



EU laws and regulations and their possible impact on climate and environmentally friendly supply chains in the European Union

whitepaper as part of the LIFE project
"EU Climate Value Chains.

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Abbreviations: LOW CARBON TIMBER (LCT) or HOLZ VON HIER (HVH)

publisher

wood from here

www.low-carbon-timber.eu

www.holz-von-hier.eu

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Whitepaper Part 1) EU description relevant in relation to the implementation of low carbon timber (or Holz Von Hier) in the European Union.

Whitepaper Part 2) Positions of European environmental organizations

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1 / Introduction and background

1.1 / LIFE project

The current "EU Life Climate Value Chains" project aims to initiate short supply chains in the wood industry in the European Union and thus make a practical contribution to climate protection. The climate and environmental label HOLZ VON HIER (HVH) resp. LOW CARBON TIMBER (LCT) can be implemented as an example of good practice for climate and environmentally friendly supply chains. The HVH / LCT must be presented to various stakeholder groups such as chain of custody companies, municipalities and planners and the implementation initiated together with them. With the approval and funding of the project, the European Commission also recognizes the importance and need for appropriate engagement.

However, an important basis for the development of short supply chains for wood is the availability of raw materials from national forests. In this context, several current European strategies and policies are becoming important. Industry players along the wood supply chain have broadly expressed concern that implementing the current interpretation would result in significant reductions (up to 30% and more) in the supply of raw materials, which would sometimes have dramatic consequences for parts of the sector (see also chapter 1.2).

These Concern are expressed not only in Germany, Austria and Italy, but also in other European Union countries that are involved in current LIFE projects and / or where companies want to become part of the HVH / LCT network.

-As the use of wood is treated and on a large scale (Green Deal) and the current developments of the war in Ukraine are still on, a reduction of the supply of raw materials leads to a significant increase in imports from all countries of the world. In the EU this would lead to a significant increase in CO₂ emissions, which would defeat the climate protection objective pursued by EU policies.

In this context, the questions arise:

- 1. What reductions can be expected in the supply of round timber from managed forests in the European Union?**
- 2. What further emissions could be deriving from the delocalization effects resulting from the increase in imports from outside the European Union?**
- 3. Does this context of the new EU strategies make it more difficult to implement climate-friendly supply chains in the EU (see LIFE project)?**

To investigate these issues, the texts of the relevant Community policies have been analyzed as far as possible with respect to the issues mentioned. Furthermore, studies dealing with this topic were researched and evaluated, such as Köhl (2022), Schulze et al (2022), Thünen Institute (2020), Forest Europe (2020) and others. The results of the evaluation are presented in this document divided by policy.

1.2 / Concerns

In the European forestry and wood industry and in the Holz von Hier network (HVH) resp. Low Carbon Timber (LCT) it is feared that around 10-30% of European forest areas will no longer be usable for production purposes due to new EU regulations, in particular the Forest Strategy 2030 and the Biodiversity Strategy, and this would mean leading to a severe shortage of raw wood from European forests. Furthermore, there are currently shortages of raw wood due to import bans and sanctions, for example for wood from Russia.

It is feared that this could also lead to an increase in prices of European raw timber for the national economy, to compensate for the reduction in felled timber. As a result, wood-based products made in European Union (EU) factories and based on raw wood and EU supply chains (such as HVH, LCT) would be at a disadvantage compared to imports into the EU. HVH / LCT fears it, especially if there are no stricter import regulations for products with less environmentally friendly supply chains; a further problem is when these products, through subsequent tools such as financing, promotions and tenders are valued in the same way as climate and environmentally friendly supply chains where timber is produced within a short distance (as can be demonstrated, for example, with the global climate certification mark HVH / LCT). At the very least, imports into the EU should be subject to the same conditions as those in Europe for timber; that is not the case at present.

This feared lack of wood from EU forests should be compensated for by imports of raw wood, semi-finished and wood products. Some of these imports would have little chance of having climate-friendly transport and some supply chains would come from sources with lower environmental and social forest management standards than Europe. The current project will also show what significant consequences this would have for the climate.

If the raw wood production is relocated to "third countries", there is also a fundamentally greater risk of biodiversity loss. With a global perspective, also required by the EU's Green Deal, these biodiversity losses need to be compared with biodiversity gains in the EU through the biodiversity strategy.

Many of these third countries often have significantly less sustainable forest management than the EU, but at the same time they have a (still) significantly higher percentage of primary forest areas. A threat to these still intact forest areas due to the effects of displacement cannot be ruled out. Again, HVH / LCT is working within the ongoing project on a red list of origins with an accompanying digital platform from the point of view of supply chains that respect climate, resources and biodiversity, which is based on data from recognized international databases. These are coordinated with partners and stakeholders across Europe.

If the above fears materialize, forests and the first stage of processing in Europe could have serious disadvantages compared to products imported into the European Union. It would therefore be imperative that the integration of the EU biodiversity strategy be accompanied by measures to strengthen sustainable forestry, protect primary forests, and protect global biodiversity, with adequate governance in third countries. Corresponding European specifications, such as EUTR and due diligence, have so far not been sufficient or are too often not implemented, as the reports of WCMC (World Conservation Monitoring Council), UNEP and Interpol on the subject impressively demonstrate.

In the second processing stage, this would mean that more wood products from imports with unclear but probably less climate and environmentally friendly supply chains and origins would be processed. It is therefore not sufficient, as is customary in many European regulations, that only the last link of the supply chain is included in the considerations, but supply chain evidence and evaluation tools are needed that cover the entire cradle-to-gate and gate-to-customer (such as HVH or LCT).

Whether all the concerns are correct cannot be fully clarified in this report based on your own investigations. However, further open and transparent discussions with all interested parties on the subject will and can be encouraged and approaches for initial options for action should be proposed.

1.3 / EU "Fit for 55 package"

The EU has revised its legislation on climate, energy and transport as part of the Fit for 55 package. This was intended to adapt the applicable rules to the 2030 and 2050 targets. The name "Fit for 55" refers to the EU's target of reducing its emissions by 55% by 2030. The proposed package aims to align EU climate and energy legislation with the EU's 2030 targets. "Fit for 55" includes the following legislative proposals, according to requirements which, in addition to the energy sector, could also have an impact on the forestry and wood, construction and of living with wood, of paper, of printing and of packaging in the medium term:

- Review of the Emissions Trading System (EU ETS), including its extension to maritime transport, revision of aviation rules and the establishment of a separate emissions trading system for road traffic and buildings;
- A revision of the Effort Sharing Regulation for Member States' emission reduction targets in sectors outside the EU ETS;
- A revision of the regulation on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry (LULUCF);
- A CO₂ border adjustment system (note: see chapter CBAM Carbon Border Adjustment Mechanism, assuming this would / will be extended to wood and NaWaRo products in the medium and long term);
- A social climate fund;
- A revision of the Renewable Energy Directive (see RED II and RED III).

Also for the energy sector: revision of the Energy Efficiency Directive, revision of the Alternative Fuels Directive, modification of the Ordinance that sets CO₂ emission standards for cars and light commercial vehicles, revision of the Energy Tax Directive, "ReFuelEU Aviation" and "Maritime FuelEU".

In the LIFE project, the following European specifications and their possible effects on climate-friendly supply chains with Holz von Hier (HVH) resp. LOW CARBON TIMBER (LCT) are considered: European Forest Strategy, Biodiversity Strategy, EUTR and Due Diligence, LULUCF, RED-II / RED-III and CBAM.

It should be noted that the European Forest Strategy and the Biodiversity Strategy are not regulations in the legal sense, but rather recommendations. This means that the specifications of the European Union are inherently very general. The actual implementation must take place in individual European countries, which must draw up their own implementation plans or implementation regulations. It should remain that way, and individual EU countries have often emphasized the principle of sovereignty in the past, especially with these two strategies.

In essence, it must be remembered that the objectives formulated in the European political strategies, particular in the biodiversity strategy, are only the recommendations of the Commission. In Germany, for example, the political direction of "both and" is pursued rather than "or - or". This means that promoting CO₂ storage in forests and promoting biodiversity is a clear policy goal, as is the use of wood as a long-term source of CO₂ storage in durable products. Both directions are vigorously pursued in parallel. During implementation in Germany, it will be seen and decided where, in the event of conflicts or contradictions, compromises in one or the other strategy might be needed. In general, even if more significant restrictions were to be decided in Germany, the corresponding specifications would only be made for federal forests. Even with the state-owned forests of the federal states, they have decision-making authority. In private and municipal forests, only recommendations can be made and restrictions on use should be compensated for.

The EUTR with due diligence, the LULUCF, RED-II / RED-III and the taxonomy regulation, on the other hand, are real regulations that must be implemented as European legal requirements in the countries of the European Union. The relevant rules are more or less strict and the room for maneuver of individual European countries is less. However, even these cannot be compared with European laws. Here too, the Länder have room for maneuver which are exploited. In practice, there are significant differences in implementation between European countries, especially when it comes to due diligence.

Other specifications, such as CBAM, which is intended to be a strict system like those in certificate trading (but according to the authors of these reports CBAM has yet to be considered "in testing" for practical implementation). This is very positive, however, because many decisive turning points can be set here for climate and environmental protection, as well as for the European economy, and because the authors of this report believe that the systemic consequences are not yet optimal.

1.4 / Levels of implementation

As noted by HVH / LCT when revising the texts, the concerns expressed about a reduction in the supply of round wood from European forests cannot be read directly from the texts and documents of the various policies. The discussion is essentially a matter of political interpretation and implementation in the respective European countries. This opinion is confirmed by the German Federal Ministry of Agriculture (interview with Dr. Heider, 9 May 2022). For example, the target formulated in the biodiversity strategy of using 30% of the land only to a limited extent has already been met or even exceeded in European countries, for example Germany. so almost no change would be expected here. The further goal of taking 10% of the area out of production would almost be achieved in Germany.

The Commission's proposals for LULUCF, for example, do not consider the substitute effects of the use of wood (CO₂ reduction using wood instead of energy-intensive products, from buildings to energy use) (these are at least partially accounted for in other sectors such as industry). Consequently, at the level of land use, CO₂ storage in the forest is overestimated compared to the effects of wood use.

The IPCC special report on "Climate change, desertification, land degradation, sustainable land management, food security and greenhouse gas flows in terrestrial ecosystems" (2019) shows options for action to mitigate, adapt, combat desertification and soil degradation and improve food security. The options for actions based on land management, value creation management and risk management are mentioned here. The following options for action based on land management are mentioned in the IPCC report, so many of these aspects can be described more as general lists and less as suggestions in the real sense of the action options for implementation.

2 / EU programs

2.1 / Forest strategy 2030

2.1.1 / Objectives of the forest strategy

The new EU forest strategy is one of the flagship initiatives of the Green Deal, which is also based on the EU biodiversity strategy and encompasses the different functions of forests. It aims to contribute to the achievement of the EU's target of reducing greenhouse gas emissions by at least 55% by 2030 and of being climate-neutral by 2050, as well as the EU's commitment to increase emissions reductions through natural sinks.

In general, the EU Forest Strategy 2030 aims to "... adapt European forests to new conditions, extreme weather conditions and the great uncertainty resulting from climate change. This is essential for forests to remain able to perform their socio-economic functions and ensure vibrant rural areas and thriving rural communities".

"The goal of the strategy ... is to ensure that forests in the EU grow healthy and resilient in the coming decades. The strategy aims to ensure that wood is used optimally in line with the principle of use cascade, which keeps wood harvesting within sustainability limits and meets the requirements of the European climate law and the 2050 climate neutrality target, as agreed with all EU member states".

These goals can only receive approval. However, this does not yet provide concrete indications for the concerns expressed in point 1.2. It may therefore be worth looking at the initial situation, as explained in Chapter 2.1.2.

2.1.2 / State of European forests

The report "Report FOREST EUROPE, 2020: State of Europe's Forests 2020, Ministerial Conference on the Protection of Forests in Europe, 2020" provides information on the state of European forests. The key criteria mentioned here for forests are: (1) conservation and promotion of forest resources and their contribution to global carbon cycles, (2) health and vitality of forest ecosystems, (3) productivity, (4) biological diversity, (5) protective functions (soil, water) and (6) socio-economic functions.

The report's findings show: **The state of Europe's forests in 2020 is good.**

Structure, condition, vitality

- Most of Europe's forests, around 66%, are naturally renewed. About 3.8% of the forest area are plantations (e.g. poplar, eucalyptus). Forests undisturbed by humans cover 2.2% of the European forest area. The introduced tree species cover 3% of the total forest area. The forest area with invasive tree species is only 0.5%.
- Defoliation increased slightly. Although tree defoliation remained stable on 72% of the plots monitored, the loss of leaves increased in 19% of the plots from 2010 to 2018. From this it can be deduced that the vitality of European forests is deteriorating slightly. About 3% of European forests are damaged, by wind, insects, grazing and forest fires. The volume of dead wood is 11.5 m³ / ha and corresponds to approximately 7% of the growing stock. Deadwood provides microhabitats for many species of animals, fungi and plants and is an important component of forest carbon stocks.

- Protective forests prevent soil erosion, conserve water resources and maintain other ecosystem services. Protective forests make up about 32% of the forest area. In addition, protection functions are often also integrated into multifunctional forestry outside the areas specifically designated for this purpose.

Growth and storage of CO₂

- The growth of European forests far exceeds felling. More wood regrows in European forests each year than harvested, leading to an accumulation of wood stocks in forests. The annual net increase in timber is higher than in previous periods. Since 1990 it has increased by about 25%. According to many forestry operators, this is not necessarily an advantage, especially if this increase is mainly concentrated in the older age groups. In this case, the risk of bankruptcy for death increases. This reduces the economic yield but also the duration of CO₂ storage.
- Roundwood production in Europe has increased, reaching a peak of nearly 550 million m³ per year. The total reported value of traded logs is also steadily increasing and reached around EUR 21 billion per year around 2015. However, reported log volumes and unit values vary significantly from country to country. The volume of wood harvested has also increased steadily since 1990. On average, 73% of the net increase is cut, which at the same time indicates the sustainability of the timber supply of European forests.
- European forests are an important carbon sink. Between 2010 and 2020, the annual carbon sequestration in forest biomass reached 155 Mt. In the EU-28, this corresponds to 10% of gross greenhouse gas emissions. In the period 1990-2015, the carbon stock in harvested wood products increased from 2.5 to 2.8 t C.

Biodiversity and stability

- Populations of common forest bird species are generally stable. The Common Forest Bird Species Index has shown little variation over the past 37 years. The fact that populations of common forest bird species are stable indicates the overall stability of the forest, environment and forest biodiversity.
- Over the past 20 years, the area of forests dedicated to biodiversity conservation has increased significantly. The protected forest area was 49.3 million hectares, or 23.6% of the total forest area. The main objectives are the conservation of biological diversity and the protection of landscapes and natural elements.

Use

- Around 1.1 m³ of timber per capita is consumed annually in Europe (from 0.7 m³ in southeastern Europe to 2.6 m³ in northern Europe). This includes sawn timber, engineered wood, paper, cardboard, and energy wood. Wood consumption has increased in almost all regions.
- Wood for energy use accounts for approximately 6.4% of the total energy consumption EU primary energy supply. About half of the energy is supplied directly from the forest, supplemented by products and residues from the woodworking and recycled wood industry.

Most EU countries have policy objectives related to ecosystem services, free access to forests, contribution of the forest value chain to GDP, low-cost job opportunities, forest biomass for energy production, investment for innovation and sustainable consumption. Three quarters of the forests have a forest management plan and half of the forest area is already certified by one of the private certification systems FSC, PEFC or both through forest management certificates.

2.1.3 / HVH / LCT and forest strategy

The implementation of the HVH / LCT in Europe, as a network born in Europe, naturally falls below all the directives of the European Union. This is particularly true of the goal of preserving the growth, resilience and health of forests in Europe, which is the very core of the forestry strategy.

The European initiative HVH / LCT, with its increasingly open network of partners and operators in the European Union, aims to achieve a real improvement of the climate and the environment. In accordance with the criteria established by the HVH / LCT ecological and climate quality label of the same name, trunks from primary forests are excluded from the HVH / LCT chain of custody. This is true generally and obviously also for primary forests in Europe. In European countries where HVH / LCT is currently active under the LIFE project, there is no potential risk, as there have been no primary forests for some time. Primary forests in the EU are present in only a few regions (e.g. Romania) and are usually already protected. However, it would be useful for wood operators in the HVH / LCT network to be able to use an official GIS map where the EU has defined these primary forests, a map which, according to the HVH / LCT, does not yet officially exist. The use of wood from primary European forests can therefore be specifically avoided by operators. HVH / LCT will consult the Commission bodies and working groups involved in the LIFE project and, if possible, collaborate with them to obtain this information for future network extensions

However, reading the Forest Europe 2020 report, the reader inevitably wonders which regions or countries should be considered for additional strategic action. In particular, this does not indicate the need for further reduction of productive wooded areas

Furthermore, it is not clear from the available documents whether, where and to what extent the supply of raw materials can be reduced due to the forestry strategy. Implementation and interpretation of the forest strategy are also the responsibility of the Länder. This means that it is also up to the federal states themselves to determine how they want to "interpret" the forestry strategy. In Central Europe, the strategies of "protection and use" already existing and implemented or in the process of being implemented will certainly prevail.

As the data and information of individual EU countries are still too inaccurate (see, for example, above), it is not yet possible to answer the initial questions: (1) What are the actual reductions in the availability of logs from forests managed by the European Union? (2) What additional emissions resulting from increased imports from outside the European Union will we encounter? (3) Can the Commission say whether the context of new forest strategies in the EU makes it more difficult to implement climate-friendly supply chains in the EU (see LIFE project)?

However, further fundamental questions arise for HVH / LCT, which, however, cannot be easily answered with the available forest strategy documents and the Forest Europe report:

- Why should there be pressure to set aside cultivated land when, according to the Forest Europe report, biodiversity is good and has been increasing for years?
- The increase in biodiversity and the increase in forests intended for protective functions actually shows a clear compatibility of protection and use in EU forests (Warning, this must not be equated with the use of tropical and boreal forests, see below). This is also attributable to well-trained forestry experts in practice in the EU.
- The goal is to convert the forest to improve resilience. However, targeted forest conversion can only be achieved in managed forests in the EU (non-primary forests) using existing stands.
- The scientific dispute over the potential storage of CO₂ in natural forests and productive forests is old and still heated and controversial. If this topic has already been discussed in such a controversial way on a scientific level, the HVH / LCT cannot and should not make any final assessment here. However, according to the standard, the question is actually very simple for HVH / LCT: "No wood from primary forests is included in the chain of custody processes at HVH / LCT". HVH / LCT therefore only needs a definition of how "primary forest" should be defined in the European Union by EU experts and policy makers and a digital map of where they are or will be exactly defined. Outside the EU, HVH / LCT creates a "red list of origins" for its environmental communication in collaboration with partners. This is justified in a transparent way and the regions are defined in a GIS map. HVH / LCT requires it for climate and environmental comparisons of HVH certified products versus other products without the climate and environmental label.
- However, HVH / LCT points out that this dispute over forests in the European Union often (mostly) forgets that the ecological, economic and social effects of new regulations in the EU must be systematically considered and expanded. The current timber market is worldwide. For example, if there are to be prohibited areas in the EU, there must be prohibited areas for the import of wood into the EU at least under the same conditions (HVH / LCT is trying to do this in the LIFE project for its environmental communication with the "Origins of the Red List"). The European Union is not an island when it comes to forests and wood and when it comes to climate protection and biodiversity. Everything defined here always has a systemic impact on global material flows and the extraction of raw materials around the world.

2.2 / Biodiversity strategy

2.2.1 / Objectives of the biodiversity strategy

The overall objective of the EU biodiversity strategy is the recovery of biological diversity by improving the protection and restoration of nature. The key elements for achieving the objectives include the creation of protection zones on at least 30% of land and sea areas and stricter protection of European forests. Basically, the biodiversity strategy contains many points that go far beyond the forest and woodland area. The following information comes from the "Communications from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions" and the document "European Biodiversity Strategy for 2030: more space for nature in our lives".

The EU wants to create a coherent network of protected areas. The most important goal of the biodiversity strategy is to expand a coherent network of protected areas by 2030. At least 30% of the earth's surface and 30% of the seas in the EU should be protected. This corresponds to an increase of at least 4% of the earth's surface and 19% of the sea surface compared to today. Currently, according to the strategy, only a small part of the land (3%) and marine (1%) areas in the EU are strictly protected. According to the biodiversity strategy, at least 10% of the land area and 10% of the EU sea surface should be strictly protected. Particular attention will be paid to the identification, mapping, monitoring and rigorous protection of all remaining primary / old forests in the EU. In addition, ecological corridors must be created to prevent genetic isolation, allow species migration and maintain and improve healthy ecosystems. In this context, investments in green and blue infrastructures (e.g. areas for evaporation, shading, open spaces, green roofs and facades, urban trees and green belts, etc.) and cross-border cooperation between Member States should be promoted, also within the framework of European territorial cooperation.

The EU wants to contribute to the protection of primary forests around the world. The regulation describes the importance of ensuring that EU action does not lead to deforestation in other regions of the world. For the EU the primary and old forests are the richest forest ecosystems, as they remove CO₂ from the atmosphere by storing important CO₂ stocks. According to the EU, significant areas of other carbon-rich ecosystems such as peatlands, pastures, wetlands, mangroves and sea grasslands should also be rigorously protected.

The EU wants to increase forest cover in the EU and improve its health and resilience. In addition to rigorously protecting all remaining primary and secular forests in the EU, the EU aims to improve the quantity, quality and resilience of its forests, particularly in the face of increasing fires, droughts, pests, diseases and other threats. due to climate change. For them to perform their functions in relation to biodiversity and climate, all forests should be kept in good condition. for this objective, the Commission proposed the EU Forestry Strategy in 2021, which is in line with the EU's biodiversity and climate neutrality objectives. At the same time, the Commission will work with Member States to ensure that the EU is adequately equipped to cope with major forest fires, which also cause significant damage to forest biodiversity. In addition, three billion new trees will be planted in the EU. Cities with more than 20,000 inhabitants should have a plan capable of increasing urban green. Afforestation and tree planting in support of biodiversity and ecosystem restoration are supported by the CAP strategic plans and the Cohesion Fund. The share of forest area subject to management plans should include all managed public forests and an increasing number of private forests. Biodiversity-friendly methods, such as naturalistic silviculture, should be continued and further developed

The EU wants to restore ecosystems and biodiversity in general. Significant areas of degraded and high-carbon ecosystems will be restored by 2030. Habitats and species should show no deterioration in conservation trends and conservation status, and at least 30% of those habitats and species should show favorable conservation status or a positive trend. The decline in pollinators must be reversed. The number of Red List species threatened by invasive alien species is set to decline by 50%.

The energy use of biomass must be adapted to the Renewable Energy Directive (RED-II / RED III). In line with the Directive, the Commission has also prepared operational guidelines on sustainability criteria for the use of forest biomass for energy purposes. It will also review data on high-risk biofuels linked to indirect land use change and set the path that will lead to the phasing out of these fuels by 2030.

"Business for Biodiversity" Corporate commitment to biodiversity. The EU intends to promote an integrated and social approach, including approaches such as "Business for Biodiversity". The Commission will strengthen its framework for EU funds to support biodiversity-friendly investments.

The EU taxonomy on sustainable finance should serve to make investments green and more sustainable. The regulation is also expected to make a significant contribution to the protection and restoration of biological diversity and ecosystems. The strategy aims to help the financial system mitigate current and future biodiversity risks and show how biodiversity loss is affecting profitability and long-term business prospects.

Measurement and consideration of the value of nature. The EU supports the approach of measuring and considering the value of nature. This includes measuring the environmental footprint of products and organizations, including the application of life cycle concepts and natural capital accounting.

Various. The Biodiversity Strategy also targets various other areas, which however have little or nothing to do with the issue of forests and wood, such as various targets for agriculture, soil, water and fishing.

2.2.2 / HVH / LCT strategy and biodiversity

(1) Unclear situation in implementation practice

As EU countries' data and information on biodiversity strategy is still too inaccurate, the questions raised at the outset cannot be answered here.

1. What reductions can actually be expected in the supply of round timber from managed forests in the European Union?

The first studies and models provide the first indications, such as the study by the Thünen Institute and the University of Hamburg (see below).

2. What additional emissions from dislocation effects resulting from increased imports from outside the European Union would it entail?

Suffice it to say that, if EU policies lead to substantial changes in the provision of logs from managed European forests, this will inevitably result in relocation effects and, consequently, in a significant increase in the pressure on biodiversity. with much higher risks of biodiversity loss. Examples of this are shown in the LIFE project.

3. Does this new strategic framework for forests in the European Union make it more difficult to implement climate-friendly supply chains in the EU (see LIFE project)?

The protection of biodiversity, especially in primary forests, does not in itself complicate the implementation of HVH / LCT, as HVH / LCT does not process timber from primary forests. The HVH / LCT tends to support the promotion of biodiversity through incentives to forest owners to increase the diversity of (tree) species in nationally managed forests and thus also supports the biodiversity strategy. However, implementation would be made more difficult if EU strategies lead to a significant reduction in the supply of round wood from managed European forests. For this topic, clear European political signals should therefore be sent pro HOLZ VON HIER (HVH) or pro LOW CARBON TIMBER (LCT), because without such political support, material flows would be much less climate friendly.

(2) Primary forest protection in the EU requires reliable information available and transparent discourse

A particular objective of the EU biodiversity strategy is to rigorously identify, record, monitor and protect all remaining primary / old forests in the EU.

By default, HVH / LCT does not treat wood from primary forests.

HVH / LCT therefore only needs an official specification from EU experts and policy makers on how to define the "primary forest" in the European Union and a digital map where these are precisely defined by the EU. Information available to all implementing partners and stakeholders and transparent speech are very important for practical implementation.

In many countries of the European Union, the principle of protection and use already applies today, unlike in many parts of the world, where use clearly outweighs protection efforts. In EU forests, the area of forests designated for the conservation of biological diversity has even

increased by around 65% over the past 20 years, while in other regions of the world, especially in Asia, Africa, Central and South America, forest areas have decreased significantly. Most EU countries have policy goals related to ecosystem services, free access to forests, forest value chain contribution to GDP, favorable job opportunities, forest biomass for energy production, investment in innovation and sustainable consumption. Three quarters of European forests have a forest management plan and more than half of the forest area is also certified by one of the global forest certification schemes FSC, PEFC or both. This is completely different for forests outside the EU (see white paper Forests around the world).

(3) The EU objective of "protecting the world's primary forests" can be counteracted by EU strategies in case of stronger relocation effects

The EU also wants to contribute to the protection of primary forests around the world.

HVH / LCT points out that the world's largest contribution to biodiversity protection lies in the protection of primary tropical forests. About 50 - 70% of all species on earth live in these forests (UNEP, DEPI). The LIFE, HVH / LCT project will also demonstrate that transport in some long supply chains carries a risk of biodiversity loss at least equal to the extraction of raw materials in primary forests, and that the risk associated with transport within the Union European is not comparable.

In the last 20 years alone, 361 million hectares of forest areas have been lost around the world, especially in the tropics. Large primary forests in Asia, Africa and Central / South America are being cleared for logging concessions, palm oil, soybean or sugarcane plantations, mining concessions, oil and gas concessions (eg FAO 2020). In Africa alone, almost 12% of the forest area (82 million hectares) was lost between 1990 and 2015 (WWF 2020).

Forest certifications in the tropics are very important, but they alone do not solve the problem of primary forest deforestation.

One reason is that logging in primary forests is also allowed under the Certified Forest Scheme (FSC, PEFC) in other parts of the world and the corresponding wood reaches the market and is bought "with a clean conscience". However, any commercial use, even certified, of previously pristine primary forests leads to a loss of biodiversity. The "management" of these forests can also lead to the removal of up to 100% of the biomass and the destruction of the organic soil layer, for example in preparation for recultivation, usually planting plantations for wood, palm oil, sugar cane and others (see HVH / LCT Malaysia, Indonesia country profiles). But even the removal of a single log, which is often seen as careful use of tropical primary forests, leads to severe species loss in these habitats according to scientific studies (Asner et al, 2006). For example, for every tree cut in the Amazon region, 27 more trees are damaged, 40 meters of new roads were built, and a 600 m² canopy hole is created (WWF, 2008).

Another reason why certification has so far not really preserved biodiversity is that in practice certification systems have not been able to stop the destruction of primary forests. It is obviously important to pay attention to sustainable forest management labels (PEFC, FSC) when importing into the EU. So far, however, only 3% of forests in Asia, 2% in Latin America and 0.5% in Africa have been certified according to forest standards such as PEFC or FSC (I-Net PEFC and FSC pages). As the destruction of rainforests is progressing rapidly in these regions, in particular, forest management certification alone cannot stop the destruction of primary tropical forests. There is also the problem of control. Asian countries such as China and Indonesia are among the largest collection and sorting centers for tropical timber in the world.

The use of planting wood is also not a general solution, because here too the origin is very important.

Even the use of tropical plantation timber is not a solution to primary deforestation. Most plantations that have been cultivated in the last 20 years derive from previously deforested areas, often primary forests. Furthermore, wood from tropical plantations is considered, in terms of wood quality, to be worse (short growth cycles: teak 30 - 50 years) than wood from primary forests, this also applies to still young plantations with sustainability certification. Primary forest wood is still used for high quality products. Ultimately, plantations in the tropics cannot prevent the pressure on primary tropical forests. There is also another problem related to the illegal timber trade: in the last decade, for example, the area of timber plantations in Indonesia has increased by about 80%. Over the same period, however, the share of plantation logs on the market increased by 600% (!). Experts assume that much of the illegally harvested timber is marketed under the name of "plantation timber" (Interpol Environmental Crime Program, 2012).

Many countries are still cutting primary forests to make way for plantations (Data from WCMC, WRI and other websites). Particularly relevant here are: Angola, Argentina, Australia, Belize, Benin, Bolivia, Botswana, Brazil, Burkina Faso, Chad, China, Democratic Republic of Congo, Dem. Rep. Korea, Ecuador, French Guiana, Ghana, Guatemala, Cambodia, Cameroon, Colombia, Guinea, Guinea-Bissau, Honduras, India, Indonesia, Kenya, Laos, Liberia, Madagascar, Malawi, Malaysia, Mali, Mexico, Mongolia, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Nigeria, Panama, Papua New Guinea, Paraguay, Peru, Republic of Congo, Republic of Korea, Russian Federation, Senegal, Sierra Leone, Zimbabwe, Somalia, Sudan, Suriname, Tanzania, Thailand, Uganda, Venezuela, Zambia, Central African Republic.

2.3 / European Wood Regulation (EUTR) and Due Diligence (DD)

2.3.1 / EUTR, VPA and DD objectives

With a complex system, the European Timber Trade Regulation (EUTR), the European Union wants to prevent illegal timber from reaching Europe through trade. The EUTR, with the FLEGT regulation and due diligence, is a very complex system, but quite ambitious worldwide. Individual countries have similar approaches, but they don't usually go as far as Australia's law banning illegal logging. Most of the wood importing countries do not have such regulations. When trading lumber and wood products into the European Union from outside the European Union, two parties are important: (1) the countries that export lumber and (2) the traders who import lumber to Europe for the first time.

The so-called Voluntary Partnership Agreements (VPAs) are signed in the FLEGT regulation with countries that import wood into Europe. In essence, these are initially nothing more than statements of intent by countries to behave in accordance with EU requirements. However, VPA "agreements" are not legally binding contracts that would result in penalties or otherwise. However, this does not mean that only countries with VPA "agreements" can import wood into the European Union.

However, VPAs are also meant to facilitate access to the European market for countries that have VPA agreements with Europe. Access here is associated with fewer conditions. This is exactly why countries with tropical primary forests such as Cameroon, Ghana, Indonesia, Malaysia, Congo, Liberia, Central African Republic and Vietnam conclude VPA agreements. The VPA with Indonesia, for example, therefore states in Article 13 (Market incentives) (freely translated): "Taking into account its international obligations, the Union promotes a favorable position in the Union market for products in particular, these efforts will include measures to support a more favorable perception of FLEGT licensed products on the Union market".

The actual control, including, of course, all necessary economic costs, is carried out within the EU itself, in the individual EU countries. They must implement and comply with the so-called due diligence regulation

(1) VPA agreements are declarations of intent by exporting countries.

VPAs don't have to be a control tool. They contain no guarantees that these statements of intent will be honored.

The FLEGT regulation (ec.europa.eu/environment/forests/flegt.htm) requires partner countries wishing to supply wood to the EU to sign so-called "FLEGT Voluntary Partnership Agreements (VPAs)". FLEGT licenses are issued by licensing authorities, which are independent organizations registered with the competent Ministry of Environment and Forestry in the supplier country. VPAs have been concluded with countries such as Ghana, the Republic of the Congo, Cameroon, Indonesia, the Central African Republic, Liberia, Vietnam, Honduras and Guyana. Negotiations are underway with the Republic of Côte d'Ivoire, the Democratic Republic of Congo, Gabon, Laos, Malaysia and Thailand. These are all countries that represent high logging in primary forests and high values in the corruption index (see corresponding HVH / LCT brochures and country profiles,

see bibliography). VPAs have also been concluded with countries where it is known that the percentage of illegally harvested wood in products can be relatively high (e.g. Congo, Vietnam, Ghana, including part of Indonesia). For information on VPA agreements, you can read the country VPAs (www.eufglichefi.int/home). Malaysia was one of the first countries (since 2007) to enter into VPA negotiations with the EU. The VPA negotiations between Malaysia and the EU are the longest VPA negotiations so far, partly due to the complexity of Malaysia's political situation. The negotiations have been in limbo since late 2014 as the EU awaits a signal from Malaysia that it is ready to resume negotiations involving the state of Sarawak. On the other hand, there are countries with which no VPA agreement could be reached, where massive deforestation is still underway, such as Brazil. And there are countries with which there are no VPA agreements, but where there is no deforestation in place today (e.g. Uruguay). The VPA says nothing about how high the risk of deforestation taking place in the country is.

(2) VPAs do not aim to protect primary forests and are not an "all right document" in this regard.

VPAs do not serve to protect primary forests as they do not prevent timber from primary forests from entering the EU. Therefore, VPAs are not even eligible to contribute to the "protection of primary forests" as foreseen by the EU Biodiversity Strategy.

VPA has nothing to do with the fact that NO wood from primary forests arrives in Europe. They should (!) only regulate that no illegally harvested wood reaches Europe. In the VPA, "illegally felled" usually only means that no timber must arrive in Europe for which logging concessions have NOT been granted.

The AVP should also regulate, and competent authorities should check this too, if there has been any admixture with illegally felled timber along the way. How exactly they implement it in practice is not described, only this must be confirmed with officially signed documents. However, the WRI data (www.wri.org) shows that, regardless of the VPA agreements, which are only a statement of intent by countries, countries with VPAs have experienced the highest net deforestation rates in recent years and that here extensive deforestation is underway which has also taken place in the primary forest for palm oil plantations. However, these are not registered as deforestation in the FAO databases. [Note: in the GIS project of the new European institute (which is being set up as part of an ongoing EU LIFE project, however, these areas are shown separately. Every decision maker, company and customer can get an idea of the hot spot regions] Furthermore, many of these countries are classified as highly corrupt countries by the World Bank and other databases such as social hotspot, WCMC and others.

VPA documents are therefore not "all OK documents". From an environmental protection point of view, HVH / LCT does not understand why a public body should advertise wood from Congo or Indonesia (with VPA) (see marketing article in single VPA) rather than wood from Uruguay (without VPA). **The previous VPAs are useful for forming an opinion** (<https://eur-lex.europa.eu/legal-content>) such as the VPA with Cameroon, Ghana, Indonesia, Rep. Congo, Central African Republic, Liberia, Vietnam. These are all countries with extremely high corruption rates, very high species losses and very high losses of natural areas such as primary forests.

2.3.3 / Due diligence

(1) The EUTR is verified in individual EU countries.

The actual control of the EUTR takes place in the individual EU countries. These must implement and comply with the so-called Due Diligence Regulations. The European due diligence regulation is unique in the world and should also be imitated in other parts of the world and for other commodity groups as well! However, that's not certain (yet). Due diligence is still inefficient. That is why the EU wants to change them.

Under the EUTR, every importer in the EU must submit a due diligence system to prove that they have minimized the risk of illegal timber being introduced into Europe. It should be noted that supplies that were first imported into the EU, after that they can be imported and exported across national borders within Europe's borders without any other control. In Germany, the BLE (Federal Agency for Agriculture and Food) is responsible for implementing the EUTR and monitoring due diligence. The BLE sets ambitious standards, higher than those set in other countries.

(2) Due diligence monitoring

UNEP's World Conservation Monitoring Council (WCMC) publishes EU timber regulatory controls every six months. Although these are based only on questionnaires, i.e. ultimately on self-assessments by the respective countries, these few results to date are still very revealing. According to the report "Overview of Competent Authority EU Timber Regulation checks, July - December 2018 by WCMC, a total of 805 importers out of a total of over 127,500 importers in the EU were checked by all EU states during this reporting period. (Table 1). This is <0.6% of all importers in the EU. Of these only 805 audited importers, the majority did NOT have an adequate due diligence system. According to the WCMC report, 50 - 100% of the importers in Belgium, Estonia, Finland, Latvia, Luxembourg, Sweden, England do not have an adequate due diligence system. Many countries such as Bulgaria, Croatia, Greece, Hungary, Iceland, Liechtenstein, Lithuania, Portugal, Romania and Slovakia do not have reported at all or examined the importers but did not report any results, which speaks for itself. Germany, Italy and Romania took the highest number of samples in Europe, but only Germany and Italy reported the results. Also in Germany, 47% of the audited importers did not have an adequate due diligence system. This could mean that every second 1 m³ of wood imported into Germany from outside the EU could come from unsafe sources, but they did not report any results.

Villages examples	total importers	Importers checked	Total inspected importers	Importers WITHOUT DD system equipment	percentage controlled by importers
	[Number]	[Number]	[%]	[Number]	[%]
Sum	>> 127,500	805	0.63	>>> 214	>>> 30%
Austria	3,800	12	0.32	2	17
Belgium	3,700	9	0.24	9	100

Bulgaria	unknown	17	0.00	approx	approx
Croatia	5,000	31	0.62	approx	approx
Cyprus	780	10	0.00	2	20
Czech Republic	2,500	31	1.24	10	32
Denmark	3,800	13	0.34	4	31
Estonia	450	2	0.44	1	50
Finland	2,000	11	0.55	10	91
France	14,000	17	0.12	7	41
Germany	25,000	105	0.42	49	47
Greece	233	0	0	approx	approx
Hungary	2,674	0	0	approx	approx
Iceland	unknown	0	0	approx	approx
Ireland	2,169	20	0.92	2	10
Italy	20,000	159	0.80	62	39
Latvia	400	8th	2	7	88
Lithuania	800	11	1.38	approx	approx
Luxembourg	245	12	4.90	12	100
Malta	750	13	1.73	approx	approx
Holland	4,900	29	0.59	8th	28
Norway	5,000	9	0.18	2	22
Poland	6,500	41	0.63	4	10
Romania	177	177	100	approx	approx
Slovenia	1.122	7	0.62	3	43
Spain	11,000	0	0.00	approx	approx
Sweden	4,500	12	0.27	8th	67

Tab. 1) The table shows the summary data of the WCMC reports of 2018, according to which most of the importers controlled as "first marketer" of wood in the European Union have not yet been able to demonstrate a due diligence system valid or sufficient in 2018.

The conclusion drawn from the WCMC reports is that due diligence cannot (yet) guarantee that illegally harvested timber does not reach Europe and certainly cannot guarantee that timber from primary forest clearing does not reach Europe.

The gaps in the due diligence system shown are fatal for European processors, because even if they act in the best faith, this can ultimately mean that even today they cannot rule out illegally harvested wood in imported goods. This is especially true for wood that has already been further processed, for which the retailers themselves do not know how to trace the material in the countries of origin. The more direct processors import their raw materials from tropical countries from their place of origin, for example directly from a certified plantation, the safer they are, especially if they have personally visited these plantations. However, this still does not solve the problem that most of the materials used in construction, for the building elements (windows, doors, etc.), plywood panels, floors and furniture used tropical woods from the Asian region - especially from Malaysia, Indonesia, Papua New Guinea, Laos, Vietnam, Myanmar - today it doesn't come from plantations (as most customers probably think), but from the clearing of natural forests or primary forest areas. There are excellent national or European alternatives for all fields of application.

(4) Distortions of competition and loopholes in implementation

In the practical implementation of due diligence, there are distortions of competition and loopholes due to the inconsistent implementation of due diligence in Europe.

GD Holz, the German timber trade association, sees another problem here (www.gdholz.de/themen/eutr/): "The quality of importers' due diligence systems varies in individual countries. The criteria by which companies to be audited are selected differ. Each countries have different supply markets with different risks of illegal logging. The authorities of the individual countries apply different standards ". ... GD Holz continues: "It is commonly known that the application of the EUTR differs considerably in the individual countries. This means, for example, that certain assortments are only imported by companies from selected countries because it is no longer possible in the rest of Europe to import these goods in accordance with the EUTR.

In this context, there is concern that in countries where the EUTR is implemented informally, companies will have a chance to escape the control of countries with strict authorities. Importers from countries like Germany, which must do everything possible to meet the EUTR requirements, are at a disadvantage. "DG Holz" sees an urgent need to act here and criticizes the resulting distortions of competition. " Implementation irregular EUTR reduces the scope of the regulation and leads only to a shift of probably illegally harvested timber to countries with lower standards. Only if all participating States create equivalent framework conditions, the import of illegally harvested timber can be effectively prevented".

The heterogeneity of the EUTR checks in Europe and the results of the WCMC checks damage the very image of imported wood. There is an urgent need to work on this point, making sure that standards are not aligned with those with the lowest DD control standards in the EU, but with countries with the highest standards. However, such harmonization is not yet in sight. The problem is that when imported wood is first placed on the EU market via an entry country, the legality of intra-European trade is no longer verified. So if, for example, wood from Belgium and the Netherlands has been inspected, where tropical wood arrives in major overseas ports, it can be marketed in the EU without any restrictions. It is disastrous that in these entry hotspots none (Belgium) or only a few (1/3) of the importers (Netherlands) were able to demonstrate an adequate DD system according to the WCMC. Most of the wood products imported into Belgium and the Netherlands are re-exported (see Eurostat), mainly to Europe. Particular attention should be paid to the hotspots of EU entry. Particular caution is also required with products in which the wood species is no longer recognizable, such as firewood or panels such as plywood. With plywood from China, how could a customs officer or supervisory authority know if the panel contains, for example, parts of endangered tree species

(5) False statements can only be recognized by scientists

In the current implementation of due diligence, misrepresentations cannot be ruled out because, according to the Thünen Institute for Wood Research in Germany, "misrepresentations ... can (are) only recognized by scientists".

Meranti example (wood for windows). "... What was sold as Red Meranti is actually Durian" Durian is totally unsuitable for making window frames." "Especially in the case of particularly precious woods", ... according to experience, "sometimes there are such erroneous statements that an inexperienced cannot recognize at first sight". ... "But misrepresentations aren't the only problem

on the timber market. Illegal timber also appears on the market over and over again. For example, tree species that, according to the Washington Convention on the protection of CITES species, can only be used under certain conditions ". ... "Particularly when we talk about finished products, we often don't realize that we are dealing with illegal timber, the use of which threatens biodiversity". ... "Woods whose trade is completely forbidden for example Brazilian rosewood, Andean fir, Put on guard. Woods that can only be marketed under strict conditions: lignum vitae, real mahogany, ramin, cedar, ebony from Madagascar, cocobolo ". ... The woods that " are most often illegally cut "are Siberian larch, Padouk, Bilinga. woods "where deception is more common" are Red Balau (instead of Yellow Balau), Genuine Mogany (instead of Sipo, Sappelli) ". Quotes from an interview with Dr. Koch from the Thünen Institute (see www.waldkulturerbe.de, article from 2018). True mahogany (instead of sipo, sappelli) ". Quotes from an interview with Dr. Koch of the Thünen Institute (see www.waldkulturerbe.de, article from 2018). True mahogany (instead of sipo, sappelli)". Quotes from an interview with Dr. Koch from the Thünen Institute (see www.waldkulturerbe.de, article from 2018).

2.3.4 / HVH / LCT and EUTR, due diligence

(1) Relation to the questions asked

The EUTR and due diligence do not directly affect, in their current form, the issues raised at the beginning, as they have already been implemented and do not concern the supply of raw materials in the countries of the European Union. However, the EUTR and due diligence in their current form do not guarantee a deforestation-free supply chain, climate-friendly supply chains and biodiversity protection; since, in its current form, the EUTR only aims to ensure the legality of imports and cannot influence the above issues.

(1) What reductions in the supply of roundwood from managed forests in the European Union can actually be expected? Not affected by the current EUTR.

(2) What additional emissions resulting from the delocalization effects resulting from the increase in imports from outside the European Union? The EUTR has no direct influence on this. Indirectly, however, the EUTR can support such delocalization effects by creating the impression that the existence of these effects makes imported wood just as sustainable as that produced in European forests.

(3) Does this context of new forest strategies in the European Union make it more difficult to implement climate-friendly supply chains in the EU (see LIFE project)? The EUTR is without prejudice to the implementation of climate-friendly supply chains. On the contrary, HVH / LCT instruments are the ideal proof of compliance with the requirements of the EUTR and even exceed them (see Section 2). This is clarified with examples in the LIFE project. The "Red List of Origins" developed under the LIFE project will be made available to all processors, their customers and municipalities in the countries involved in the LIFE project after consultation with stakeholders and (if possible) the responsible Commission services.

(2) HVH / LCT supports the EUTR but emphasizes the "safety through proximity" aspect

A process such as the European FLEGT process, the European timber trade regulation and due diligence are unique in the world and important. HVH / LCT is EUTR compliant (see compliance documentation) and supports it. However, HVH / LCT also points out that the risk related to wood being verifiably produced in its entire material stream in Europe is significantly lower than other sources. HVH / LCT therefore also emphasizes the aspect of "safety through proximity".

In managed forests of the European Union, forest use is subject to strict forest laws. In Germany, for example, the sustainable management of forests enshrined in the law is already much stricter than forest certification schemes in other parts of the world allow. In many EU countries, most forest areas are already certified to one or even both FSC and PEFC international forest standards, so the requirements in Central Europe, for example in Germany, are significantly stricter than in many countries not Europeans. The Ecological and climate quality label HOLZ VON HIER (HVH) o. LOW CARBON TIMBER (LCT) is a proof of local origin and climate and environmentally friendly wood of short distances, as well as sustainable forest management nationwide, as all round wood (100%) enters the process of Chain of Custody of HVH / LCT, must demonstrate that it comes from sustainable forests

However, imports into the EU, even under the EUTR, still present a significant risk potential for certain origins.

Based on the official data, it must (unfortunately) be stated that the European Timber Trade Regulation EUTR and the Due Diligence Regulation (DD) are not (yet) certain. It is also difficult to answer the question of whether FLEGT can help stop deforestation or illegal timber trade in the EU (e.g., reports such as Green Carbon - Black Trade, UNEP and Interpol, 2012; WWF study, University of Eberswalde, 2020, etc.). Furthermore, it probably also depends on the origin and reliability of evidence of sustainable forest management from the most critical regions of the world. One way to reduce the risks is to prevent timber from reaching Europe without credible forest certificates. Some environmental organizations, such as Greenpeace, however, find it problematic that wood is still being felled mainly in primary forests and that even forest brands allow it in their national standards. This is one of the main reasons why Greenpeace left the FSC in 2017. But also MTCC, which collaborates with PEFC, allows for example impacts in the primary forest.

2.4 / LULUCF

2.4.1 / LULUCF objectives

The Paris Agreement, adopted in December 2015 as part of the United Nations Framework Convention on Climate Change (UNFCCC), entered into force in November 2016. Its parties agreed to keep the global average temperature rise below 2 ° C above pre-industrial levels and to make efforts to limit the temperature rise to 1.5 ° C above pre-industrial levels. Addressing climate and environmental challenges and meeting the Paris Agreement goals are at the heart of the European Green Deal, adopted by the Commission on 11 December 2019. The original "Legal framework for land use, the land use change and forestry sector ("LULUCF") covers CO₂ emissions and removals,

The EU has committed to reducing at least 55% of its climate-damaging greenhouse gases by 2030 compared to 1990 to become climate neutral by 2050. EU land use, land use change and forestry issues are very important (LULUCF - Land Use, Land Use change and Forestry). There are links to other EU guidelines such as the Biodiversity Strategy, the Forestry Strategy, the

Circular Economy Action Plan for a cleaner and more competitive Europe. The quantitative assessment of the economic, social and ecological impacts is based on an integrated modeling of the economic use of the land using the GLOBIOM and G4M models. There are various scenarios that have been calculated here. The policy scenario (MIX) assumes that the LULUCF sector net sink up to 2030 is at similar levels to 2018.

Principles of subsidiarity and proportionality. Climate change is also a cross-border problem for the EU, which cannot be solved by national or local measures alone. Climate policy measures must therefore be coordinated on a European and, if possible, global level. However, the regulation follows the principle of proportionality, because according to its own interpretation it does not go beyond what is necessary to achieve the EU objectives, such as the goal of climate neutrality by 2050. The EU's net emissions must be reduced to zero and therefore negative emissions must be achieved.

The Fit for 55 standards package led to new climate goals and new proposals to achieve them. In mid-July 2021, as part of the Fit-for-55 climate package, the EU Commission presented its proposals for the amended LULUCF regulation, the use of sustainable bioenergy in the amended Renewable Energy Directive (RED II) and the future new forestry strategy for 2030. Existing legislation has been adapted to the new climate target. Regarding the revision of the LULUCF, the EU Commission has proposed to increase the capacity of the well to 310 MtCO₂Eq by 2030 and to distribute it among the Member States for the period 2026-2030.

The regulation obliges each Member State to ensure that recorded emissions from land use are fully offset by removing an equivalent amount of CO₂ from the atmosphere by measures in the same sector. Commitment is known as the no-debit rule. Although some of the individual Member States have already made this commitment under the Kyoto Protocol, the regulation now enshrines the commitment in EU law for the first time.

So far, the ordinance has mainly considered forests and swamps as carbon sinks. Currently, **agricultural land and wetlands are also included** (Note: soils are also becoming increasingly important as a result of the biodiversity strategy). Although swamps and bogs represent only a small portion of the earth, they are large carbon emitters when drained, plowed and used as lawns or arable land. Forests are considered the largest carbon sinks in terms of surface area. According to the IPCC, a quarter of the world's net anthropogenic greenhouse gas emissions are emitted by the so-called LULUCF sector (agriculture, forestry and other land uses), particularly through deforestation, tillage, fertilization and livestock. The European Commission hopes that through "carbon farming" fields in the EU can make their contribution as a carbon sink. While the original regulation only covered forests, it has now been extended to all land uses.

The Climate Action Network (CAN Europe) saw the revision of the LULUCF regulation as an opportunity. The cheapest and most effective way to increase carbon sequestration is to protect and restore forests, peatlands and other natural ecosystems. CAN Europe calls for a separate target for the LULUCF sector.

The German Nature Conservation Ring (DNR) generally sees difficulties in achieving the LULUCF objectives, precisely because of the growing perturbations and natural disasters in the forest (DNR, Paper on LULUCF, 2021). Today the forest is particularly exposed to disturbances caused by climate change. The DNR assumes that monocultures, storms and droughts, pest calamities and fires will lead to sharp short-term changes in the ability to store carbon dioxide. "It is estimated that these perturbations will lead to European forests storing 180 Mt less CO₂ per year from 2021 to 2030 and reducing the net absorption of forests by more than 50 percent". "But

forest fires also release large amounts of previously stored CO₂. According to the DNR, for example, fires in Portugal and Italy in 2017 released a total of around 23 Mt of CO₂. ... "Everything indicates that extreme weather events will increasingly have a negative impact on forest conditions in the future." At the same time, sources, especially wetland emissions, do not substantially decrease due to omitted measures such as rewetting

2.4.2 / Notes on LULUCF

Below are some comments on the regulation considered particularly relevant for the purposes of implementation.

Appendix I.

Appendix I defines that the reporting obligation referred to in Article 2 should refer to: carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O), expressed in tons of CO₂ equivalent (see Regulation (EU) No. 525/2013). This roughly corresponds to the global warming potential (GWP) as it is often used in life cycle assessments and is also calculated in the HVH environmental footprint (/ LCT (see document "HVH / LCT Environmental Footprint Methodology"). carbon deposit pursuant to Article 5 paragraph 4 defines that the above ground biomass, underground biomass, litter, dead wood, organic carbon in the soil must be included here. if this is taken into consideration here.

Annex II

Annex II is dedicated to the "Reduction of net greenhouse gas emissions in tons of CO₂ equivalent by 2030". Only 8 countries (Germany, Spain, France, Italy, Poland, Romania, Finland and Sweden), of the 27 EU countries listed, are expected to contribute 74% to the reduction of net greenhouse gas emissions (Table 2). This is not related to either the land area or the forest area of European countries. Countries like Estonia, Latvia, Lithuania and the Czech Republic with huge forest areas and high deforestation in these forest areas are almost completely excluded from this in terms of number. From the point of view of climate protection and biodiversity protection, but also from the point of view of economic policy, it is incomprehensible why the burden of saving is distributed over a few European countries.

HVH / LCT suggests a more equitable distribution of these abatement burdens in all EU countries. Without this balance, it could happen that EU countries are differently efficient in implementing the designation of protected areas. This also leads to economic imbalances within the EU. Furthermore, the EU has not established clearing requirements, for example if one country has more areas worthy of protection than another and would therefore have a quantitative balance disadvantage.

Member State	Reduction of net greenhouse gas emissions.	Member State	reduction net greenhouse gas emissions.	Member State	reduction net greenhouse gas emissions.
EU-27	-310,000,000	Bulgaria	-9.718.000	Latvia	-644,000
"The big 8"		Slovakia	-6.821.000	Luxembourg	-403,000
Sweden	-47.321.000	Hungary	-5.724.000	Cyprus	-352,000
Spain	-43,635,000	Austria	-5,650,000	Slovenia	-146,000
Poland	-38,098,000	Croatia	-5.527.000		
Italy	-35.758.000	Lithuania	-4.633.000	Denmark	5,338,000
France	-34,046,000	Greece	-4.373.000	Holland	4,523,000
Germany	-30,840,000	Estonia	-2.545.000	Ireland	3,728,000
Romania	-25,665,000	Portugal	-1.358.000	Malta	2,000
Finland	-17,754,000	Belgium	-1.352.000		
		Czech Republic	-1 228,000		

Tab. 2) Reduction of net greenhouse gas emissions in tons of CO₂ equivalent by 2030 for the countries of the European Union (EU).

Annex III

Appendix III specifies that "Level 1 to 3" statements and the IPCC standard datasets should be related. The IPCC has established methodological guidelines for reporting sources and sinks of greenhouse gases from the energy, industry, agriculture, forestry and land use change and other sources sectors. These methods are used to compile national greenhouse gas inventories. However, it should be noted that the data and figures cited in the IPCC Report (2020) are difficult to understand (e.g., sources are not precisely cited). Also, the data on the IPCC databases is not / difficult to download (try: <https://ipcc.metadata.works/browser/> / ...). Greater transparency would not only be important in terms of EU transparency objectives, required in almost all EU regulations, but also, for example, for subsequent calculations by stakeholders.

Appendix V.

Appendix V regulates product groups, half-lives and other details.

Only three product groups are mentioned: paper; wood-based materials, sawn timber. HVH / LCT points out that this classification is not sufficient to describe wood products even approximately.

Half-life refers to the number of years it takes for carbon in a category of wood products to "degrade" to half its initial value. The standard half-life (HL) is as follows: 2 years for paper, 25 years for wood-based materials, 35 years for sawn timber. According to the HVH/LCT, it would make more sense to focus more on the half-life of products considering real use and also points out that a restriction to three product categories is not relevant to practice. For example, the "service life" of sawn timber for Euro pallets or formwork is considerably lower than when sawn timber is transformed into building materials. In the case of building materials, their durability in the installed state largely depends on the type of products, the construction of the building and various other aspects. According to the regulation, each country can set its own half-life for wood products if they are transparent, justified and based on the calculation principles indicated. The regulation states that "Member States may use country-specific half-life calculation methods instead of the standard methods set out in ... (the Annex), provided that such methods and values are determined on the basis of data transparent and verifiable ". The previous standard methodology is not suitable for calculating carbon storage in wooden buildings. Therefore, HVH / LCT uses transparently defined and practically relevant service life in the construction industry in the calculations.

2.4.3 / HVH / LCT and LULUCF

The specific in LULUCF are designed to influence the questions asked in the beginning.

1. How much is the decline in the supply of raw materials actually?

Although the authors cannot derive a precise number from the regulation itself, it remains a central and fundamental problem, which in reality suggests a restriction in the availability of raw materials: due to the fact that (very high) emissions in agriculture must be compensated in the sector itself, this mainly affects the forest area. In the agricultural sector, the reduction measures are not ambitious enough. Furthermore, the burden of the well function is largely transferred to the forest, as the storage wood is not counted or is accounted for in other economic sectors. This is further compounded by the "computational half-life", which further reduce the storage effect of wood products. This increases the pressure for a reduction in wood harvesting.

The main objective of the LULUCF regulation is to achieve greater climate protection. HVH / LCT also pursues this goal. In the opinion of HVH / LCT, however, it is not appropriate for the LULUCF regulation to place particular emphasis on "forest" CO₂ storage, but less on "wood" products. The most recent studies (e.g. Köhl et al., 2022) show the importance of wood products in terms of carbon dioxide storage

The products considered by HVH / LCT represent optimal CO₂ storage, as they have caused the lowest CO₂ emissions along the supply chain. HVH / LCT emphasizes and will show in the LIFE project that CO₂ storage in wood can only be effectively counted in full if the wood comes from EU sustainably managed forests and if the supply chains in the entire chain of custody cradle-to-gate and gate-to-customer worked with short, climate-friendly material flows. If the origin of the material streams of wood products are not known, the entire "wood" CO₂ deposit cannot be counted. From a climatic and environmental point of view, wood products that have been manufactured over short distances within the EU cannot be assessed in the same way as wood products where the raw material comes from primary forests or which have traveled thousands of kilometers of transport. So far, this has not been considered in LULUCF or any other regulation.

2.5 / RED II / RED III

2.5.1 / RED objectives

The EU has revised numerous legislations related to climate, energy and transport as part of the so-called "Fit for 55" package. This also includes the DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the promotion of the use of energy from renewable sources (new version). Added to this is an update of the Energy Efficiency Directive, a revision of the Directive on the development of infrastructure for alternative fuels, a revision of the Energy Tax Directive " ReFuelEU Aviation" for sustainable fuels for aviation and "FuelEU Maritime "for a green European maritime space.

The following tables show the essential contents of the relevant articles of the regulation (Tab. 3) and their annexes (Tab. 4).

Tab. 3) Selected articles of the RED regulation and brief description of their content.

item	concise description
<p>Article 29</p>	<p>Article 29 deals with sustainability criteria. Article 29 of the RED-II / RED-III regulation regulates sustainability criteria and criteria for greenhouse gas saving (aspect 1) and for land management with regard to soil quality and carbon stocks (aspect 2) , deals with biodiversity (aspect 3), carbon stocks (aspect 4), peatlands (aspect 5), sustainably produced forest biomass (aspect 6), changes in land use (aspect 7) as well as tests and methods test (aspect 8) and risk classifications (aspect 9) in relation to the points mentioned above and based on the area of origin of the raw materials. The article also regulates the reduction of greenhouse gas emissions (aspect 10). Aspects 11 and 12 concern the technical aspects. Aspect 13 defines the exception rules. and aspect 14 allows the definition of further sustainability criteria.</p> <p>In aspect 3 " Biodiversity, biofuels, bioliquids and biomasses must not be produced from raw materials obtained from soils with a high biodiversity value. These include primary forests, forests with high biological diversity, areas reserved by law for nature conservation and other function. In aspect 6 "forest biomass produced in a sustainable way", renewal must be guaranteed, harvesting must not take place on areas that are valuable for nature conservation, attention must be paid to preserving soil quality and biological diversity.</p>
<p>Article 30</p>	<p>Article 30 deals with verifying compliance with sustainability criteria and saving greenhouse gases. Aspect 1 in Article 30 calls for the introduction of mass balance systems for the control and verification of material flows. The mass balance system used for control should be able to ensure that each disbursement can only be calculated once. Aspect 2 requires compliance with existing requirements for the supply of non-biogenic fuels or recycled carbonaceous fuels. Aspect 3 requires maximum transparency and regarding minimum thresholds, dates, information and modalities of audits and materials. Aspect 4 states that the Commission can adopt voluntary national and international systems and standards. The Commission reserves the right to recognize areas for the protection of rare, threatened and endangered ecosystems or species. This applies to all EU countries and all countries of origin.</p> <p>aspect 5 states that test procedures and decisions are not valid for more than 5 years. Aspect 6 stipulates that Member States can also introduce national systems which can be controlled by national authorities. Aspect 7 requires relevant systems to establish appropriate standards of accountability, transparency and independent audits. Aspect 8 allows for the adoption of separate implementing acts to ensure efficient and consistent</p>

	verification of compliance with the criteria. Aspect 9 requires Member States to be able to monitor the functioning of certification bodies and independent audits, as well as voluntary schemes, and that deviations are reported immediately. Aspect 10 requires compliance with minimum values for greenhouse gas savings.
Article 31	<p>Article 31 defines the methods for calculating the contribution of biofuels, bioliquids and biomass fuels to the greenhouse effect.</p> <p>Aspect 1 defines the basis for the calculation of the achieved greenhouse gas savings. Aspect 2 allows Member States to provide information to the Commission on the type of country. Growing greenhouse gas emissions from agricultural biomass. Data, calculations must be described transparently. Aspect 3 also allows countries outside the Union to proceed as described in Aspect 2. Aspect 4 provides that the Commission can adopt an implementing act which may contain precise data for measuring gas emissions at greenhouse effect under aspects 2 and 3 (so far no such requirements exist). Aspect 5 foresees that the Commission can revise the appendices submitted for the calculation at any time and that certification systems need to be adapted accordingly. Aspect 6 stipulates that Member States can also introduce national systems which can be verified by national authorities. Aspect 7 requires that the system in question adopts adequate standards of accountability, transparency and independent audits. Aspect 8 allows for the adoption of separate implementing acts to ensure effective and uniform verification of compliance with the criteria. Aspect 9 requires Member States to be able to monitor the functioning of certification bodies and independent audits, as well as free consent systems, and that discrepancies are reported immediately. Aspect 10 requires compliance with minimum levels of greenhouse gas abatement</p>

Tab. 4) Annexes to the RED regulation and brief description of their content.

Attachments	concise description
Appendix I.	Annex I sets out overall national targets for the share of energy from renewable sources in gross inland consumption in 2020. Actual values for 2005 and target values for 2020 are provided. The annex shows that some countries were already in line with the target in 2005 (e.g. Sweden with 39.8% of 49%), other countries in the center (e.g. Germany 5.8% of 18%) and other countries at the time were still far from the value target (e.g. Belgium with 2.2% of 13%). Current actual values are not provided for countries for 2020/2022.
Annex II	Annex II shows the level of standardization for accounting for hydroelectric and wind energy.
Annex III	Annex III shows the energy content of fuels. The values are shown in the tables in MJ / kg, based on the specific energy content of the specific weight and volume for the various fuels. The following groups of fuels are considered (a) fuels produced from biomass and / or fuels produced from biomass processing (e.g. biogas, biodiesel, bio-oils) (b) renewable fuels that can be produced from various renewable sources, including biomass (e.g. methanol, ethanol, propanol, butanol or hydrogen from renewable sources). However, the differences are shown only insignificantly. As an example, a comparison of biodiesel and diesel fuel is provided. (1) Biodiesel: spec. weight. Energy content: 37 MJ / kg, spec volume. Energy content: 33 MJ / l. (2) Diesel Fuel: Spec. Weight Energy Content: 43 MJ / kg, spec. Energy content: 32 MJ / l.
Annex IV	Annex IV shows the requirements for the certification of installers.
Appendix V.	Appendix V provides the rules for calculating the contribution of biofuels, bioliquids and the corresponding fossil fuel benchmark to the greenhouse effect. Typical values and default values for biofuels for products without net CO ₂ emissions are given here under points A and B. The calculation methodology is specified in section C. Section D shows the disaggregated default values for biofuels and liquid fuels for cultivation, processing, transport and distribution and in total for cultivation, processing, transport and distribution. Section E provides estimated disaggregated default values for future biofuels and bioliquids.

Appendix VI	Annex VI provides the rules for calculating the contribution of biomass fuels and the corresponding benchmark for fossil fuels to the greenhouse effect. Subparagraph A provides typical and default greenhouse gas savings for biomass fuels when produced without net CO ₂ emissions from land use change. The calculation method is specified in section B. Section C provides disaggregated default values for biomass fuels. Element D provides typical totals and default totals for biomass fuel options.
Appendix VII	Annex VII regulates the consideration of energy from heat pumps.
Annex VIII	Annex VIII shows few (very few) preliminary estimated emissions from indirect land use change from feedstock to biofuels, liquid fuels and biomass fuels. Only three values are given (for cereals, sugar crops and oil crops).
Appendix IX	Annex IX lists raw materials for advanced biofuels.
Appendix X	Appendix X lists other relevant guidelines.

2.5.2 / Uncertainties in practice

Below are some uncertainties and questions that emerged from the discussions during the drafting of the document. The various points should be taken seriously and clarified as soon as possible, and perhaps the regulation should be adapted in some practical aspects.

Uncertainty due to the change in sustainability criteria

In RED-III, the sustainability criteria have been changed again and in practice there is concern that this will lead to further delays and obstacles in implementation. Especially in Central Europe, strong and practicable forest laws are already in place which, according to the HVH / LCT, reduce the risk of non-compliance with the regulation criteria to zero. The relevant areas of the legality of timber harvesting, forest regeneration, conservation of biodiversity, conservation of soil quality, regulations for protected areas, conservation of the long-term productive capacity of the forest and ensuring a balance of balanced carbon are met according to the requirements of the regulation. The risk can be classified here as a "Low Risk Area". The conclusion is reached e.g. for Germany with the study "Assessment of the risk of unsustainable production of forest biomass ..." (2020): "So the risk of unsustainable forest management in Germany is low and negligible. There is therefore no need for an additional audit for forest biomass from Germany, ... ". HVH / LCT would like to point out that imports into the EU are often completely different. Here the origin is decisive in determining whether the sustainability criteria can be met.

Uncertainty due to the retrospective application of the new GHG criteria.

The retroactive application of the new greenhouse gas criteria to existing plants has also generated project uncertainty. In practice, the retroactive applications of the complex method of calculating GHG savings are subject to great uncertainty. In addition, long-term supply contracts are often entered into in the biomass sector and the retroactive calculation could affect the ability of operators to fulfill existing contracts. From the perspective of the HVH / LCT, it is also problematic in this case that such specifications do not exist for fossil fuels. So far, companies have not had to provide any information on the real climate-damaging effect of coal, oil or natural gas production because, for example, in the case of fossil fuels, there is no need to differentiate the areas of origin for the crude oil used (bituminous sand, shale oil, fracking, deep water, etc.).

Uncertainty due to lowering of the threshold values

In practice, a lowering of the threshold values of the plants is viewed critically because this affects farmers and municipal plants, in particular to a greater extent. About 75% of the biomass used in the EU comes from operators larger than 20 MW. A reduction of the thresholds for biomass plants from 20 MW to 5 MW of thermal power leads to huge implementation problems and costs for smaller plants, without any significant improvement. Many of the operators of plants between 5 and 20 MW of thermal power are not mainly active in the energy sector, but use biomass to heat their facilities or services. This also applies to many municipal systems. Lowering the threshold to 5 MW of thermal power of the fuel would entail a heavy administrative and cost burden for this segment and for many municipalities.

2.5.3 / Notes on RED

(1) Doubling of the market share

A doubling of the bioenergy market share should be urgently linked to climatic aspects such as demonstrable short distances, because especially in the case of short-lived products such as bioenergy, the increase must not be at the expense of short and climate-friendly routes in upstream supply chains.

Increasing the share of renewable energy sources in gross final energy consumption to a target value of at least 40% by 2030 requires a major expansion of all renewable energy technologies. For the ambitious energy and climate goals in the electricity sector, the European Commission is focusing primarily on expanding the production of electricity from photovoltaic and wind power plants. However, a strong electrification of the heating sector is not always appropriate due to the strong centralization required, with consequent high-power losses of central plants and central thermal networks compared to decentralized plants and decentralized thermal networks. Use of heat in the biomass field is essentially based on decentralization. Only decentralization can develop its optimal climate effect here.

If the biomass that is burned must first be transported hundreds or thousands of kilometers, the positive aspects from the point of view of climate protection disappear. HVH / LCT will elaborate figures for this in the LIFE project.

(2) "Forbidden areas"

They should also be referred to as "no-go zones" for imports into the EU. HVH / LCT considers it very problematic that so far prohibited areas have only been defined in Europe, but not for imports into the EU. This is not climate friendly and leads to distortions of competition in relation to domestic commodities.

Prohibited areas for agriculture and forestry were originally created to prevent changes in land use. In Europe, particularly in Central Europe, there is no change in land use in the forest sector. This should be seen differently in the case of imports into the EU which contain woody raw materials from primary logging. So far, this has not been considered in any regulation or legal text. For example, (1) so far primary logging for plantations has not been assessed as a change in land use (see RED), (2) the EU Timber Trade Regulation only controls legality but not whether the raw material has been felled in primary forests and (3) even with recognized forest certifications it is always allowed to fell in primary forests with related logging concessions (see profiles of HVH / LCT countries, WCMC reports, WWF report,

HVH / LCT warns that terms such as "highly biodiverse forests" have not yet been clearly defined, making it difficult if not impossible for certifiers to ensure compliance.

(3) Implementation problems with assortments

The problems of implementing the defined assortments should be clarified in the discourse with the operators of the sector. The unclear definition of wood assortments in RED could cause unsolvable climate balance problems, as definitions of wood assortments for energy use are difficult.

However, what is constantly overlooked is that most of the bioenergy products mentioned in the appendices of the RED regulation already have upstream chains behind them, many of them with long transports (see white paper "Compilation, interpretation of the database of the RED regulation (annex RED II) with relevance for wood products ", ed. HVH / LCT, 2022). Even in the forest, the complexity of wood types, tree parts and wood qualities are high. Prescribing their usage paths through the directive or subsequent specifications can in practice encounter great difficulties. This theoretical accuracy is usually completely lost in the real mass flow of energy use.

A separation of material flows according to these categories of annexes is not relevant in practice and cannot be traced, much less verified. The specified ranges are: "Wood chips from forest residues, wood chips from short rotation coppice (eucalyptus), wood chips from short rotation coppice (poplar, fertilized), wood chips from short rotation coppice (poplar, not fertilized), wood chips from logs, wood chips from wood industry residues, wood briquettes or pellets from forest residues (case 1), wood briquettes or pellets from forest residues (case 2a), wood briquettes or pellets from forest residues (case 3a), wood briquettes / short rotation coppice pellets (eucalyptus wood - box 1),

(4) Take palm oil very critically

From the perspective of climate protection, palm oil should be viewed very critically. According to the WGBU (Report 2009), about 30 tons of CO₂ are produced when 1 ton of palm oil is extracted. For some raw materials a general exclusion should be considered. In principle, the sector target of 13% greenhouse gas savings in the transport sector makes sense. It also aims to increase "advanced biofuels" from around 0.2% in 2022 to 0.5% in 2025 and 2.2% in 2030 and to introduce a 2.6% secondary target for RFNBOs. The question is whether a full use of residues is currently included and recognized in a meaningful way and whether RFNBOs can currently be seriously and relevantly evaluated in practice. As it is generally the case, if the specifications for European raw materials are not specified here, then European raw materials such as rapeseed oil will have no chance against palm oil on the market in terms of price.

(5) Short distances are essential, especially for bioenergy

Short distances should be mandatory, especially for consumer goods such as biomass for energy purposes, otherwise the climate benefit will be nullified.

Short distances in the entire flow of cradle-to-gate and gate-to-customer material should be absolutely (!) Mandatory, especially for consumer goods such as biomass for energy purposes, otherwise the climate benefit will be nullified. If EU strategies make less biomass available, this gap will inevitably be filled with biomass from other sources and of unclear origins. From a climate protection point of view, this is wrong. The main efforts should be concentrated on energy saving. Consequently, short distances in the biomass material flow should clearly be rewarded. This is a key point, because biomass for energy purposes, of unclear origins or only with due diligence evidence that has traveled thousands of kilometers, has little to do with true climate protection. In the authors' opinion, the importance and influence of transport on environmental balance and sustainability are too little considered in the previous conception of the regulation and the framework conditions for the obligation to provide evidence.

2.5.4 / HVH / LCT and RED

(1) Concerns about RED

Implementation of the RED regulation is of great relevance for initial applications.

1) Will there be a reduction in the supply of round wood from managed forests in the European Union?

The ordinance itself does not necessarily suggest a reduction in the supply of raw materials from forests. However, the mitigation applied by other policies can significantly exacerbate the impact of the RED regulation on other issues.

(2) Are there additional emissions due to increased imports from outside the European Union?

According to HVH / LCT, this question must be answered with a resounding yes. Especially against the backdrop of the growing demand for renewable energy sources, especially among large consumers, the demand for energy from wood, including from non-European countries, is

growing sharply. The regulation encourages it. The requirement of certification according to a new certification system which must be recognized by the Commission plays a decisive role in this case. Due to the general requirements and conditions that are placed on such a system, for many wood products there is a disproportionate complexity with a simultaneous lack of consideration of the climatic effects of the products along the entire supply chain. Many certification systems already operating globally are emerging. In this way, biomass from other parts of the world will suddenly become 'socially acceptable' and will have more advantages on the market, also and above all compared to biomass from small and medium producers from decentralized cycles and from regional sources.

It is feared that, due to the lowering of threshold values, municipal consumers, for example, will in the future be forced to favor biomass from Asia or Africa certified according to a global certification system over biomass from regional forests, but for which no certificate is issued according to one of the systems recognized by the EU.

(3) Will the implementation of climate-friendly supply chains in the EU (see LIFE project) be made more difficult by the RED regulation?

The answer to this question largely depends on the extent to which the HVH / LCT climate and environmental certification is recognized as proof of biomass sustainability within the framework of the regulation's implementation. In principle, wood products certified with HVH / LCT represent the most sustainable products, as they come from sustainably managed forests and also have the lowest possible carbon footprint. They should therefore also be recognized and privileged under the RED regulation. If this is the case, the implementation of the project is not made more difficult by the RED regulation, but rather supported. If a corresponding recognition of HVH / LCT is not recognized as part of the sustainability certification, this will hinder the implementation of HVH / LCT, at least in the area of biomass use.

If European regional cycles are not clearly strengthened in RED and biomass arriving in Europe from global imports is treated as the region's biomass, the EU's climate goals will be thwarted by RED.

(2) Importance of HVH / LCT for climate-friendly biomass

The importance of systems such as HVH / LCT for the actual implementation and control of RED objectives in the EU needs to be made clear to all stakeholders and the political level. A system like HVH / LCT could be an essential European control tool as it implements real-time (!) Material flow control for each load delivered on site to the heating system.

In practice, a physical separation of the material flows according to the categories of the appendices of the regulation is not possible and the control of the mass balance can only be traced in hindsight and on the basis of audits, not to mention the mass balance that it might be inaccurate. Unfortunately, RED allows for a mass balance check through an audit every 5 years. However, in the energy sector material flows can vary from day to day. Based on practical experience, HVH / LCT would like to clarify to the European Commission (EC) that an inspection based solely on audits every 5 years is by no means sufficient to describe the actual effects on the climate and the environment, let alone to control them through certifications.

Ultimately, the certifiers will also use the average values here, since the values shown in the appendix do not differ significantly between the intervals. However, these values are purely theoretical values (see also bibliography documents HVH / LCT RED).

(3) HVH / LCT compliance with RED regulation

HVH / LCT will present European reference values for comparison in the LIFE project, which have been calculated from real material streams. In the LIFE project, HVH / LCT will use examples to clarify that the real environmental impact, especially in the bioenergy field, can only be mapped by systems such as HVH / LCT, which track material flows in real time to the specific material flow. In the LIFE project, HVH / LCT will require recognition as a RED compliant certification system for solid biomass (see literature list for prepared documents), because European bioenergy products labeled with the WOOD FROM HIER climate and environmental label (HVH) resp. LOW CARBON TIMBER (LCT) are in principle compliant with the specifications of the RED regulation in all relevant aspects.

HVH / LCT is a safe, recognized, practical and externally monitored proof of all aspects of climate and environmental sustainability required by RED. For fuels with an HVH / LCT certificate, the maximum possible reduction of greenhouse gas emissions in RED must therefore be applied.

2.6 / CBAM (Carbon Border Adjustment Mechanism)

2.6.1 / CBAM objectives

The EU hopes that CBAM will help reduce the risk of carbon leakage. The system also wants to encourage producers from non-EU countries to make their production processes more environmentally friendly through the taxes to be paid. The EU will work to ensure compliance with the WTO (World Trade Organization) at the same time, as the CBAM system has been developed in accordance with the rules of the World Trade Organization (WTO) and other EU international obligations.

The EU writes: "Climate change is a global problem that requires global solutions. To the extent that we increase our climate change targets and less stringent environmental and climate policies prevail in non-EU countries, there is an elevated risk of so-called 'carbon leakage', meaning EU-based companies may relocate carbon-intensive production abroad to benefit from less stringent standards and replace EU products with higher-carbon imports. Such a shift in emissions outside Europe can seriously undermine the EU's and the world's efforts to protect the climate. The CBAM will align the carbon price between domestic products and imports and guarantee that the EU's climate objectives are not undermined by relocations to countries with less ambitious policies".

EU importers should buy carbon credits. The price of the allowance is intended to reflect the carbon price that would have been paid if the goods had been manufactured in accordance with EU carbon pricing rules. Conversely, if a non-EU producer can demonstrate that he has already paid a price for the carbon used in the manufacture of the goods imported into a third country, he can fully deduct the related costs to the EU importer ([https:// ec .europa.eu](https://ec.europa.eu)).

To provide legal certainty and stability for businesses and other countries, the carbon limit value adjustment mechanism will be phased in and will initially only apply to a select number of goods. These are goods made with basic materials with an elevated risk of carbon delocalization, such as **iron and steel, cement, fertilizers, aluminum and energy production. A reporting system will apply to these products from 2023 to allow for smooth introduction and facilitate dialogue with third countries. Importers will pay the financial compensation from 2026. The revenues of the CBAM are intended to contribute to the EU budget as potential own resources of the EU**"(all data from <https://ec.europa.eu>). By the end of the transition period, the Commission will evaluate the functioning of the CBAM and consider extending its scope to other products and services.

2.6.2 / CBAM in practice

(1) According to EU plans, CBAM is not a "cap-and-trade" system.

With Cap and trade we mean the trading process of emission rights. Companies can only emit a certain amount of CO₂ (cap). If additional issues are required, the corresponding rights must be bought on the stock exchange (trade). If you don't run out of your share, you can sell it on the market. Cap and trade is, in theory, an approach that uses market forces to reduce emissions, thus the market sets the price. From a practical point of view, however, the impact on the climate today is often modest.

In "command and control" approaches, such as CBAM, a government, in this case the EU, sets performance standards. This would mean that with CBAM the price of the certificates is set by the EU and is not marketable.

To ensure a level playing field for EU and non-EU companies, once the full CBAM regime enters into force in 2026, the regime will need to be aligned with the revised EU Emissions Trading System, which provides in particular about the reduction of free allowances available in the sectors covered by the CBAM.

(2) certificate prices

Both CBAM and ETS are based on the purchase of certificates. In one case for raw materials, semi-finished products and products manufactured in the EU and in the other for those imported into the EU.

HVH / LCT notes that carbon taxation is necessary for fair global competition with European manufacturing. And this is also important for the environment, because this "relocation of production" has been going on for some time, precisely because the environmental and social requirements for production in Europe are more stringent than anywhere else in the world. This is obviously very good, but it should not lead Europe to import goods that have been manufactured under significantly lower conditions of this type, so as not to undermine the EU's objectives. It remains to be seen to what extent this will be successful with CBAM.

However, this can only happen if the carbon prices that have to be paid at the EU borders are so high that they even offset the economic benefits of low-wage countries, corruption and child labor. If carbon prices for imports into the EU were to remain as low as they currently are, this small "fine" for imports into the EU would still make it cheaper to import from non-European countries rather than having to produce with European environmental and social standards.

The theory is that if importers pay the same carbon price as domestic producers under the EU Emissions Trading System, CBAM will ensure equal treatment of products manufactured in the EU and imports from other countries. preventing the loss of emissions. It remains to be seen whether the goal can be achieved in practice, especially if, for example, evidence is provided from countries that have a high corruption rate or similar.

(3) Verification by national authorities

Importers of goods must register individually or through an agent with national authorities, where they can also purchase CBAM certificates. National authorities will approve the registration of applicants in the CBAM system and review and verify applications. They are also responsible for selling CBAM certificates to importers. It should be noted that national authorities will probably not be able to cope with this and that each EU country will apply more or less strict criteria similar to those that occur with the EUTR.

To import goods covered by the CBAM regime into the EU, importers must declare by 31 May each year the quantity of goods and the emissions contained in those goods that they imported into the EU in the previous year. At the same time, they must deliver the CBAM certificates they have obtained in advance from the authorities”.

(4) Specific concerns of environmental groups regarding CBAM

Greenpeace: Greenpeace writes ... "One of the main concerns about a carbon tax, however, is that if not designed properly, it risks placing disproportionately on low-income groups and poorer countries, which bear far less responsibility for the crisis. climatic ". "The Commission's draft will include a list of countries excluded from the carbon border tax. This list could favor countries with special trade relations with the EU, without worrying about the impact on other developing countries". "Greenpeace calls for the proceeds of the tax to be used to ensure a quick and fair transition to zero emissions in the EU. However, according to the leaked plan, most of the revenue will go to the EU budget, mainly to cover part of the EU's next generation clean-up tools, without earmarking them for climate action". <https://www.greenpeace.org/eu-unit/issues/climate-energy/45777/climate-package-for-6-things-to-watch-in-the-eu-commission/>

WWF: WWF writes: "With CBAM, the EU wants to fight for higher international climate protection goals. To be effective, this tool must support the reduction of greenhouse gas emissions in the EU by providing incentives to international trading partners to achieve higher climate goals". "As the first internationally applicable frontier mechanism that seeks to put a price on negative environmental impacts, CBAM will achieve its goal of increasing international climate engagement only if it is designed to provide real incentives to industries within and outside Europe to reduce their emissions. It must also show recognition and understanding of the need and right of other countries to develop, and should also recognize that the relative impact of carbon prices can be much higher for non-EU countries. low income ". <https://www.wwf.eu/?5491466/Joint-NGO-statement-on-the-Carbon-Border-Adjustment-Mechanism>.

2.6.3 / Notes on CBAM

(1) The CBAM brings for the first time a form of material justice

HVH / LCT points out that it is positive that CBAM is creating some form of material equity for the first-time introducing controls on products such as iron and steel, cement, fertilizers, aluminum and power generation.

In principle, the raw material wood is at the center of political and public attention in Europe like almost no other raw material. Numerous laws, regulations and procedural protocols have been created to make the use of wood in Europe "greener" and "safer for the environment". That's right, because the great forests of the earth are more than a supplier of raw materials and essential elements for our survival on earth. However, this should not hide the fact that such laws, regulations and protocols would be at least as important, if not more important, for other commodity groups as well, because many of these commodities are not available in Europe, or not in sufficient quantities. , unlike wood or clay. The extraction of petroleum or certain metals such as bauxite also has a significant impact on the environment,

(2) Controlling the CBAM system may become difficult

The practical operation of CBAM also depends on the type of controls and their operation. checking the CBAM system may be difficult. The mere fact that a state authority must check dealers, documents or certificates says nothing, as even for the CBAM it will probably only be possible a random check by the authorities. This is comparable to checks during due diligence (see WCMC, 2018). If, as with the EUTR, it becomes possible for countries with special agreements to receive special conditions or concessions when importing goods into the European market, this will also make controls more difficult.

So far there have been no more stringent and binding environmental criteria under which some origins of iron, steel, cement, fertilizers, aluminum, including their preliminary products, origins and material flows in the chain of custody (CoC) could be excluded. The same goes for electricity with regards to the fuels used and their origin and CoC. The rather weak OECD criteria are probably not yet suitable for actual classification and control at the CBAM.

It is not precisely regulated whether checks are to be carried out in all European countries according to the same schemes and based on the same specifications for origins outside the EU. Furthermore, it is not precisely regulated whether individual countries have a room for decision-making that would lead to imbalances. Traceability is difficult without a control system that verifies the origin and chain of custody of the goods in real time. An "ex post" control based on documents that are submitted to the competent authorities once a year is ineffective and time-consuming, especially since no recognizable exclusion criteria have been established so far.

Furthermore, are not publicly visible (available?) uniform criteria and benchmarks against which this should be calculated. So far, only the inclusion of emissions from the production itself has been foreseen. However, it is still unclear whether this is just the last stage of production or even the production of the preliminary products. It would be disastrous, because without including the entire cradle-to-gate and gate-to-customer material flow, the extraction of raw materials at the place of origin and transportation would in no way be recorded.

The specified environmental values would indicate only a fraction of the actual environmental and climate impact. The use of standard values for CO₂ emissions is usually always the basis for the actual environmental impact of products (see white paper "Comparison of life cycle assessment data", 2022). The environmental effects of the products are therefore underestimated due to the system. A real and fair comparison of materials and an assessment of the origins and environmental impact of the supply chains, as described above, is not possible. This is demonstrated for the first time by a comparison between the materials wood, PVC and aluminum for the construction elements (see bibliography of documents). A problem in the energy sector could also be that energy sources such as biomass could be valued more negatively than natural gas or nuclear energy if natural gas and nuclear energy were classified by the EU as "green energy" (such as planned).

(3) The inclusion of actual conditions and risk factors in CBAM has so far been poorly regulated

The inclusion of real conditions and risk factors in the extraction of the different commodity groups is missing so far. This will be one of the tasks of the new European institute (see LIFE projects, chapter 1). In the LIFE project, the first comparisons of origins were initially made as evidence, some information is provided here using the example of bauxite as a basic raw material for aluminum production. The results can be found in the "Raw Materials by Component Comparison Whitepaper" (2022). The use of recycled materials is the most important course of action in this case, so even the recycling rates of materials such as aluminum are not 100%, as is often assumed in classic life cycle assessments, but 40% worldwide, 52% in Europe and 58% in Germany (see whitepaper).

About 92% of the bauxite imported into Germany, as a basic raw material for aluminum production, comes from Guinea (Eurostat). According to the German BGR (2011 report), the most important bauxite suppliers in Germany are the bauxite mines of the Sangredi Plateau. Guinea is the second largest bauxite producer in the world after Australia. The country's bauxite reserves are estimated at 25 billion tons, one third of the known reserves in the world today. Despite its rich mineral resources, Guinea remains an extremely poor country and the benefits for its people remain "ridiculous" (ejatlas.org/conflict/bauxite-mining-boke-guinea). The 2011 Guinean Mining Act was intended to help reconcile foreign investment and a revenue guarantee for the state, but tax revenues have not been redistributed to local communities and the communities most affected by mining are the ones that benefit less. According to the Atlas of Environmental Justice, the environmental impacts in the region were: air pollution, soil contamination, food insecurity due to damage to crops, reduced ecological and hydrological connectivity, surface water pollution, deterioration of water quality, dust toxic, land loss for agriculture. The social consequences have been health problems, deaths, lack of job security, lost jobs, layoffs, unemployment, loss of livelihood, human rights violations, corruption, expulsions, land expropriation, attacks (ejatlas.org).

The supply chains of most metals reach the peak between the extraction of raw materials (concentrates of mineral stones) and processed products. This means that very few multinationals are active worldwide, especially in the material flow of metals. These are closely linked with each other and often also with the licensing authorities in their countries and with the policies of commodity countries. These control the material flows and determine the environmental conditions in the material flows themselves, which is by no means comparable to controls for companies in the EU. On the other hand, the effect would be huge if these few hot spot companies in the chain could be persuaded to act more climate and environmentally friendly in material flows.

In the case of aluminum, there are mainly Chinese companies. They are increasingly trying to grab commodity markets by promoting negotiations directly with local governments to expand existing mines or open new ones. Local communities are usually excluded from profit (except for individuals). However, as these few companies are aware of their market power and political influence, they have no reason to act on their own initiative. This would probably only be the case if (1) population pressure (suffering) in mining areas increased locally and especially internationally and (2) consumer pressure increased significantly.

One problem is that politicians and consumers today focus on environmental aspects, especially when it comes to wood as a raw material, but hardly anything when it comes to other materials. Other materials would need such an approach, as explained, at least as much as wood.

Consumers need to be aware that the short, climate-friendly and environmentally friendly chain-of-custody routes within Europe are the lowest risk for all commodities. But it should also be communicated to customers, society and policymakers that wood is significantly safer in terms of risk management in the supply chain. If something goes wrong with a wood chain in terms of environmental and consumer protection, most parallel material flow chains can still be safe. If something goes wrong in the material flow chain, for example in aluminum production, regarding environmental and social issues, there are usually no or very few alternatives. Unlike wood, the control of supply chains and the control of the extraction of raw materials according to sustainability rules in the world mining industry are still at a level that would be described as minimum for production in Europe. Most systems that have existed only to a limited extent and are also completely voluntary have more the status of recommendations (see OECD). In the United States, since the Obama administration, the "Dodd Frank Act" exists only for conflict minerals (Section 1502, Conflict Minerals Act). This is a reporting requirement for U.S. publicly traded companies on conflict minerals such as tantalum, tin, tungsten, and gold in their supply chain. It is significant that not all minerals are listed as conflict minerals. Ultimately, the act dates back to the computer and electronics industries, so the IT giants have created additional distinctive criteria in their stock market rankings. There is nothing comparable in the field of building materials and building minerals, not even in Europe.

2.6.4 / HVH / LCT “Principle” and CBAM

The CBAM regulation does not affect - yet - the questions asked at the beginning, since wood products have not yet been dealt with here. If wood products were included here at some point, this would obviously have a significant impact on the practice of wood material flows and their perception, as well as the implementation of climate-friendly supply chains in the EU.

The HVH / LCT therefore urgently requests the Commission to be able to participate in the bodies that can prepare the implementation of wood products.

2.7 / Impact of EU policies on supply chains

The following summarizes the concerns and views of HVH / LCT on the question of the influence of the new EU regulations on the wood supply chains and on the objective of the HVH / LCT implementation project.

2.7.1 / Effects of relocation

(1) A significant shortage of timber from European forests would lead to increased imports

A shortage of wood from European forests would inevitably lead to an increase in imports from outside Europe. On the one hand, this translates into huge emissions from transport, on the other hand, this also leads to relocation effects in regions with environmental and social requirements much less (or not at all) comparable to those in Europe. If part of the raw wood production is relocated to third countries where forest management is significantly less sustainable and where primary forests are still being cut down with enormous losses of biodiversity (see number 3), this also defeats the objectives of the EU. As many EU regulations repeatedly call for a global perspective, these global biodiversity losses must be compared with an (hitherto unspecified) increase in biodiversity in the EU. If the implementation of further protection measures in the EU would lead to a shift to third countries where net deforestation is higher (see number 2), where smaller portions of forest areas are protected and less money is spent on diversity conservation organic than in the EU, would be counterproductive to EU objectives. In this context of effects on a global level, the effects of the new Community legislation must also be considered.

Estimation of additional emissions (including those related to transport) due to the reduced availability of raw materials from European forests and the increase in imports.

a) influence of origin

Due to increased imports, more and more wood products are arriving on the European market, which have a significantly worse environmental balance and carbon footprint than products made with local regional wood. As part of the present "EU LIFE Climate value chain" project, Holz von Hier developed a methodology to determine the actual CO₂ accumulation in wood products based on the origin of the wood. All emissions that occur during production along the entire supply chain from the extraction of raw materials must be deducted from the C stored in the wood. Depending on the origin of the wood, the differences are very large. The releases of CO₂ from the soil, the different storage efficiency thanks to the different method of renewal of the wood mass, transport and other sources of emissions play an important role. The following figure summarizes the results using some model examples. Products with an HVH / LCT certificate from short regional cycles, wood from sources within the EU and wood of unknown origin are compared (as a generic average value, wood from Russia is considered). More information on this can be found in the document "LCT Project Type I - Process Approach 2: Origin".

Wood residual CO₂ storage for wood building materials with HVH certificate



the remaining CO₂ storage in wood for timber construction materials with most national upstream chains in the EU



Remaining average CO₂ storage in wood for wood building materials of unknown origin with upstream global chains



Storage of CO₂ remaining in wood for wooden building materials with chains upstream from Russia



The figures show that for the storage of CO₂ (forest and wood) it is important that wood from local European forests is collected and transformed into sustainable products, instead of leaving the wood in the forest and importing material from abroad.

b) Estimation of transport-related emissions

In the present project, Holz von Hier also determined generic average values for the transport of different types of wood and the resulting emissions, which can be used as a benchmark. More information on this can be found in the document "LCT project type I - process approach 3: transport in supply chains".

As a result, imports of sawn timber and planks into EU countries are characterized by an average of around 117 kg of CO₂ / t of wood. In the case of paper and cellulose about 200 kg CO₂ / t and for energy wood about 134 kg CO₂ / t.

If, thanks to the implementation of European strategies, around 30% less timber from forests were actually available, there would be around 150 million tons of round timber available less, which would be offset by imports. That would be about 71 million tons for sawn timber, 12 million tons for panels, 48 million tons for pulp and paper and 18 million tons for firewood. In combination with the generic CO₂ footprints mentioned above, this results in around 22 million tons of CO₂ released from transport.

The LIFE, LCT / HVH project will demonstrate that transport in material flow also has a significant share in the climate and biodiversity protection budget, which has been greatly underestimated or neglected in previous instruments and budgets. The new European institute founded under the LIFE project will continue to use this data and apply it to other raw materials as well.

(2) A significant shortage of timber from European forests could also lead to relocations to critical points for deforestation

The hotspots where deforestation occurs are outside the EU, particularly in South and Central America, Africa and Asia. WIR data (www.wri.org) show that current forest losses occur mainly in Central and South America, the Congo Basin and Asia. Although most of this deforestation is still due to palm oil plantations, felled timber from primary forests to free up plantation space ends up on the timber market. In South America, Brazil, Colombia, Guyana, Peru, Argentina, Paraguay and Bolivia are particularly affected. Central America: Mexico, Honduras, Nicaragua. In Africa, the Congo and now Mozambique. In Asia, Indonesia and increasingly Papua New Guinea are heavily deforested areas. It is important to note that these areas were reported after 2000, i.e. after the start of the climate negotiations and after the start of the RED discussion and after most of the VPA agreements of some countries. Congo, for example, signed a VPA agreement with Europe in 2003, but deforestation continued even with legal concessions. This also applies to several other countries with VPA agreements (see also WCMC Reports).

LCT / HVH will show the pain points of deforestation and risks for biodiversity loss in the LIFE project, together with other relevant data for actors in supply chains and an information and awareness tool, country profiles and a red list for origins. The new European institute founded in LIFE will continue to use these data and tools and also transfer them to other raw materials.

(3) The changes would lead to a greater risk of biodiversity loss

Climate protection and global biodiversity protection also means protecting primary forests outside the European Union. 50% - 70% of all animal and plant species on earth live in the last remaining primary forests on earth. As the IUCN Red List assessments show, most plant and animal species around the world are threatened by the deforestation of primary forests (forests) and the drying up of wetlands (wetlands) such as swamps. Even though primary forests can be managed in a "sustainable" way in terms of mass and carbon balance, any commercial management of primary forests with logging leads to a loss of biodiversity (see various studies, eg Schulze et al, Asner et al, WGBU, IUCN, UNEP, etc.).

A reduction in the supply of raw materials from European forests inevitably leads to an increase in imports from non-European countries. The danger that the wood comes from primary forests and therefore greatly affects biodiversity. It is entirely conceivable that as a result more species are endangered than can be protected by leaving more biomass in forests in Europe. The problem is that the existing mechanisms (EUTR, certifications) do not prevent such a loss of biodiversity, as both mechanisms allow for felling in primary forests.

The consequences of the global loss of biodiversity are fatal and range from enormous humanitarian consequences to high economic costs and ecosystem losses. Experts estimate that the value of the goods and services provided by ecosystems amounts to 26,000,000 trillion euros per year (EU Memory 27.04.2004). The loss of terrestrial biodiversity alone caused costs of US \$ 500 billion from 2000 to 2008 (TEEB, 2008). The economic loss alone due to declining bee populations is estimated at 15 billion euros per year in the EU and 153 billion dollars worldwide. The cost of biodiversity loss can almost never be addressed. Investing in diversity conservation is significantly cheaper and is the only sustainable way. Scientific studies (e.g. Balmford et al., 2002) conclude that with € 45 billion per year, ecosystem services could be sustainably ensured around the world,

In the LIFE project, LCT / HVH will show what risks of biodiversity loss arise from timber production and in which parts of the world and what risks exist from transport on major

trade routes. The new European institute founded in LIFE will continue to use these data and tools and also transfer them to other raw materials.

2.7.2 / Overestimation of "Forest" CO₂ storage and underestimation of "Wood" CO₂ storage

From Holz von Here's point of view, the impression is that the EU considers "forest" CO₂ storage to be more effective than "wood" CO₂ storage. This may also be since, of course, only growing plants can actively remove CO₂ from the air and thus form an active well. From this point of view, the bond in the forest naturally takes priority. However, the bottom line is the total amount of CO₂ that can be sequestered over a period of time, combined with the amount of CO₂ that can be avoided through the extraction and use of wood. And here, according to the authors, the balance is not maintained, but unilaterally shifted in the direction of forest storage, which is not in line with the real situation. So far, the EU has considered that CO₂ storage in the forest ("forest" CO₂ storage) outweighs the CO₂ storage in wood ("wood" CO₂ storage). One position of stakeholders in the EU is that only the forest should be considered a CO₂ repository and that any removal of wood is an "emission". For the EU it is "obvious that, given the EU climate objectives for 2030 and 2050, wood is not an unlimited resource and that the Member States must take this into account". The EU further writes that "recent scientific studies indicate" (note: no source) ... that by 2050 it is unlikely ... "that the potential co-benefits of harvested wood products and material substitution will reduce the net uptake associated with increased forest uses. In principle, this states that for the EU, leaving wood in the forest as a CO₂ store has a greater climate effect than long-term storage of CO₂ in wood products or to the effects of CO₂ through material substitution. The studies cited are not named, so the claims cannot be reconstructed. **Consequently, at the land use level, CO₂ storage in the forest is overestimated compared to the effects of the use of wood.**

In principle, it can be said that various organizations and institutes have been working on this topic at a scientific level for years and often come to exactly opposite conclusions. For example, the latest study by Professor Köhl Universität Hamburg, Center for World Forestry (2022), concludes that considering the "wood" CO₂ deposit in many calculated scenarios develops a greater overall absorption effect than focusing on the "forest. A study by the Öko-Institut (2019) comes to the exact opposite conclusion.

All studies on the topic of "forest" and "wood" CO₂ storage serve different purposes. Considerations range from pure forest storage to an expansion of storage in used wood (harvested wood products) to the inclusion of material and energy replacement effects. All the results of these studies are based on scenarios, hypotheses and models. The problem, however, is that in many studies the basic data and the precise assumptions underlying the values are often not mentioned in publications, so the data obtained from them can hardly be compared.

One of the most recent studies within a project of the University of Hamburg in February 2022 (Prof. Michael Köhl and Leam Martes) addresses the conflicting issue of forest CO₂ storage versus wood. The time frame of the study is 87 years (from 2013 to 2100). The reference area of the firm is the metropolitan region of Hamburg. Forest CO₂ storage data is based on Germany's 3rd National Forest Inventory and accumulated stocks over a selected time period. The way in which the "wood" CO₂ storage is calculated cannot be deduced from the publication.

In the publication, different areas are modeled for the calculation of CO₂ in the bond: Purpose a) Storage of CO₂ in the "forest" and in permanent biomass, Purpose b) Storage of CO₂ "forest" plus

storage of CO₂ "wood", Purpose c) CO₂ storage 'Forest "plus CO₂ storage" Wood "plus material substitution effects, Scope d) CO₂ storage" Forest "plus CO₂ storage" Wood "plus material substitution effects plus energy substitution at the end of the cycle life of wood products (cascade use).

When wood products replace products made from other materials, various replacement factors are provided. For example, planed wood instead of concrete, steel or brick is given with a factor of 1.4. Factor 1.62 is assigned for windows, doors, floors, plywood, solid wood furniture, pallets instead of other wood-based materials, for panel materials 1.1, glued wood 1.3 and DIY products 1.35.

Six scenarios are compared, which in principle can also be applied to the whole of Germany: (1) full conservation scenario ("100% protection", "zero use"), (2) national biodiversity strategies ("5% protection", 5% of forest areas are withdrawn from use), (3) EU biodiversity strategies ("10% protection", 10% of forest areas are withdrawn from use), (4) Maximum biodiversity scenario (a disproportionate share without specifying a percentage is subtracted from use), (5) Old Growth Forests ("Protection-Old-Growth-Forests", old forests over 120 years old are subtracted from use), (6) Full production ("100% utilization", all forest areas in Germany are used). The "Full Conservation" scenario can be ignored, as it is only a theoretical value that can never be realized and is not politically discussed. Likewise, the "Full use scenario" can be eliminated because it is not realistic in the EU with new specifications such as forest strategy, LULUCF, biodiversity strategy, etc. The scenarios "EU biodiversity strategy" (10% protection), "National biodiversity strategy DE" (5% protection) and "Old Forest strategy" are compared below.

Modeling produced the following result:

Also, with regard to the storage of CO₂ in "forest", i.e. the net capture of CO₂ in surface biomass, the scenarios "EU Biodiversity Strategy" and "Biodiversity Strategy DE" hardly differ (only by 15,000 tC after 87 years old!). Even the full use scenario would reduce the "forest" CO₂ storage by only 30,000 t C after 87 years compared to the EU biodiversity scenario. To put it in reverse, the biodiversity scenario only produces 30,000 tons of C storage more than at full use.

If the "wood" CO₂ deposit is included, the differences between the EU Biodiversity Strategy and the ED Biodiversity Strategy are even smaller. The CO₂ storage balance of the "Secular Forest Protection" strategy exceeded the values of both biodiversity strategies. It should be noted that these old forests are no longer widely used anyway, as large timber is little used in the timber industry. In this context, the full use strategy also exceeds the net CO₂ storage of the two biodiversity strategies by 13,000 and 15,000 tC.

Furthermore, these models do not even consider the additional CO₂ emissions caused by the increase in transport due to imports.

Other forestry experts (e.g. Irslinger, 2022) also say that, for example in Germany, the CO₂ storage of the forest is already reaching its limits and can no longer be increased. According to Irslinger, the use of wood from sustainably managed forests with 966 kg of CO₂/m³ through wood storage and replacement makes a greater contribution to climate protection than living biomass alone with 916 kg of CO₂/m³. Irslinger also points out that the CO₂ deposit in the "forest" is extremely unstable and can even quickly turn into a source due to climate change and disasters.

The 'wood' CO₂ deposit, on the other hand, is stable in products that are durable and safe for a long time

In this context, it is questionable whether a reduction in the supply of raw materials from managed forests in Europe will lead to the desired CO₂ reductions or even have the opposite effect.

2.7.3 / 'Forest' CO₂ storage around the world

HVH / LCT cannot and will not get caught up in the scientific discussion, not least because HVH / LCT will contribute with, questions, requests and suggestions from the practice of the European regions to the LIFE project. However, HVH / LCT asks those in charge of the European Commission to listen to this point of view. In the following, some additional aspects of "forest" CO₂ storage are considered, which according to HVH / LCT should receive more attention.

(1) WEHAM scenarios have only 1 criterion for the use of wood

The Forest Development and Timber Procurement Model (WEHAM) based on the National Forest Inventory (BWI) was developed for Germany with German stakeholder groups. This must not be lost sight of during modeling. Furthermore, "the results of the evaluation ... do not purport to reflect a representative image of the four stakeholder groups". ... "However, the results make fundamental social preferences transparent and clearly show that the range of what is considered sustainable is relatively wide" (Article 1: <https://www.weham-szenarien.de>). The sustainability assessment of the aforementioned WEHAM scenarios is also based in Germany on a speech by only 25 stakeholders from the wood industry, forest associations, state forest companies and nature conservation groups. In the speech, 13 criteria were differentiated and evaluated (% of evaluation). These are: (1) forest biodiversity, (2) climate protection, (3) dead wood, (4) productive forest areas, (5) growth, (6) trees > 100 years old, (7) supply, (8) proportion of foreign tree species, (9) percentage of softwood, (10) occupation in the cluster, (11) yield values, (12) use of wood and (13) use of wood (extraction).

In the discussion, HVH / LCT focuses on the criteria "forest biodiversity", "climate protection performance", "wood use", which are assessed very differently by stakeholder groups.

- Example of evaluation of "forest biodiversity": evaluation of the wood industry / forest associations / state forest enterprises: 0%, nature conservation: 19%
- Example of evaluation of the "climate protection performance": wood industry: 17%, forest associations: 9%, state forest companies: 15%, nature conservation: 19%.
- Example of evaluation "use of wood". Wood industry: 17%, forest associations: 18%, state forest companies: 40%, nature conservation: 0%. The only criterion concerning the wood use aspect is criterion 13 and consequently the "wood" CO₂ storage aspect is probably always underweighted in modeling with WEHAM.

(2) The CO₂ storage "forest" around the world is extremely difficult to assess

However, it is not only important with what criteria and proportions something is evaluated, but also on what basis the data is collected. In Germany, the database for this is the national forest inventory. Since there are no precise comparable data everywhere in the EU and certainly not all

over the world, the model should not be automatically applied in Europe or even worldwide without specifying the data sources precisely. Global calculations and models for CO₂ storage in "forest" and "wood" are often based on FAO data (e.g. FRA, 2015). The following are examples of why this too should be critically questioned, especially for policy measures taken in Europe to protect the climate.

definitions. FAO's definition of "deforestation" assumes that there is a permanent change in land use. Losses of tree cover that are considered temporary, such as forests that have been cleared but grow back, are not counted as deforestation. According to HVH / LCT: If the primary forest is converted to a plantation, this is not recorded as deforestation in FAO. This has already been criticized by 2,000 well-known scientists around the world, who suspected that this would lead to an exponential increase in plantations on primary forest areas, which sadly has come true.

data source. FAO produces official government statistics such as forest-related information collected via satellites. The data are reported by the countries themselves. The methods of data collection can be very different (national forest inventories, academic studies, state registers, etc.). HVH / LCT believes that: Although FAO has guidelines on how and what to report, many countries use their own definitions and methods for reported data. For this reason, FAO data often does not match other statistical sources such as regional statistics, Eurostat and others

data collection. In the latest FAO report analyzed by HVH / LCT (FRA Report, 2015), 87 countries reported data aged 10 years or older. When national reports are not available, FAO fills in the gaps with bibliographic references and expert estimates. This leads to data discrepancy between temperate and tropical forests. According to HVH / LCT: Some countries frequently update their forest inventories, others only every 10-20 years. European Union countries, for example, update their inventories more frequently than most tropical countries. However, for the first time, the new FAO 2015 also contains more detailed information on nationwide processes (see page 185 onwards).

Origin of data FRA. Start of the survey: 1990, frequency: every 5 years, statistics and reports of the individual countries. HVH / LCT claims that: According to the WRI, the 2015 FAO Report uses data older than 10 years for 87 countries, data older than 15 years for 58 countries, data older than 20 years for 38 countries, and data older than 25 years for 14 countries. If this were the case, it would not be possible to use modeling as a basis for policy programs, for example from a practical point of view, and it would be fatal, especially for the carbon market.

(3) The risk for CO₂ stored in forests is perhaps greater than the risk for CO₂ stored in durable wood products

European strategies on forest management and biodiversity are based on certain assumptions that are based on past processes and the results of forest management. It can be assumed that stable developments are assumed here, e.g. regarding growth, age groups, increase, etc. However, it is questionable whether this really represents a reliable starting point. It has been shown in recent years that catastrophic situations such as drought, storms, fire risk, pest calamity and more are no longer the exception, but will be "normal" in the future. This can lead to unexpected and changing mortality in CO₂ storage. Therefore, "forest" CO₂ storage in European forests must be assessed as riskier than wood storage due to the influences in the course of climate change, especially if wood is used in durable products such as buildings. Therefore, it may make more

sense to specifically develop opportunities for regional scale and climate-friendly recovery of damaged wood that is likely to increase.

In principle, comprehensive public estimates of potential carbon sink hazards are lacking according to the HVH / LCT. The new institute, founded in the framework of the LIFE program, will also address this issue, as it will involve one of the best-known researchers in Europe.

3 / LCT implementation (HVH)

3.1 / HVH / LCT as best practice for EU strategies

3.1.1 / Best Practice for responsible extraction of raw materials

HVH / LCT asked the Commission to issue the LOW CARBON TIMBER (LCT) resp. HOLZ VON HIER (HVH) as an example of good practice for sourcing raw materials from risk-free areas and as an alternative proof of wood from sustainable forestry as well as FSC, PEFC and other environmental labels and to support it politically and strategically in the EU.

For the EU, the "good forest practice" aspect is important in almost all forestry strategies. HVH / LCT complies with all EU requirements regarding the sustainable and responsible extraction and use of raw materials. HVH / LCT is therefore already recognized by NaBe in Austria as an alternative proof of wood from sustainable forestry, as well as in building assessment systems such as the DGNB system as proof of responsible raw material harvesting.

HVH / LCT requires Forest Management Certificates (FM) for sustainable forest management for 100% of the logs that come under control of the chain of custody. The raw materials come 100% from zero risk areas.

- HVH / LCT requires forest management certificates according to FM-FSC, FM-PEFC or similar for 100% of the logs included in the HVH / LCT chain of custody control (CoC).
- HVH / LCT inherently excludes wood from primary forests.
- HVH / LCT excludes wood species that are considered endangered tree species according to IUCN, CITES.
- HVH / LCT raw materials are 100% sourced from zero / low risk areas.
Note: this is different for imports from many other regions of the world to the EU. Comparisons can be made using the new HVH / LCT tools and the origins can be compared (LIFE project).
- HVH / LCT deals with the development and control of climate and environmentally friendly supply chains and includes only raw materials that can fully meet the HVH / LCT criteria in CoC control.

The logs included in the chain of custody control at HVH / LCT come 100% from sustainable forestry in the EU (currently Central Europe, see LIFE project).

- HVH / LCT complies with European guidelines and principles of sustainability, climate and environmental protection and resource efficiency. Not only because of the goals and objectives, but also because 100% of the round timber that enters the HVH wood chain of custody comes from forest areas in the European Union. So far, only central European forest areas have been relevant in the system.
- The forests of the EU, especially those of central Europe, are all managed according to the principles of sustainable forest management, and most are also certified with forest labels (FSC and PEFC).
- Due to this prerequisite, the aspect of maintaining soil quality and conserving the carbon stock on the ground is also inherently fulfilled, as this is part of EU legislation.
Note: for example, the elimination of bogs is not allowed in the EU and certainly not in Central Europe. This is different for imports into the EU, for example from Malaysia, Indonesia or Russia (see tools and country profiles). However, these imports do not affect HVH / LCT certified products.
- Land use changes, i.e. the conversion of forests to agricultural land, are also not legally allowed in the EU.
Note: This is different than in many other regions of the world, especially in Asia, Latin America and Africa. The problem is that in these regions of the world the conversion of primary forest areas into plantations is not yet counted as a change in land use. This is very problematic, also, for example, for compliance with aspects 3, 4, 5, 6 of the RED regulation. These imports do not concern HVH / LCT certified products.

HVH / LCT complies with EUTR / Due Diligence and goes even further

- Wood from primary logging should not enter the EU, even if the wood or products from it may have valid DD documents. The new strategies in Europe not only want to protect primary forests in Europe, but also contribute to their protection worldwide. However, due diligence is currently only aimed at legality. It is therefore particularly important to highlight examples of good practice for deforestation-free supply chains, such as products certified with HVH / LCT. HVH / LCT is EUTR compliant and the DD goes far beyond (see compliance document, bibliography), as not only is legality provided, but also proof of sustainable forest management.

3.1.2 / HVH / LCT for low-risk, deforestation-free supply chains

HVH / LCT asked the Commission to issue the LOW CARBON TIMBER (LCT) resp. WOOD FROM HERE (HVH) as an example of good practice for deforestation-free supply chains within the European Union and also requires political and strategic support.

Wood sourced from deforestation-free and low-risk supply chains as far as the Red List is concerned.

- If you want to minimize or completely avoid the high risks to wood from clearing primary forests or deforestation, for wood products of all kinds, as well as reduce the risks associated with climate-damaging supply chains and biodiversity, it is necessary to rely on supply chains that run completely within short distances in the European Union. This can be demonstrated and monitored externally with the HOLZ VON HIER (HVH) climate and environmental certification or - in non-German-speaking countries - LOW CARBON TIMBER (LCT).
- In the LIFE project, HVH / LCT, in collaboration with the partners, a "red list of origins" has been drawn up, which classifies the origins and risky according to a traffic light system. This is justified in absolutely transparent way and the regions are defined in a special instrument. HVH / LCT requires it for climatic and environmental comparisons of HVH / LCT certified products versus other products without the environmental label. After the end of the LIFE project, this "red list" on origins will be continued by a European working group, in close coordination with stakeholder groups and the Commission.

3.1.3 / HVH / LCT for the climate and stable and environmentally friendly European supply chains

HVH / LCT asked the Commission to issue the LOW CARBON TIMBER (LCT) resp. WOOD FROM HERE (HVH) as an example of good practice for supply chains without deforestation within the European Union and also requires political and strategic support

An implementation of LCT / HVH supports new EU strategies in their core objectives of climate protection, resource efficiency, biodiversity protection and strengthening of European regions, municipalities and businesses and represents a best practice example for the implementation of EU strategies in the forest and wood sector.

Real-time control and management of the real supply chain throughout the entire material flow

- HVH / LCT is based on an electronic mass balance system, innovative and already consolidated and monitored externally. It is externally monitored according to (1) the PS 880 standard of the German Institute of Auditors (comparable to the German Federal Government Biogas Register) and (2) by the TÜV.
- The electronic mass balance system of HVH / LCT complies with the specifications of ISO 38200 (see compliance document, see literature).
- The electronic mass balance system records in real time the precise flow of material along the entire supply chain from the cradle to the gate and from the gate to the customer for each specific delivery. Upper HVH / LCT limits are set for distance and resulting environmental values. In HVH / LCT, the entire material flow of each delivery is tracked and monitored from point to point.
- HVH / LCT can also be flexibly adapted to new EU requirements in the future. In the electronic mass balance system of HVH / LCT, the criteria in the material flow can be technically adapted at any time.
- Products arriving at the point of use receive a one-time certificate based on the corresponding ID that can only be issued once for a specific delivery. Consequently, each delivery can be invoiced for each batch and product.
- The HVH / LCT will be presented to all relevant stakeholder groups from 2021 to 2024 in a European project under the LIFE program, which promotes the implementation of HVH / LCT in the EU. The presentation also extends to compatibility with EU requirements and positive presentation on climate and environment, as well as the systemic effect on social and consumer protection and stable supply chains within the EU.

3.1.4 / HVH / LCT for the storage of CO₂ in wood

HVH / LCT asked the Commission to issue the LOW CARBON LEGNO (LCT) resp. WOOD FROM HERE (HVH) as an example of good practice for supply chains without deforestation within the European Union and also requires political and strategic support

Carbon storage in wood products should only be fully accounted for if the wood does not come from primary forestry but from sustainable forest management and has the shortest possible processing chains in the entire chain of custody behind it, i.e. from the cradle to the gate and from the gate to the customer. So far only the climate and environmental certification HOLZ VON HIER (HVH) or LOW CARBON TIMBER (LCT) can prove this.

So far, all wood products have been evaluated equally in calculations and models for CO₂ storage, regardless of where they come from. This means that the sawn timber from Malaysia, with its forest uses in the primary tropical forests of Borneo, on peat soils with the highest CO₂ emissions in the world or in the primary boreal forests in Russia, with extremely slow growth rates, gets roughly the same CO₂ storage credit as regional wood products from Central Europe.

HVH / LCT has developed a methodology that takes origin into account in the climate balance and presents it for the first time in the LIFE project for the whole of Europe.

- After the project, this methodology (see Documents Literature List) will be further expanded by the new European institute founded in the LIFE project and also transferred to other Na-WaRo and materials. The HVH / LCT asks the Commission to support this in order to finally allow a fair comparison of materials in the EU.
- Importing more wood products that have a low carbon footprint due to leakage effects can have an extremely negative impact on the entire CO₂ storage. HVH / LCT calculated the reference values as a 5-year average for all the most common groups of wood products, for the countries involved in the LIFE project and some other important "countries with significant use of wood" in the EU (for more information see the bibliography of documents).

3.1.5 / HVH / LCT for climate-friendly bioenergy supply chains

HVH / LCT applies for recognition as a RED certification system for solid biomass within the EU LIFE project. HVH / LCT asks the committee leaders to favorably review this question and is, of course, very willing to engage in a discussion at any time.

In many EU strategies, energy use is or should be adapted to the Renewable Energy Directive (RED-II / RED III). HVH / LCT is an example of best practice for short and climate-friendly supply chains for bioenergy within the EU. HVH / LCT is in principle compliant with the RED regulation (see compliance document, see literature) and HVH / LCT is therefore seeking approval as a RED compliant certification system in the LIFE project.

3.1.6 / HVH / LCT environmental footprint data for climate-friendly supply chains.

HVH / LCT asks the Commission that the new European Institute for the low-carbon circular economy that will be founded in the LIFE project can, among other things, lead the discussion on the topic of real life cycle assessment data with all stakeholders in coordination with the Commission.

HVH / LCT also asks the Commission to recognize and politically support the HVH / LCT environmental footprint presented in the LIFE project as the first example of good practice for collecting real life cycle assessment data on real material flows in real time.

The EU supports the approach of measuring and considering the value of nature. For the EU, this also includes measuring the ecological footprint, including applying life cycle concepts and accounting for natural capital. The improvement of the ecological footprint of materials, building materials, products and buildings, in particular as regards their origin and transport in the supply chain, is an important theme and one of the fields of work of the European Institute that will be founded in the project. LIFE (working title SAVE).

However, HVH / LCT would like to point out at this time that the "value of nature" cannot be recorded using classic ecological or climatic balances.

In general, HVH / LCT is very critical of the approach of wanting to collect a "value of nature" using only classical life cycle assessment data. On the one hand, only quantitative factors are recorded here. However, the main (!) Environmental impacts, especially when extracting raw materials, often result from more qualitative environmental impacts. On the other hand, today's classic life cycle assessments considerably underestimate the real environmental impacts in upstream chains, even in quantitative terms. HVH / LCT analyzed approximately 70 EPDs of building products. In areas such as life cycle stage A1 (raw material extraction) and A2, A4, standard data sets are used in the calculation models, which in no way reflect today's realities of material flow. This is currently demonstrated with examples in the LIFE project,

Environmental footprint HVH / LCT

- In the material flow of the HVH / LCT system, all classical life cycle assessment data is also included in the real-time material flow via the HVH / LCT environmental footprint. These are the classic environmental data as presented in the classic life cycle assessments (e.g. GWP, AP, EP, POCP, ODP, ADP, PERE, PENRE; water).
- With HVH / LCT, on the other hand, all these environmental data are presented separately according to the phases of the life cycle A1, A2, A3, A4. This is usually not the case with the classic EPDs found in official databases. Total values A1-A3 are usually provided here, and values for A4 are usually not provided.

- The HVH / LCT environmental footprint corresponds to the EU specifications for the calculation of greenhouse gases, complies with the EU PEF principles (see compliance document, see literature) and is aligned with the GHG protocol, but goes further.
- An environmental footprint certificate can also be issued for each batch and product.
- In the HVH / LCT footprint, all the data used in the PEF / EPD for the extraction of raw materials are used, transparently stored in the accompanying HVH / LCT documents.

3.1.7 / HVH / LCT ordinance and taxonomy

HVH / LCT calls on the Commission to recognize and politically support the progress and achievements for climate and environmentally friendly supply chains in the financial market presented in the LIFE project, including in the corresponding funding programs and other policy strategies.

The EU taxonomy for sustainable finance needs and lives with the implementation of best practice examples in the financial sector. As an example of good practice, HVH / LCT supports the EU taxonomy objectives on sustainable finance.

- HVH / LCT complies with the PCAF banking standard (see compliance document, see bibliography) and is already recommended by financial institutions. Some banks are already making soft loans for wooden buildings that have an HVH / LCT certificate for building materials.
- HVH / LCT is currently developing regional climate certificates for the voluntary carbon market together with European partners, authorities, ministries and municipal umbrella organizations.
- Additionally, HVH / LCT is working with these partners to develop an ecological link for low-carbon timber products and buildings.
- In the LIFE project, a "Low Carbon Trust" is presented at European level, which will be led by a committee of stakeholders composed of municipal umbrella organizations, ministries and possibly banks, which will regulate notarial financial flows for the VCM market (see HVH / LCT documents -VCM and regional standard in the list of documents).

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L-1 / European documents

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HVH / LCT documents attached

Creation of important HVH / LCT documents from and for environmental communication in the LIFE project. Some of these documents have already been completed, others are still in the works. However, all documents will be available at the end of the LIFE project.

A-1 / HVH / LCT document compliance

Document on the HVH / LCT itself on www.holz-von-hier.eu, www.low-carbon-timber.eu.

"HVH / LCT compliance document: Declaration of compliance with ISO 38200 (2022). Document demonstrating compliance of HVH / LCT with ISO 38200. Published by HVH / LCT Europe. Pages 41.

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"LCT Project Type I - Approach 3:" Transport in Supply Chains "(2022). Methodology document. Content: Realistic generic benchmarks of the supply chain transport load for the main groups of wood products on the market. Published by HVH / LCT Europe.

"LCT-3 Annex A-1: Description" Use Emission Factors "(2022). Annex for the LCT approach 3. Data and information. Published by HVH / LCT Europe.

"LCT-3 Annex A-2: Description" HVH / LCT upper limits and actual HVH / LCT values "(2022). Annex for LCT approach 3. Data and information. Published by HVH / LCT Europe.

"LCT-3 Appendix A-3:" Product groups: production, import and export, consumption, import quotas and own production in the consumption of target countries in the EU "(2022). Annex for the LCT approach 3. Data and information Published by HVH / LCT Europe.

"LCT-3 Appendix A-4:" Reference values for upstream chainless imports into EU target countries for selected product groups "(2022). Annex" IMP-without-VK "for process approach LCT 3. Data and information Published by HVH / LCT Europe.

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A-3 / Attached documents HVH / LCT upstream chains

country lists

- List of CPI (Corruption Perceptions Index) EU countries
- List of CPI (Corruption Perceptions Index) countries around the world
- List of FWI (Freedom in the World Index) EU countries
- FWI (Freedom in the World Index) list of countries around the world
- List of EU countries RLI (Rule of the Law).
- List of countries of the world RLI (Rule of the Law Index).
- List of FSI (Fragile State Index) EU countries
- List of FSI (Fragile State Index) countries around the world
- Forest legality initiative
- EU sanctions lists
- List of CEPI countries (Climate efficiency of production) EU
- CEPI (Climate Efficiency of Production) countries list.
- List of EU Fresh Water Efficiency (FWI) countries
- List of Fresh Water Efficiency (FWI) countries in the world
- List of EU DMCI (Domestic Material Consumption of Industry) countries

- List of DMCI (Domestic Material Consumption of Ind.) Countries around the world
- Social equity SFR by country

Goods lists

- CO₂ storage in the forest (various types of wood)
- growth index
- CO₂ release from the soil
- Timber harvest data (by country)
- Endangered and protected wood species
- Forest certifications by country
- Net emissions from forests

shipping lists

- Transport data (overview)
- Truncate transport data and criteria in EPD
- Emission factors used
- Upper limits HVH / LCT, actual HVH / LCT values
- PIEK - DE data: Product groups imports, exports, consumption, import share of consumption, own production shares of consumption for selected wood product groups.
- PIEK - AT data: Product groups imports, exports, consumption, import share of consumption, own production shares of consumption for selected wood product groups.
- PIEK - Data IT: Product groups imports, exports, consumption, import share of consumption, own production shares of consumption for selected wood product groups.
- PIEK - Daten SL: Product groups imports, exports, consumption, import share of consumption, share of own production on consumption for selected wood product groups.
- PIEK - LU data: Product groups imports, exports, consumption, import share of consumption, own production shares of consumption for selected wood product groups.
- PIEK - FR data: Product groups imports, exports, consumption, import share of consumption, own production shares of consumption for selected wood product groups.
- PIEK - SWE data: Product groups imports, exports, consumption, import share of consumption, own production shares of consumption for selected wood product groups.
- PIEK - MW EU data: Product groups imports, exports, consumption, import share of consumption, own production shares of consumption for selected wood product groups.
- IMP without data VK DE: Reference values for unchained upstream imports (VK) for selected wood product groups.
- IMP without VK data AT: Reference values for unchained upstream (VK) imports for selected wood product groups.
- IMP without VK IT data: Reference values for unchained upstream imports (VK) for selected wood product groups.
- IMP without data VK SL: Reference values for chainless imports upstream (VK) for selected wood product groups.
- IMP without data VK LU: Reference values for unchained upstream (VK) imports for selected wood product groups.

- IMP without data VK FR: Reference values for unchained upstream imports (VK) for selected wood product groups.
- IMP without VK data SWE: Reference values for unchained upstream (VK) imports for selected wood product groups.
- IMP without data VK MW EU: reference values for unchained upstream imports (VK) for selected wood product groups.
- EPTR-CoC-EU data / generic values for transport (TR) in the chain of custody (CoC) of in-house production (EP) within the European Union (EU) for selected wood product groups in wood as distance transport (in km) and CO₂ emissions [in kgCO₂-eq]. - European coordinated in a European working group.
- GIQTR data / Generic values for imports from countries of origin (GIQ). Values for transport (TR) of pre-imports of goods from countries of origin into the EU.
- IMP with VK DE data: Reference values for upstream chain (VK) imports for selected wood product groups.
- IMP with VK data AT: Reference values for upstream chain (VK) imports for selected wood product groups.
- IMP with VK IT data: Reference values for upstream chain (VK) imports for selected wood product groups.
- IMP with VK data SL: Reference values for upstream chain (VK) imports for selected wood product groups.
- IMP with LU Sales Data: Reference values for upstream chain (VK) imports for selected wood product groups.
- IMP with VK data FR: Reference values for upstream chain (VK) imports for selected wood product groups.
- IMP with VK SWE data: Reference values for upstream chain (VK) imports for selected wood product groups.
- IMP with MW EU data: Upstream (VK) import reference values for selected wood product groups.
- BPGTR-ctg-mix - DE data: reference values of wood product groups (BPG) on the target country market in the European Union, taking into account domestic production (EPTR-CoC) and imports (IMP with VK) as values from the cradle to the market (cm).
- BPGTR-ctg-mix - AT data: reference values of wood product groups (BPG) on the target country market in the European Union, taking into account own production (EPTR-CoC) and imports (IMP with VK) as values from the cradle to the market (cm).
- BPGTR-ctg-mix - IT data: reference values of wood product groups (BPG) on the target country market in the European Union, taking into account own production (EPTR-CoC) and imports (IMP with VK) as values from the cradle to the market (cm).
- BPGTR-ctg-mix - Data SL: reference values of wood product groups (BPG) on the market of the target country in the European Union, taking into account domestic production (EPTR-CoC) and imports (IMP with VK) as values from the cradle to the market (cm).
- BPGTR-ctg-mix - LU data: reference values of wood product groups (BPG) on the target country market in the European Union, taking into account own production (EPTR-CoC) and imports (IMP with VK) as values from the cradle to the market (cm).
- BPGTR-ctg-mix - FR data: reference values of wood product groups (BPG) on the target country market in the European Union, taking into account own production (EPTR-CoC) and imports (IMP with VK) as values from the cradle to the market (cm).
- BPGTR-ctg-mix - SWE data: reference values of wood product groups (BPG) on the target country market in the European Union, taking into account own production (EPTR-CoC) and imports (IMP with VK) as values from the cradle to the market (cm).

- BPGTR-ctg-mix - MW-EU data: reference values of wood product groups (BPG) on the target country market in the European Union, taking into account own production (EPTR-CoC) and imports (IMP with VK) as cradle-to-market (ctm) values.
- BPGTR-ctc-mix - DE data: Reference values of wood product groups (BPG) for the customer / construction site in the country of destination in the European Union as values from the cradle to the customer (ctc).
- BPGTR-ctc-mix - AT data: reference values of wood product groups (BPG) to the customer / construction site of the target country in the European Union as values from the cradle to the customer (ctc).
- BPGTR-ctc-mix - IT data: Reference values of wood product groups (BPG) for the customer / construction site of the country of destination in the European Union as values from the cradle to the customer (ctc).
- BPGTR-ctc-mix - Data SL: Reference values of wood product groups (BPG) for the customer / construction site in the country of destination in the European Union as values from the cradle to the customer (ctc).
- BPGTR-ctc-mix - LU data: reference values of wood product groups (BPG) to the customer / construction site of the target country in the European Union as values from the cradle to the customer (ctc).
- BPGTR-ctc-mix - FR data: Reference values of wood product groups (BPG) to the customer / construction site of the target country in the European Union as values from the cradle to the customer (ctc).
- BPGTR-ctc-mix - SWE data: Reference values of wood product groups (BPGs) for the customer / construction site in the country of destination in the European Union as values from the cradle to the customer (ctc).
- BPGTR-ctc-mix - MW-EU data: reference values of wood product groups (BPG) for the customer / construction site of the target country in the European Union as values from the cradle to the customer (ctc).
- CO₂ savings through HVH products compared to generic data for average products (benchmark values).
- conversion factors.
- Prices of LCT certificates
- Overlapping flows of goods Foreign trade DE

production

- Production - wood building materials, wood products, production steps (in preparation)
- CO₂ emissions in the production of wood building materials and materials (in preparation)

Country profiles - primarily - for woody hotspot regions

- Country Profile Malaysia
- Indonesia country profile
- China country profile
- Country Profile Vietnam
- India country profile
- Myanmar country profile
- Country profile Russia
- Brazil country profile

- Congo country profile

A-4 / Phase of use of attached documents HVH / LCT

use phase products

- use phase data
- Lambda UR values

use the construction phase

- Red energy building

A-5 / Attached documents HVH / LCT subsequent use

Subsequent use of product groups

- Post-use data and use of end-of-life wood building materials (for comparison)
- Post-use data and use of end-of-life PVC construction materials (for comparison)
- Post-use data and use of end-of-life metal building materials (for comparison)

A-6 / HVH / LCT documents on product groups and buildings

Products

- BIZ numbers in wood and wood products
- Hazardous substances in construction products (REACH risk factor)
- raw materials in construction products
- REACH risk for wood product groups versus metal and plastic product groups (for comparison)

Product group profiles

- Product group in profiled wood
- Product group profile wood panels
- NaWaRo Insulation Product Group Profile
- Product group for wooden facades with profile
- Wood flooring with product group profile

construction data

- construction data

A-7 / HVH / LCT documents on classical life cycle assessments

- Overview of Life Cycle Assessment Data of Wood Building Materials from EPD
- LCA data in general

- Weaknesses of classic EPD

Annex A-8 / HVH / LCT documents bioenergy

List Energy - Bioenergy

- Non-renewable electricity sector (data, factors)
- Non-renewable heat sector (data, factors)
- Non-renewable fuels (data, factors)
- Renewable electricity sector (data, factors)
- Renewable heat sector (data, factors)
- Renewable fuels (data, factors)
- Net reduction of emissions for the electricity sector (RED)
- Net emissions avoided for the heating sector (RED)
- Emission factors of upstream conventional fuel chains (RED)
- Emission factors of upstream biofuel chains (RED)
- Emission factors of upstream solid biomass chains (RED)
- Generic data for energy biomass cultivation (RED "cee")
- Energy biomass for generic data processing (RED "ep")
- Generic Data Transport Guardrails Energy Biomass (RED)

Other lists and information

A-9 / HVH / LCT Various

The latest white papers

- "Raw materials for wood products: climate and environmental considerations on the origin of raw materials" (iB 2022)
- "Raw materials for aluminum products: climatic and environmental considerations on the origin of raw materials" (iB 2022)
- "Raw materials for plastic products: climatic and environmental considerations on the origin of raw materials" (iB 2022)
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