need not collect additional evidence to demonstrate compliance.

Operators importing biomass shall set more effort to the DDS. The information needed is comprehensive, because an operator shall be informed how credible different pieces of harvesting and trading documentation are. Often access to the relevant legislation and documentation is also limited. Operators should also understand how the applied forest management and harvesting plans take into consideration the sustainability criteria the EU will set for solid biomass.

The DDS application requires good procedural requirements on information collection, risk assessment and mitigation that should include legality and sustainability requirements. Legal compliance is the baseline for sustainability and should be included in a DDS. Development of effective methods to assess risks related to sustainability requirements in different geographies,



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societies and biological conditions is challenging and requires high competence in ecology, forest and energy industry and international energy policies

Forest and chain of custody certificates (PEFC² or FSC³) would provide an evidence on sustainable origin of timber/biomass and also contribute to reliable tracing of biomass origin. Chain of custody certificates and forest certificates are recognised as efficient risk mitigation measures in EUTR DDS implementation.

² Programme for the Endorsement of Forest Certification schemes

³ Forest Stewardship Council



1. INTRODUCTION

Forests are the major source of bioenergy in boreal countries. Most often bioenergy is produced from small diameter roundwood and residues from harvesting operations and forest industry processes. Wood grown exclusively for bioenergy is more common in intensive plantation forestry located in more southern climate zones.

Sustainable biomass production is strongly linked to sustainable management of forests that strives for balancing economic, environmental and social interests of different stakeholders. International Conventions, e.g. the UN Convention on Biological Diversity (1992) and related EU commitments to protection of species, habitats and climate have obliged member countries to update forestry and environmental legislation to also address environmental and social values of forests.

The European Commission (EC) is preparing the EU policy on sustainable bioenergy for the period 2020-2030, as part of the EU renewable energy package. Decisions on the sustainability criteria for solid gaseous biomass are in the agenda. The requirements for sustainable sourcing of bio-liquids are already defined by the RES Directive (2009/28)⁴ on promotion of the use of energy from renewable sources (Article 17).

The RES Directive regulates the procedures how member states and energy companies shall apply and verify the compliance with the sustainability criteria: Economic operators, i.e., energy producers shall develop management system for sustainable sourcing that is subject to third party auditing. Member states set the minimum requirements for such systems in line with the RES Directive. The EC also asks member states to recognize voluntary systems for sustainable sourcing, e.g. from non EU countries, if they are endorsed by the Commission⁵. The application of these systems in practice is also subject to third party audits.

The current EC requirements for verification of sustainable biomass sourcing for bio-liquids set significant additional administrative and management requirements to economic operators regardless of the existing risks for illegal or unsustainable biomass production.

The obligation for annual third party audits alone establishes an administrative burden that compromises the profitability of many small and medium sized enterprises (SME). SMEs are typically important suppliers of solid biomass at a local level. Supply chains from forests to energy plants are short in those EU member states that are both forest biomass and bioenergy producers. Short and simple supply chains that are operated largely by SMEs who are already obliged to comply with the forestry regulations, question the benefits of formal third party audits of sustainability management systems required by the RES directive for bioenergy production. It would be more cost efficient to concentrate major efforts on verifying the legality and sustainability of biomass production to the biomass sourcing that originates from high risk areas.

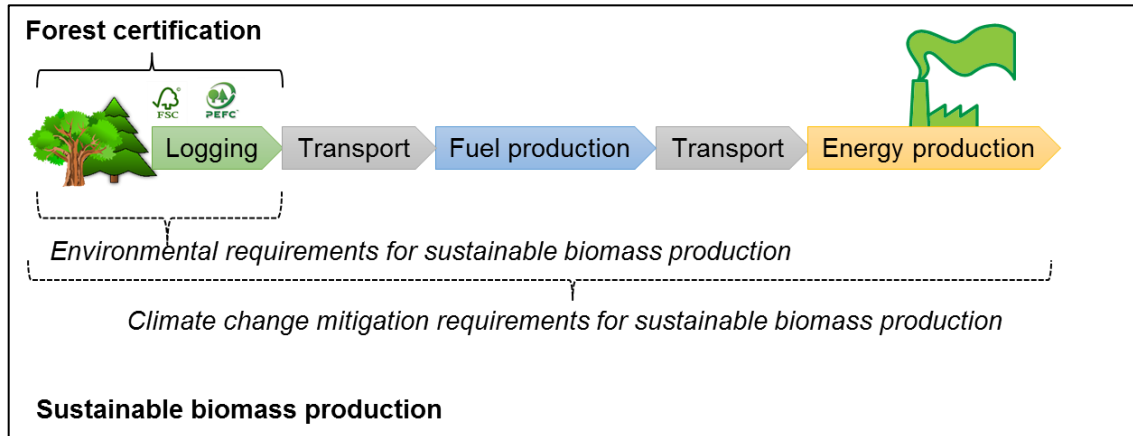
The EC and member states' forestry sectors have launched mandatory and voluntary procedures to ensure legal and sustainable timber sourcing. Biomass sourcing for energy purposes is a side product of forest management for timber production. Forest and environmental legislation that is in force, the level of law endorsement and the application of voluntary forest certification systems e.g. PEFC or FSC are the key measures to ensure legal and sustainable production of timber and woody biomass (Figure 1.1).

⁴ DIRECTIVE 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0028&from=EN>

⁵ List of approved voluntary schemes <https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes>



Figure 1.1 Scopes of Sustainable Forestry and Biomass Production



Bioenergy producers need to demonstrate the sustainable origin of biomass and also net greenhouse gas (GHG) reduction in the energy production that cover the whole supply chain. The (EU RES) (2009/28)⁶ sets the baseline requirements for sustainable production of biofuels and bio-liquids. The requirements for solid biomass have not yet been agreed on.

The sustainability requirements for forestry and bioenergy production apply to the same activities in the supply chain and thus it is important that the requirements and enforcement measures are not conflicting.

The EC issued in 2010 the European Timber Regulation (EUTR)⁷ aiming at prohibition of trade of illegal timber and timber products in the EU. It requires that all **operators** placing timber to the EU market for the first time, shall have a DDS to minimize the risk for illegal procurement. The EUTR came into application in 2013. The EUTR requires that operators apply effective control of legal origin timber and timber products entering into the EU market and the measures taken should be risk based on solid risk assessment. The control and mitigation measures should be more comprehensive if there is a risk for illegal sourcing compared to the situation where the risk is negligible.

The purpose of this study is to review how EUTR based due diligence procedures with appropriate information collection, risk assessment and mitigation would function in demonstrating sustainability of biomass sourcing for energy use.

⁶ DIRECTIVE 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0028&from=EN>

⁷ 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. <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010R0995> (the EU Timber Regulation, EUTR)



2. DESCRIPTION OF DUE DILIGENCE IN EUROPEAN TIMBER REGULATION

2.1 Purpose

The EU is committed to combat illegal logging that causes significant economic, environmental and social problems at a global level. Illegal logging contributes to deforestation and forest degradation and to climate change, threatens biodiversity, and undermines sustainable forest management and development. It also compromises the commercial viability of operators acting in accordance with applicable legislation.

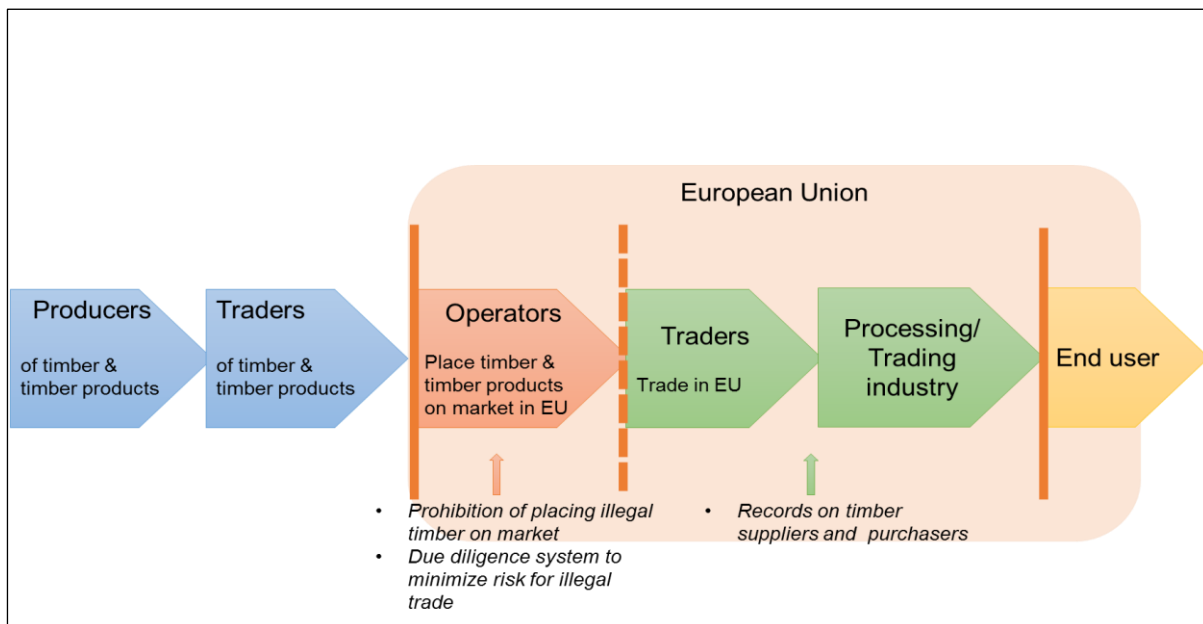
In 2003, the EU launched the Forest Law Enforcement Governance and Trade Action Plan (FLEGT AP) that supports selected non-EU timber producing countries to strengthen their capacity to invest in legal timber production and trade. The EUTR is a demand side measure that allows only trade with timber and timber products that originate from legal sources.

2.2 Requirements

EUTR oblige **operators** that place timber or timber products for the first time into the EU market to apply adequate **due diligence** of supplies in order to minimise the risk of illegal procurement. **Traders** should keep records of basic information on their suppliers and buyers in order to enable the traceability of timber and timber products (Figure 2.1).

EUTR apply to imported and domestic timber and timber products.

Figure 2.1 Application of EUTR in a Supply Chain





Box 2.1 Key Definitions in EUTR

Operator

Any natural or legal person that places timber or timber products on the market.

Trader

Any natural or legal person who, in the course of a commercial activity, sells or buys on the internal market timber or timber products already placed on the internal market.

Illegally harvested

Harvested in contravention of the applicable legislation in the country of harvest.

Applicable legislation

The legislation in force in the country of harvest covering the following matters:

- 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.

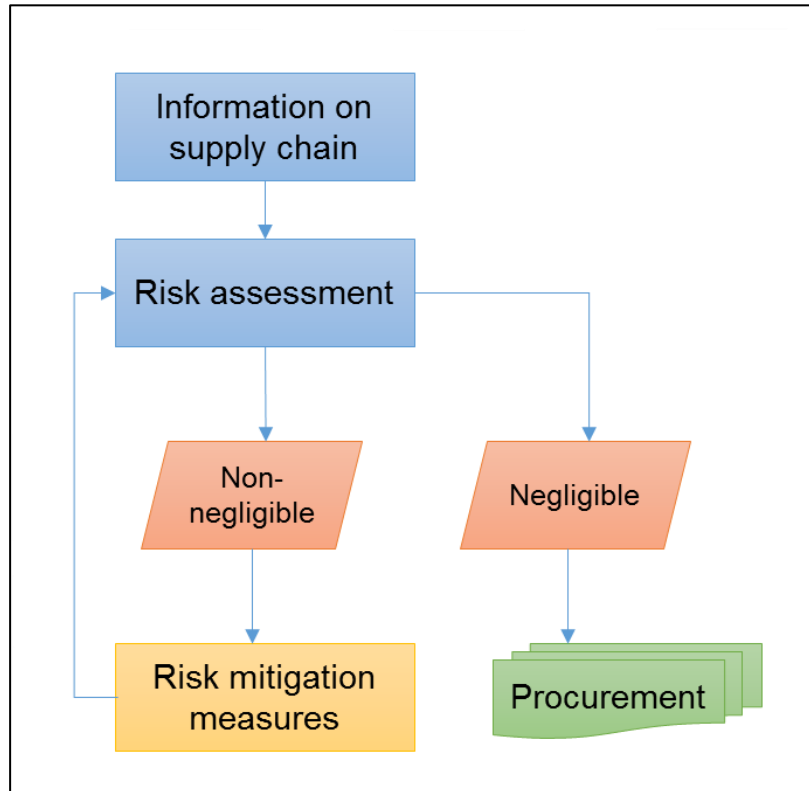
Source: EUTR (995/2010)

All operators shall collect information on the timber supply chain and assess the risk for illegal supplies for each timber product and supplier. Operators should apply a DDS in the information collection and assessment. EUTR sets minimum requirements for the DDS. EU Implementing regulation further specify the DDS and risk mitigation measures⁸ (Figure 2.2)

⁸ 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. <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012R0607>



Figure 2.2 EUTR Requirements for Due Diligence System



Operators shall **collect the following information** on each specific type of timber or timber product supplied by a particular supplier within a period not exceeding 12 months. If the procured tree species, supplier or supply chain (e.g. origin of timber) changes within one year, a new information collection and risk assessment is needed.

1. Product information including a common name of tree species and a full scientific name if there is any ambiguity in the common name
2. Country of harvesting and information on sub-country level of origin, if there is a risk for illegal supplies
3. Harvesting permit and/or other reliable documentation demonstrating the authorized harvesting
4. Quantity of timber or timber product supplied
5. Supplier information
6. Buyer information
7. Evidence on legal origin taking into consideration the broad scope of applicable legislation (Box 2.1).

The EUTR requires risk assessment of supply chains in order to assess the risk of illegal timber procurement. Risk assessment and mitigation is integral part of the required DDS.

Risk assessment shall address following aspects and information sources:

1. Assurance on compliance with applicable legislation,
2. Prevalence of illegal harvesting of the tree species in question,
3. Prevalence of illegal harvesting in country or region of origin,
4. Sanctions on timber imports (issued by United Nations or EU),
5. Complexity of supply chain.

If risk assessment concludes that a risk for illegal timber entering the supply chain is not negligible, the operator shall apply risk mitigation measures defined in its DDS.



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Risk assessment could be extended to also cover key elements of sustainable sourcing. The assessment could review the performance and enforcement levels of forest and nature protection laws in selected countries and risks related to biomass production on sites of concern (e.g. peatlands, wetlands or biologically valuable sites). It could also draw measures to mitigate the risk for unsustainable sourcing from these areas. Mitigation measures could include additional evidence on legal requirements, or voluntary measures taken to ensure legal and sustainable sourcing.

Risk assessment, if applied also for sustainable sourcing, could be well integrated to the EUTR application. However, the detailed procedures, required information and information sources as well as decision making on risk levels need further consideration.

Each EU Member State is required to designate one or more competent authorities (CAs) responsible for the application of the EUTR. These authorities carry out checks to verify that operators comply with the due diligence obligation and that the monitoring organizations (MOs) fulfil their functions as laid down by the Regulation.

In February 2016, the Commission published a Guidance Document on EUTR Application⁹, which explains in detail practical implications of many EUTR requirements (e.g. information collection for DDS and consideration of voluntary certification as evidence for legal compliance). The EC illustrates the DDS information requirements with the following concrete examples which cannot be considered compulsory or exhaustive (Table 2.1):

⁹ Commission Notice of 12.2.2016. Guidance Document for the EU Timber Regulation
http://ec.europa.eu/environment/forests/timber_regulation.htm



Table 2.1 Commission Guidance on EUTR Due Diligence Systems*

EUTR Requirement	Interpretation
1. Documentation on rights to harvest timber within legally gazetted boundaries	Generally available documents in hard copy or electronic form, e.g. documentation on ownership/rights to land use/contract or concession agreements
2. Payments for harvest rights and timber, including duties related to timber harvesting	Generally available documents in hard copy or electronic form, e.g. contracts, bank notes, VAT documentation, official receipts, etc.
3. Timber harvesting, including environmental and forest legislation including forest management and biodiversity conservation, where directly related to timber harvesting	Official audit reports; environmental clearance certificates; approved harvest plans; coupe closure reports; codes of conducts; publicly available information showing rigorous legislative supervision and timber tracking and control procedures; official documents issued by competent authorities in a country of harvest; etc.
4. Third parties' legal rights to use and tenure affected by timber harvesting	Environmental impact assessments; management plans; environmental audit reports; social responsibility agreements; specific reports on tenure and rights claims and conflicts.
5. Trade and customs, in so far as the forest sector is concerned	Generally available documents in hard copy or electronic form, e.g. contracts, bank notes, trade notes, import licenses, export licenses, official receipts for export duties, export ban lists, export quota awards, etc.
<p>The documentation collected must be assessed as a whole, with traceability throughout the supply chain. All information must be verifiable. In all cases, the operator must check for example:</p> <ul style="list-style-type: none"> • Whether the different documents are in line with each other and with other information available, • What exactly each document proves, • On which system (e.g. control by authorities, independent audit, etc.) the document is based, • The reliability and validity of each document, meaning the likelihood of it being falsified or issued unlawfully. 	

^(*)Article 2 and Article 6

Source: Commission Notice of 12.2.2016. Guidance Document for the EU Timber Regulation p. 6-7¹⁰.

¹⁰ http://ec.europa.eu/environment/forests/timber_regulation.htm.



3. DUE DILIGENCE APPROACH IN SUSTAINABLE BIOMASS SOURCING

3.1 Potentials to Adopt EUTR Due Diligence Approach in Sustainable Biomass Sourcing

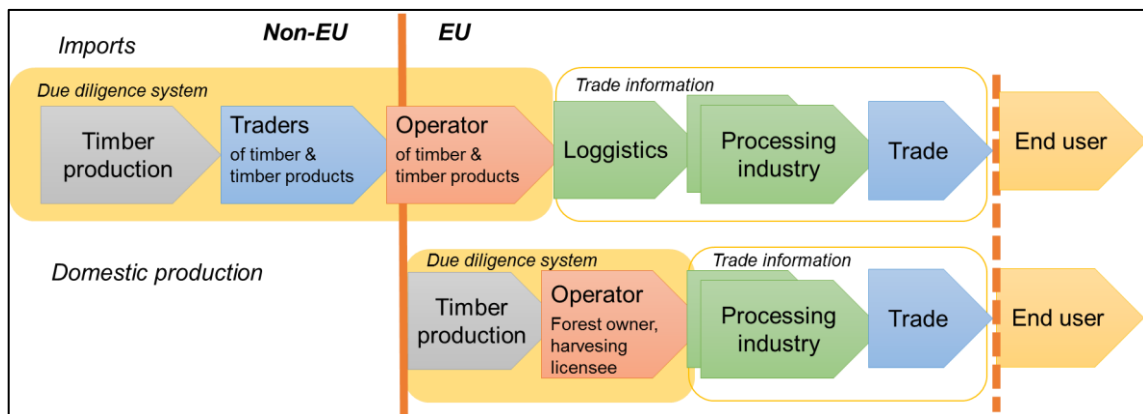
3.1.1 Potential Application of Due Diligence System in a Supply Chain

Requirements on environmentally and biologically sustainable biomass sourcing focus on the quality of forest management and harvesting operations. Operators shall focus information collection and monitoring measures to ensure that these activities are performed in compliance with legislation and sustainability requirements (Figure 3.1). The core sustainability requirements a DDS must assess should be defined and applied to all supply chains. In addition, risk assessment may identify further sustainability elements that need due consideration in a specific supply chain. In order to avoid conflicting requirements for forest management, the requirements for biomass production should also be harmonized with regulations and voluntary standards on sustainable management of forests.

Application of the DDS approach as defined in the EUTR¹¹ in information collection, risk assessment and risk mitigation can be an operational tool to assess and demonstrate the sustainability of biomass sourcing. This approach assumes that the EU recognized sustainability requirements are integrated into operators' DDS.

A benefit in this approach is that operators placing timber or timber products to the EU markets are already obliged to have a DDS for legal sourcing. Member states also have operational enforcement procedures for monitoring the efficiency of EUTR based DDS at a company level.

Figure 3.1 Application of EUTR Approach in Due Diligence System in Domestic and Imported Timber Procurement



All operators that place wood biomass in the EU market shall apply DDS procedures that conform to the requirements of EUTR on legal trade of wood and wood products. Thus, collection of supplier information and risk assessment of illegal sourcing is a common practice for all operators importing wood biomass into the EU. The requirement also applies to production within the EU member states, although the information collection is usually less laborious and can also rely on national or regional data.

The EUTR requires a DDS only from the operators that place wood products to the EU markets. The EU approach in sustainable sourcing of biomass is different and assumes that all economic

¹¹ 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. <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010R0995>



operators in the supply chain, including those who purchase wood products from the EU, are required to demonstrate the sustainable origin of biomass. This approach results that all economic operators throughout the supply chain are required to present the appropriate information on the sustainable origin of biomass. EUTR requires contact and volume information on the traders and traded biomass throughout the supply chain. The applied forest management practices and harvesting measures define the sustainability of woody biomass production.

Application and enforcement of EU directives and regulations on sustainable bioenergy production or forest management is most often allocated to different administrative entities, which increase the risk for conflicting or unreasonable requirements for forest management. Coordination between the bioenergy and forestry policies would be beneficial.

If the operator placing the biomass to the EU market can credibly demonstrate the sustainable origin of biomass, then information inquiries at the later stage of the supply chain do not add value to the credibility of the evidence. Thus energy industry should focus the efforts to the DDS requirements at the early stage of the supply chain, to the operators, and give recognition of the evidence on sustainability that the due diligence assessments. For example, voluntary forest certificates on sustainable management of forests are recognized as such, throughout the supply chain. The processing industry is entailed to sell certified products in line with the rules of their chain of custody standards.

3.1.2 Optional Levels for Verification of Sustainable Sourcing

The level of verification of a sustainability requirement has a great significance on efforts and resources operators must have available for providing the evidence for sustainable sourcing. The EUTR based DDS is applied at a supply chain level, whereas many countries have decided to monitor part of the RES 2008/09 criteria related to sustainability at national or sub-national levels. Interpretation and monitoring of sustainability criteria at a national level, e.g. protection of valuable habitats, requires good legislation on nature conservation and its effective enforcement. Supply chain level information on compliance will be essential, if there are concerns related to the effectiveness of regulatory framework. In general, the more risk there is of illegal or unsustainable sourcing, the further down in the supply chain that evidence should be verified. Supply chain specific risk assessments that are a mandatory element of a DDS provide information on the probability of illegal or unsustainable sourcing and urge for appropriate measures for risk mitigation.

National level interpretation and verification of the feasible requirements for sustainable sourcing increase a harmonized and effective application of sustainability requirements in a country. In order to facilitate international trade of biomass, it is important that countries can mutually recognize the national interpretations and definitions. When the key requirements for sustainable biomass are defined the procedures for mutual recognition of national verification requirements can be developed. Box 3.1 describes examples of requirements that are defined and verified at the national level.



Box 3.1 Examples of Requirements Verified at a National Level

Sustainability requirements that are feasible for national level verification are usually regulated with well enforced legislation. Such requirements include, among others:

- Prohibition of restrictions to supply biomass from protected areas that are defined by regulation(s)
- Restrictions on the land use change or forest conversion (to other forest type or non-forest use)
- Protection of forest health and productivity
- Water and air protection

In addition, definition of key concepts at a national level is essential in order to ensure harmonious implementation of the EU level sustainability requirements. The EU sustainability requirements are likely to include concepts that have different practical implications between member states due to the variation in administration, natural conditions and forest management. Examples of such concepts include, among others:

- Primary forests
- Protected areas
- High conservation value forests/ Ecologically valuable habitats
- Land and habitat types (e.g. grassland, peatland)
- Continuously forested land
- Impacts on greenhouse gas balance, etc.

National level verification of selected sustainability requirements is a feasible option in countries with well-defined environmental legislation that is designed to safeguard the sustainable use of resources. Effective law enforcement should also be in place.

Sustainability requirements related to the origin of biomass that are strongly regulated by legislation and that are site specific, e.g. statutory nature protection areas, land use changes, are suitable for national level verification. Requirements that rely on current inventory data related to the origin of the biomass, e.g. land classified as peatlands, grass lands, forest resource information, are suitable for national level monitoring, provided that a country has reliable inventory data.

Supply chain or even a consignment based verification becomes relevant if the regulatory framework in biomass production is weak or poorly enforced. Also, many sustainability requirements presented in regulatory or voluntary standards are applicable only for verification at a supply chain level.

Such requirements include, among others:

- Species protection,
- Sustainable harvesting and wood production,
- Greenhouse gas emission,
- Soil and water protection at site.

Voluntary forest certification systems and voluntary schemes for sustainable biomass production usually require that operator complies with the supply chain level sustainability elements.

Compliance with requirements that are based on law, but are not necessarily mapped, e.g. species protection, protection of small habitats, need supply chain or supplier level evidence. Evidence on compliance to such requirements may be demonstrated e.g. in harvesting documents of permits or mandatory management plans that demonstrate compliance with valid legislation that address e.g. species protection. In Finland the Forest Use Declaration provides



such evidence. Forest management related requirements e.g. soil and water protection, regeneration, are often based on legislation, but to be more site specific their monitoring requires a supply chain approach. Harvesting documents, permits or mandatory management plans may provide such information.

3.2 Risk Assessment and Management

Risk assessment and management is a fundamental element of a DDS. In sustainable biomass sourcing, economic operators should assess the risk of illegal and unsustainable sourcing. As such, risk assessments are a complex procedure that economic operators need to tailor to the supply chains they are part of. As described in Section 2.2, the EUTR specifies the relevant aspects of a risk assessment for illegal sourcing, but for sustainable sourcing the risk assessment should be complemented with additional elements.

If the EU decides to use a DDS-based approach in sustainable sourcing, then it should give guidance on the key aspects risk assessment to address, as it has done with the EUTR for legal sourcing. This would harmonize the minimum level of risk assessment and keep the resource requirements at a reasonable level also for SMEs.

Economic operators should do a risk assessment for sustainable sourcing for all supply chains they operate in, which is also the requirement of the EUTR. Any change in origin, supplier or type of biomass will require a new risk assessment. Economic operators may use national level information in risk assessments, along with supply chain specific information; especially in the countries where appropriate legislation is in place and it is well-enforced as discussed in the Section 3.1.2. EUTR requires DDS and a risk assessment only from operators that place wood products into EU markets for the first time.



4. EXAMPLES OF APPLYING AN EUTR DUE DILIGENCE APPROACH IN SUSTAINABLE BIOMASS SOURCING

4.1 Outline

The applicability of the EUTR DDS approach (ref. Chapter 2) in verification of sustainable biomass sourcing is described with theoretical case studies on procurement of domestic and imported biomass. The objective is to find estimates for information need and work inputs in ensuring compliance with the selected criteria, which relies on the main elements of environmental sustainability that are addressed in a number of international standards for forest management and sustainable biomass production. The objective is to focus on those criteria that are common to both approaches and to identify the evidence (i.e. information) that could demonstrate sustainable production.

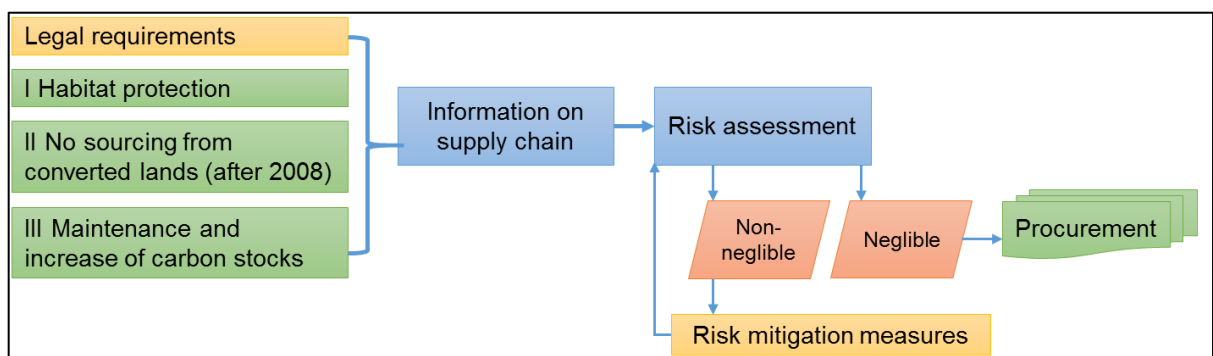
4.2 Selected Sustainability Criteria

Legal compliance and voluntary forest certificates provide evidence on the quality of forest management. However, forestry legislation or voluntary standards for sustainable forest management rarely include quantitative requirements on carbon stocks in or the carbon footprints of energy production, which are aspects relevant to sustainable bioenergy production. These examples relate to harvesting emissions, logistics and processing and do not go in detail into the possible criteria for the carbon footprint of bioenergy production. Any changes in carbon stocks of renewable biomass are considered as neutral.

The selected criteria for the case studies are (Figure 4.1):

0. Legal compliance is the baseline requirement for sustainability
1. Preservation of valuable habitats within protection areas and in production forests are also a core requirement for environmental protection¹².
2. Prohibition of or restrictions on wood/biomass production on sites converted from one forest type to another or to non-forest use. The purpose is to avoid the risk that a low yielding forest or grassland is converted to intensive wood or biomass production.
3. Maintenance of carbon stocks in the vegetation and soil. Biomass production may not result in long-term depletion of carbon stocks. This requirement is closely linked to the long-term maintenance of the production capacity of forests, which is a main target of forest management.

Figure 4.1 Overview of the Application of a DDS in Sustainable Sourcing



¹² In EU countries the national regulations on habitat protection are aligned with EU Habitat Directive (92/43/EEC), Bird Directive 2009/147/EC and Natura 2000 with the purpose to ensure the long-term survival of Europe's most valuable and threatened species and habitats protected by the Habitat and Birds Directives. http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm. [National legislation interprets and complement the EU legislation in national and regional contexts.](#)



4.3 Information and Risk Assessment in Domestic Biomass Procurement

4.3.1 Information flow in a Standard Supply Chain

For domestic wood procurement, harvesting rights have often been based on tenure rights and mandatory forest management or harvesting plans.

In Finland, forest owners inform the Forest Centre (i.e. authority) on a planned harvest by submitting a Forest Use Declaration prior to harvesting. A Forest Use Declaration disclose the location of the harvesting site, key information on the forest type and stand maturity. It also explains the purpose and type of planned logging and subsequent regeneration activities (Table 4.1). In addition, forest owners or use rights holders must inform about any ecologically valuable habitats present in the planned harvesting area if they are the habitat types protected by Forest or Nature Conservation Acts. Authorities have site specific information on ecologically valuable habitats and protected areas.

Table 4.1 Mandatory Supply Chain Level Information in Finland

Site identification	Management	Stand characteristics	Nature values*	Planned activities
↓	↓	↓	↓	↓
Owner and tenure rights holders	Info on voluntary forest management planning	Age, development class or average diameter	Ecologically valuable habitats	Regeneration methods and species
Site location and ID codes	Purpose of planned harvesting	Soil productivity		Soil preparation
Maps		Soil type		Seedling stand management

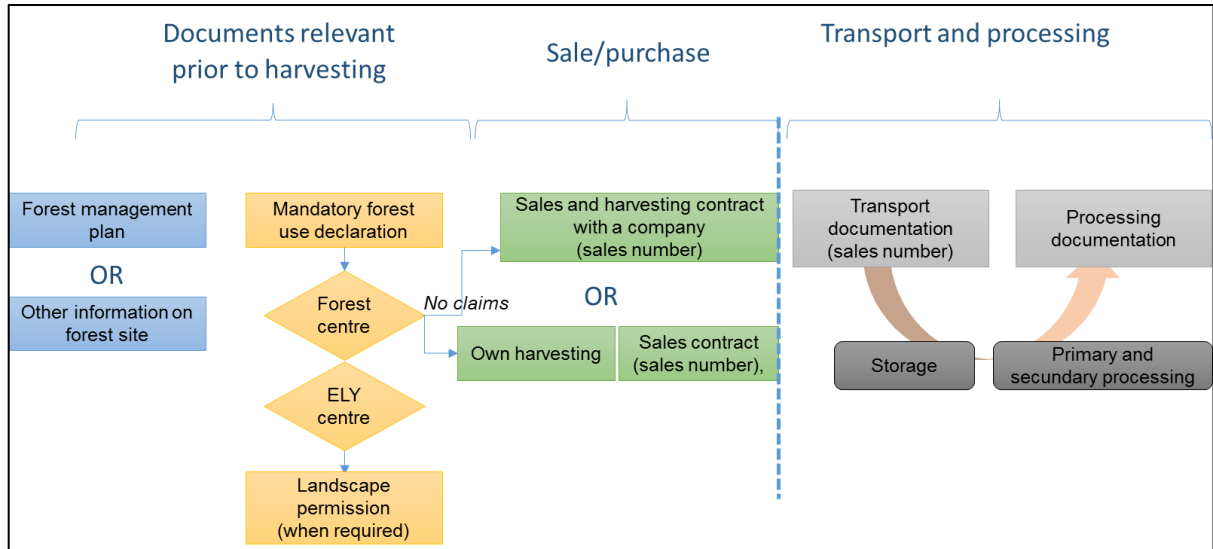
(*) Nature protection areas are protected by law and not eligible for timber or biomass production.

Sales numbers attached to wood piles and transport documents identify sold timber consignments. A sales number identifies all wood assortments procured in the purchase. When a sales number is linked to a Forest Use Declaration the biomass user can trace the timber back to its source. Forest companies have developed more sophisticated systems for chain-of-custody verification that allow for monitoring of timber and biomass flows and calculation of the shares of different categories in processing and final products.

Figure 4.2 describes the information flow and verification in domestic biomass procurement. At the minimum, an operator gets the required information from the Forest Use Declaration, if the declaration form is updated to collect the relevant information on sustainable management that is not already addressed in forestry legislation. National level law enforcement relies largely on the application of relevant regulations, e.g. on protection of forest resources and production capacity (Forest Act), nature conservation and water protection, as well as on up-to-date mapping information on protected areas and habitats. Authorities make sampling based post-harvest controls.



Figure 4.2 An Example of Documented Information on Wood Procurement in Finland



4.3.2 Need for Additional Evidence for Sustainable Biomass Sourcing in Domestic Supply Chains

In domestic procurement, mandatory documentation provides evidence on legal sourcing, that covers most of the requirements of the listed sustainability criteria I-III (Figure 4.1). In Finland, a Forest Use Declaration is a simple document having all the necessary information of the harvesting site (Table 4.2). Together with legislation including sustainability elements and up-to-date databases on protected areas and habitats, it allows authorities to assess the legal compliance of the planned operation.

Operators, most often timber/biomass sellers, should document the statutory information as appropriate. Tracing biomass is an essential requirement if end products are claimed to be sustainably produced. In domestic trade, the sales numbers together with information on trading partners give access to the origin of biomass. This requires an amendment to current documentation. Physical tracing is not possible for industrial by-products.

An additional information search is required for the assessment of the following aspects relevant for sustainable biomass sourcing:

- Information on GHG emissions in harvesting, transportation and processing is required only by the regulation on renewable energy production. The information is calculated based on given standard formulas that would require additional, but readily available, information on harvesting and logistics.
- Avoidance of biomass sourcing from converted lands requires information on former land use prior to the year 2008. In Finland such information is not documented in the Forest Use Declaration or other sales documentation. Thus, timber/biomass sellers should provide documented evidence on the land use.
- Risk assessment and mitigation is the core element of a DDS. Information required for risk assessment may vary depending on location and characteristics of production site. Operators need to specify the risk assessment procedures themselves, although statutory information provides the main evidence for lawful management that aims at maintenance of the wood resource and continuous yield, without compromising the protection of nature values. Guidance and templates should be provided by the industry, as is done in the application of EUTR.



Table 4.2 Summary of Statutory and Additional Information Relevant to Sustainable Biomass Sourcing

Information	Statutory	Additionally Required
1 Site identification	Information available in sales documentation	Documentation up to the level of operator*
2 Management principles and planned activities	Documented in Forest Use Declaration – legal compliance	none
3 Nature values	Areas and habitats protected by law reported in Forest Use Declaration	Documentation of potential additional nature values
4 Former land use	none	Information search
5 Greenhouse gas balance	Only in legislation on renewable energy production. Not in forestry legislation	Information search
6 Info for risk assessment	none	Information search and assessment
7 Info for tracing of biomass	Sales number	Documentation throughout the supply chain Information on trading partners

(*) Operator places the biomass for the first time to the EU markets

Voluntary forest certification, either PEFC or FSC, gives additional assurance on the biomass producer's commitment and capacity to safeguard environmental and social values in forestry. A certificate demonstrates that all biomass produced by a forest manager is sustainable. The requirements I-III listed in Figure 4.1 are covered by all PEFC and FSC endorsed forest management standards. GHG reductions require additional evidence by bioenergy producers. Biomass tracing would be addressed with PEFC or FSC chain of custody certificates that are widely applied by the forest industry.

If the current legal compliance is considered as a baseline, then the need for additional evidence for sustainable sourcing is fairly limited, as indicated in the Table 4.3 describing the available statutory information in detail.



Table 4.3 Estimates for Normative Information Needs and Required Resources in a Domestic Supply Chain in Finland

Information	Resources required*	Responsibility	Sustainability aspect confirmed
Legal requirements			
Forest Use Declaration	1	Forest owner/manager	Planned harvesting respects the Forest Act
Protected areas /habitats	1	Government, Forest owner/manager	Forest manager safeguards the protected areas and habitats protected and mapped by the government
Habitats protected by Forest Act	2	Forest owner/manager	Authorities and forest manager identify and safeguard valuable habitats
Relevant forest and nature conservation legislation	1	Forest owner/manager	Awareness and compliance with applicable laws
Traceability (primary wood)	2	All trading parties	Forest manager or other operator placing timber to market document information on origin, species, volumes, etc. that together with trader information ensures traceability (see Section 2.2 for details). Required by EUTR
Traceability (residues)	3	All trading parties	See above
Risk for illegal sourcing	2	Forest manager**, (all trading parties)	Risk assessment on illegal sourcing of the specific product from specific supplier and region. Implementation of mitigation measures if risk non-negligible. Required by EUTR. (See Section 2.2 for details)
Carbon footprint in logistics - Transport distances - Transport volumes/weights	3	All trading parties	Carbon footprint of logistics and processing calculated using agreed constant multipliers or tailored calculations
Emissions in energy production	2	Energy producer	Carbon footprint energy production and processing calculated using agreed constant multipliers or tailored calculations Net greenhouse gas emissions/savings in bioenergy production, compared to the use of fossil fuels

(*) R - for the access to the information; 1-easy, 2- laborious, 3- difficult, (**) EUTR requires that operator first placing timber/timber products to the EU markets carries out a risk assessment.

Examples of additional information and evidence forest manager and/or trading partners need to provide in order to demonstrate sustainable biomass sourcing are described in Table 4.4.



Table 4.4 Information Required by Due Diligence System beyond Legal Requirements

Issue	Information	R*	Responsibility	Sustainability aspect confirmed
Land use	Peatland drainage status and year of first ditching	3	Forest owner/manager	Prevention of CO ₂ emissions due to decomposing of peat on newly drained areas.
	Land use in year 2008 (forest type, forested or not)	3	Forest owner/manager	Ensures the planned harvest does not aim at conversion Evidence on land use before year 2008 and absence of conversion.
Transfer of information in supply chain	Requires update of Forest Use Declaration and Sales contract formats	3	Development by Ministries, Forest Centre, ELY Centre, operation by all trading parties	Review and improvement of information flow in supply chain with a target that mandatory documents are the main source of site specific information on legal and sustainable sourcing.

(*) Resources required - for the access to the information; 1-easy, 2- laborious, 3- difficult

4.3.3 Conclusions on the Application of a DDS Approach in Domestic Biomass Supplies in Finland

1. In domestic procurement, the integration of the listed sustainability requirements does not set additional information requirements on bioenergy producers when verified through the application of a regulatory framework. The assumption is that energy producers can trace the supplied primary or residual biomass to the origin, e.g. through linking sales contract numbers with Forest Use Declarations.

For by-products and industrial residues, physical tracing is difficult and mass balance or other quantitative methods should be used to assess the shares of untraced biomass.

The criteria eliminating biomass from controversial sources, shall be applied also to untraced material.

2. Certified chain of custody systems (PEFC or FSC) would contribute to reliable tracing of biomass origin. Chain of custody certificates and forest certificates are recognised as efficient risk mitigation measures in EUTR DDS implementation.
3. Forest Use Declaration documentation provides the essential information per one consignment, but its applicability in preventive risk assessment is limited.
4. In countries with developed nature conservation and forest legislation and efficient preventive enforcement measures, protection of habitats, forest resources and carbon stocks are monitored and safeguarded at a national level. In this case, the forest manager or bioenergy producer need not collect additional evidence to demonstrate compliance.
5. If legislation and endorsement is inefficient in protecting natural values to the desired level, the bioenergy producer needs to collect the evidence at a supply chain level.

4.4 Information and Risk Assessment in Biomass Imports

4.4.1 Information Flow in Standard Supply Chain

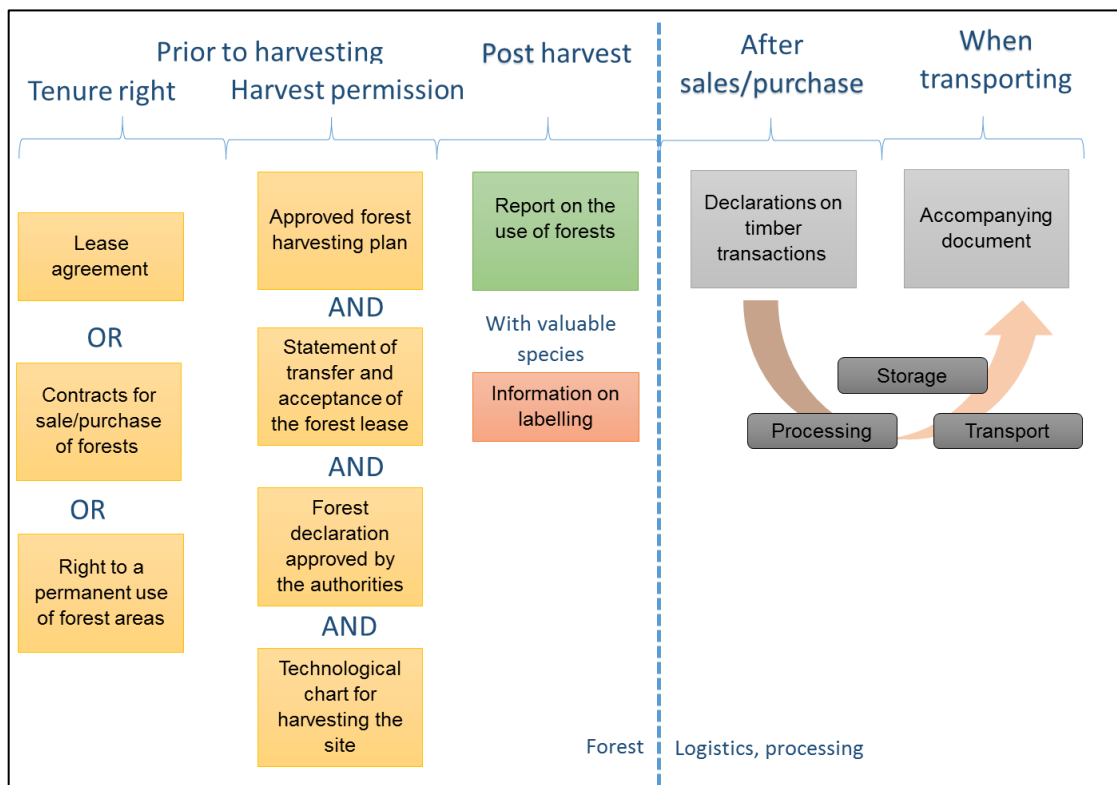
Imported forest biomass originates from countries with different levels of legislative frameworks for forest management and nature protection. With appropriate risk assessment countries and regions can be classified into sources with negligible or non-negligible risk. In general, tracing



of origin and sustainability of imported biomass relies more on supply chain specific information than domestic procurement.

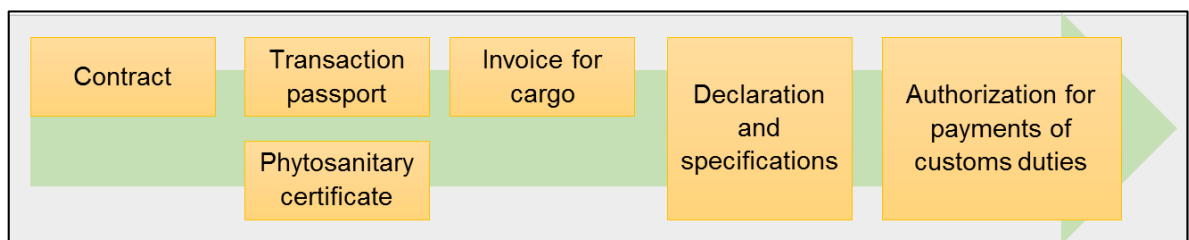
The Figure 4.3 describes the statutory information flow for timber procurement in Russia. The availability of approved and credible versions of the documents provide evidence on legal compliance, but without knowledge of the content and reliability of the documents, they do not provide evidence on sustainable management.

Figure 4.3 Example of Documented Information for Wood Procurement in Russia



Legal exporting of biomass requires adherence to the following sets of documentation (Figure 4.4). The export documentation describes the type and sanitary quality of product and provides evidence on payment of statutory fees. It does not refer to legal or sustainable origin of biomass.

Figure 4.4 Documentation Required for Biomass Exports in Russia



4.4.2 Information Need for Sustainable Sourcing

Risk assessment for illegal and unsustainable sourcing plays a central role in the definition of information needs for specific supply chains of biomass. Operators importing biomass shall be aware of the level of legislation and enforcement in forest management, environmental protection and wood procurement. Procurement from certain geographic regions or species and



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timber products may imply additional risk elements that an operator should take into consideration. The list of information needs contains many challenging elements, but the EUTR already requires that all operators address these issues in their mandatory DDS for timber or timber product imports to the EU.

If a country, region, product and supplier are considered to present a non-negligible risk for illegal procurement, information needs can be partly covered by national level aggregation of information. However, if national enforcement cannot guarantee legal origin of wood, the operator should look for supply chain specific evidence. Among the sustainability elements, national level verification is often possible for the aspects that are defined by laws and regulations, i.e., prohibition or restrictions on biomass procurement from statutory nature protection areas. Most other elements need a risk based consideration at a supply chain level.

Table 4.5 describes an outline for the information an operator needs to collect from the chain of its imported supplies. The table also gives an indication of the information that is already required by the EUTR-based DDS that every operator importing timber products into the EU must have.



Table 4.5 Estimates for Information Needs and Required Resources in a Supply Chain for Biomass Imports

Information	Resources required*	Responsibility	Sustainability aspect confirmed	EUTR DDS
Legal other baseline requirements				
Risk assessment on compliance with laws and regulations and also on sustainable sourcing	3	Importing operator	Risk for illegal sourcing Risk for unsustainable sourcing ➔ Feedback on how the DDS should focus on supply chain specific evidence when sourcing from the assessed country/region.	✓
Traceability (primary wood)	2	Importing operator urges the information	Origin of wood: forest entity, possibly harvesting block that is identifiable in the required harvesting permits and other sales documentation. Documented flow through transport, storage and processing stages.	✓
Traceability (residues)	3	Importing operator urges the information	See above. <i>(Often traceability is not required for residues, if not urged by customers)</i>	✓
Approved harvesting permits and other documentation	2	Importing operator requires the information	Biomass production is done under appropriate permits and meets the statutory requirements.	✓
I Habitat protection				
Relevant forest and nature conservation legislation	1	Importing operator urges the information	Presence of effective and enforced legislation reduces risk for unsustainable sourcing. Information on sustainability aspects that are addressed by normative regulations and do not necessarily need attention at a supply chain level in the DDS.	✓
Mapped data on harvesting site and location of protected habitats and/or The approved harvesting documentation demonstrates compliance with habitat protection measures.	2	Importing operator urges the information	Biomass production has not led to destruction of valuable habitats. Through risk assessment the operator evaluates in the DDS the credibility of documents and the potential need for verification from secondary sources of information.	



Information	Resources required*	Responsibility	Sustainability aspect confirmed	EUTR DDS
II No sourcing from sites converted from natural forests since year 2008				
Site specific information on land use prior to year 2008**	2	Importing operator urges the information	Biomass is not produced on land where natural forests have recently been cleared for other land uses.	
III Sustainable long term harvesting levels				
Forest management or harvesting plan that demonstrates long term sustainable harvesting levels	3	Importing operator requires the information through statutory or other documentation	Forest management and felling levels contribute to long-term sustainable production and preservation of environmental values.	
Approved harvesting documentation respects the plan or legislation on harvesting levels	2	Importing operator urges the information	Felling levels comply with statutory requirements. Risk assessment gives information on how well the standard documentation provides evidence on sustainable harvesting levels.	✓
Greenhouse gas reductions				
Carbon footprint in logistics - Transport distances - Transport volumes/weights	2	Energy producer	Net impact on GHG balance	
Emissions in energy production	2	Energy producer	Carbon footprint energy production and processing calculated using agreed constant multipliers or tailored calculations. Net GHG emissions/savings in bioenergy production, compared to the use of fossil fuels	

* R - for the access to the information; 1-easy, 2- laborious, 3- difficult

** The criteria on conversion is just indicative and does not take into consideration the different aspects of biomass production cleared land that has become unproductive.

4.4.3 Need for Additional Evidence in Supply Chains for Imports

In biomass imports, the significance of risk assessment strengthens especially if the legislation is weak, poorly endorsed or does not address the specific requirements for legal and sustainable sourcing. Risk assessment identifies gaps in information or operations of supplier or authorities and outlines measures to mitigate the risk. Requests for additional evidence provided with new complementing information are major risk mitigation measures feasible for operators. In risk mitigation, the need for additional information may exceed significantly the basic information listed in Table 4.6.



Table 4.6 Information Needs and Required Resources in Supply Chain for Imports

Type	Information	Resource requirement*	Responsibility obtain information in a supply chain
Legal requirement in producing country			
	Documents on tenure right (Figure 4.3)	3	Lease holder*
	Documents on use right (Figure 4.3)	3	Lease holder, forest manager*
	Protected areas /habitats	2-3	Lease holder, forest manager*
	Awareness of legal requirements	2	Lease holder, forest manager, operator importing biomass
Additional requirement in producing country			
	Location of lease area and harvesting site	2-3	Lease holder, forest manager, operator importing to the EU
	Complexity of supply chain	2-3	Operator importing to the EU
	Traceability (primary wood)	2-3	Operator importing to the EU
	Traceability (residues)	3	Operator importing to the EU
	Risk for illegal sourcing	2	Operator importing to the EU
	Risk for unsustainable sourcing	2	Operator importing to the EU
	Sustainable harvesting level		
	Land use history in peatland draining	3	Operator importing to the EU
	Land use history in peatland draining (forest type, forested or not)	3	Operator importing to the EU

(*) for the access to the information; 1-easy, 2- laborious, 3- difficult

(*) Authorities shall approve or verify the information. Complementing sources may also be used.

4.4.4 Conclusions on Application of DDS Approach on Biomass Imports

1. Operators should be informed about the basic requirements of forest and environmental legislation and its enforcement for the national level risk assessment.
2. Application of a DDS in biomass imports would require that an operator verifies the validity and credibility of the documents provided through the statutory control of wood harvesting (Figure 4.3) in order to define the need for additional information search.
3. Operators should understand how the applied forest management and exploitation plans take into consideration the sustainability criteria I-V (Figure 4.1).
4. Risk assessment on illegal supplies due to corruption and/or the falsification of documents provides a framework for efforts towards document verification.
5. Information on harvesting documents and trading partners is essential for tracing timber or biomass to the point of origin; i.e. preferably to the harvested site or lease holding.
6. Documentation on harvesting permit has information on site location, but the operator shall require that the information is not lost in transport or primary processing in the supply chain.



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