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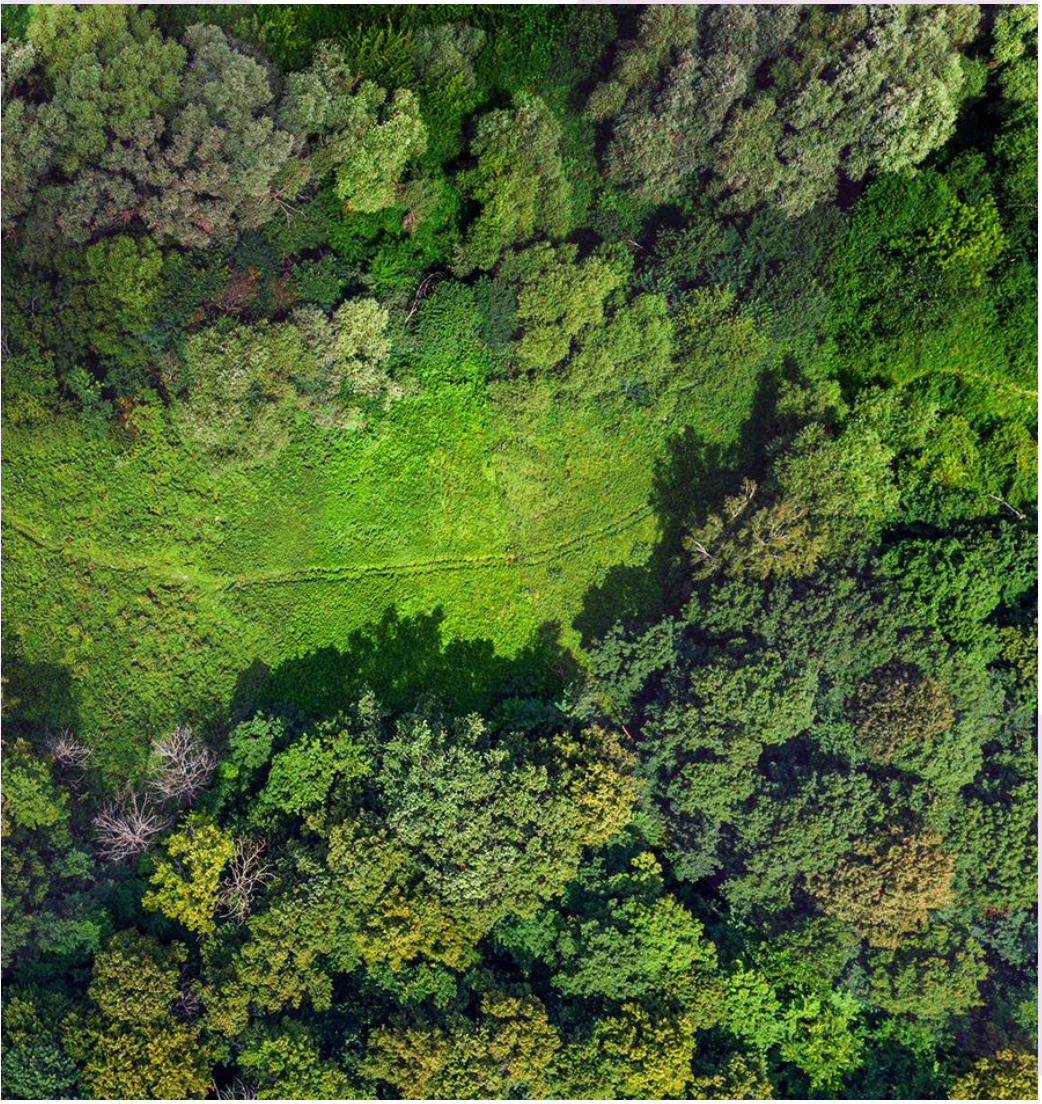
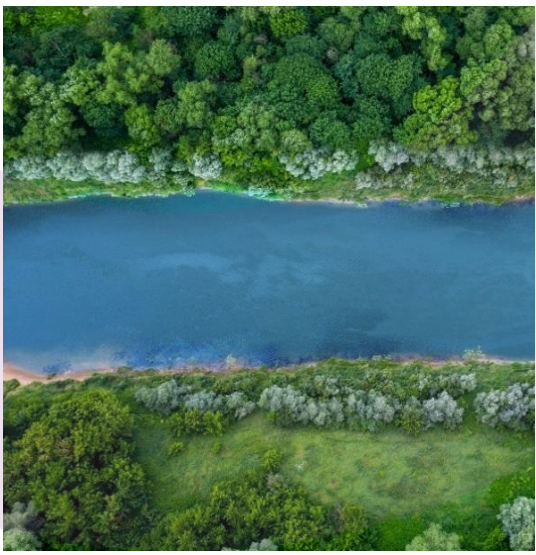
European Commission (DG ENV)

Service contract on EU policy on forest products and deforestation

Task 3 - Impact assessment on demand-side measures to address deforestation

Final report





Wood E&IS GmbH – November 2021

Report for

DG Environment
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5	Revised final report (i4)	06/9/2021
6	Revised final report (i5)	15/10/2021
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Abstract

Forests are being cut and degraded at an alarming rate, with the expansion of agricultural land as a main driver. The EU plays a significant role in global deforestation and forest degradation through the consumption of certain commodities. This report recommends the implementation of a mandatory due diligence system ensuring that commodities and derived products under scope and placed on the EU market do not come from supply chains associated with deforestation and forest degradation alongside a benchmarking mechanism to support the identification of levels of risk for specific countries and commodities. This report provides an EU-wide definition for 'deforestation-free supply chains', based on the one used by the FAO and the Accountability Framework Initiative, while capturing the needs of the EU intervention. The due diligence system would apply to some bulk commodities with significant consensus in the literature and among stakeholders (palm oil, beef, cocoa, coffee, soy, and wood), as well as products that contain the commodity as an ingredient and products requiring the commodity in their production. This report provides estimates of the costs and benefits of implementing the due diligence system and benchmarking.

Executive summary

Wood E&IS GmbH, Trinomics, Ricardo Energy and Environment, Wageningen University and Research and UNEP-WCMC are pleased to present this report to the European Commission. It constitutes the Final Report of the study 'EU policy on forest products and deforestation', undertaken under the broader contract " Economic analysis of environmental policies and analytical support in the context of Better Regulation" (Framework Contract No. ENV/F1/FRA/2019/0001).

As noted by the United Nations Environment Programme, forests cover one third of the earth's land mass, performing vital functions and supporting the livelihoods of 1.6 billion people. They are home to more than half of the world's land-based species of animals, plants and insects, assist in combatting climate change, reduce the impacts of storms and floods and by feeding rivers supply drinking water for nearly half of the world's largest cities. Forests also provide shelter, jobs and security for forest-dependent populations.

However, forests are also under threat and being cut and degraded at an alarming rate. The main driver of deforestation and forest degradation is the expansion of agricultural land, which is in turn driven by the global demand for products such as soy, cattle, palm oil, and wood products. It is apparent that the EU plays a significant role in global deforestation and forest degradation through the consumption of these types of products and the current legislative framework is not sufficient/adequate to mitigate or solve the problem of EU-driven deforestation.

Without further action, it is expected that deforestation will continue, at rates that are incompatible with international objectives, including the objectives of the Paris Agreement of keeping global temperature rise below 1.5-2 C and the objectives and commitments under the Convention on Biological Diversity. The baseline calculated by the project team estimated that annual embodied deforestation (in EU consumption) was 230kha, on average, in the past decade. This is expected to reach 250kha per year, on average, in the coming decade. Total (cumulated) embodied emissions associated with deforestation range between 1,022 $MtCO_2$ and 1,103 $MtCO_2$ in 2009-2019 and 2020-2030, respectively. These results are linked to EU imports of beef, soy, palm oil, wood products, cocoa, and coffee. See the main report for further information on how the baseline was calculated and the limitations to the data.

Given the abovementioned problems, this study looked to examine the potential impacts of policy options and measures contained therein addressing additional demand-side regulatory and non-regulatory measures in order to increase supply chain transparency and minimise the risk of deforestation and forest degradation associated with products placed on the EU market. Three general and four specific objectives that these options and measures should achieve were identified and are summarised in the table below.

Category of objectives	Description
General objectives	• To reduce global deforestation, GHG emissions and biodiversity loss • Minimise the EU's contribution to deforestation and forest degradation worldwide thus reducing the EU contribution to GHG emissions and global biodiversity loss. • Promote sustainable consumption and production patterns in the EU
Specific objectives	• Replacing consumption of products that contribute to forest degradation and deforestation by products from deforestation-free supply chains. • Replace the demand in the EU for unsustainable and deforestation linked supply chains with sustainable products and 'deforestation free' supply chains Raising awareness among the public of the impact of demand for some commodities and products on deforestation and forest degradation. • Incentivise financial and economic investors to consider deforestation in their investment decisions. • Facilitate the trade of legal and sustainable commodities and products.

The methodology applied in this study can be summarised as:

- Evidence gathering through a range of means including literature review, involvement of experts, and through consultation of stakeholders, i.e., an online public consultation with nearly 1.3 million responses as well as targeted interviews.
- Identification of the baseline – identifying the trajectory of deforestation and forest degradation related to EU consumption based on existing policies and market mechanisms. A bespoke quantitative model was developed using trade data from Eurostat and the United Nations alongside deforestation data from the United Nations and other existing literature and datasets.
- Identifying a long-list and subsequently and shortlist of measures – identifying a long list of measures that could be applied to achieve the objectives identified above, that was then short-listed through discussion with the European Commission. The short-listed measures were subject to the detailed assessment included in this study.
- Modelling economic impacts of measures, most notably in respect to costs of compliance and administrative costs.
- Modelling social impacts of measures.
- Modelling environmental impacts of measures including environmental externalities avoided through the application of the shortlisted measures.

This report assumes the following:

- The data provided in Eurostat, COMTRADE, by the FAO and in the other sources referenced are accurate in terms of reported values. A sense check was performed using the results of other similar studies to minimise the risk of errors.
- Different measures are related to different outcomes: as such, the range of ambition is reflected in the variation in the types of measures deployed.

The key results of the assessment can be summarised as:

- There are several strong arguments in favour of EU action including the need for the EU to more effectively contribute to meeting UN Sustainable Development Goals, the importance of promoting more sustainable and deforestation-free value chains, and additionally the need to raise awareness of deforestation-free consumption within the EU through collective and focused action. Furthermore, national actions are being taken at the Member State level, leading to a possible lack of harmonisation in tackling a global problem and legislative fragmentation. Indeed, some Member States have started to adopt legislation and strategies to tackle deforestation associated with their consumption. The protection of the internal market justifies action at EU level.
- An EU wide definition of 'deforestation free' needs to be applied. This report recommends a definition based on the one used by the FAO in the Forest Resource Assessment (FRA) and is closely related to the Accountability Framework initiative 'no-deforestation' definition, but with some additional elements to better capture the needs of the EU intervention. The FAO definition is modified in two main ways: one, restricting to natural forests with the intention to ensure that natural forest cannot be replaced with a plantation, and secondly, it also covers forest degradation.
- Measures should apply to a **selection of bulk commodities** (commodities in raw form, e.g., wood, palm oil, soy, etc.) that are causing deforestation and/or forest degradation, and also to the **derived products from these commodities**: these include products that contain the commodity as an

ingredient (e.g., biscuit containing cocoa) and products requiring the commodity in their production (e.g., livestock fed with soy).

- The scope of action should **be progressive**. A progressive scope allows to address issues such as the risk of leakage or rebound, to accommodate changes in consumption patterns in the EU and to address future new knowledge or technological developments in relation to deforestation and forest degradation.

- Despite a lack of comprehensive scientific research on the role of commodities and deforestation and/or forest degradation, there is apparent consensus in the literature supported by most stakeholders that the following commodities could be considered for the measures: **palm oil, beef, cocoa, coffee, soy, and wood**. Note that commodities that were not identified as part of this literature are not proposed as part of the scope in this study.

- A mechanism should be put in place where operators are responsible for identifying whether their products are derived from a commodity within the scope whilst ensuring that for products that cannot contain the commodities concerned operators are not unnecessarily tasked with burdens with no added value. An approach targeting all products derived from the commodities in their ingredients would ensure that all the considered commodities are covered.

- Based on a long list of 17 measures and the assessment of five policy options the most favourable intervention involves the application of a mandatory due diligence system ensuring that commodities and derived products under scope and placed on the EU market do not come from supply chains associated with deforestation and forest degradation alongside a benchmarking mechanism to support the identification of levels of risk in specific countries and for specific commodities. This could avoid at least 111 kha of annual deforestation in 2030, contributing to reduce greenhouse gas emissions by 49Mt CO_2 emissions per year in 2030 - equivalent to €4.9 billion. The implementation of the option would also lead to improvements to soil, water, air quality and biodiversity.

- Costs of implementing the most favourable intervention for operators will range from €125 million to €1,693 million. Costs for Member States to implement the new requirements would be €18 million for all Member States and all commodities per year (average of €670,000 per Member State).

- Demand side measures such as the one recommended in this report are only one aspect of a successful intervention to address deforestation and forest degradation. The preferred option should be accompanied with other measures identified in the Commission Communication on Stepping up EU Action to Protect and Restore the World's Forests, in particular by working in partnership with producer countries to address the root causes of deforestation at source.

Contents

List of abbreviations

Abbreviation	Full term
ADP	Amsterdam Declarations Partnership
AFi	Accountability Framework Initiative
AGB	Aboveground Biomass Carbon
BAU	Business as usual
BHRC	Business and Human Rights Resource Centre
BRT	Better Regulation Toolbox
CA	Custom Authorities
CAGR	Compound annual growth rate
CAP	Common Agricultural Policy
CBD	Convention on Biological Diversity
CEN	European Committee for Standardisation
CETA	Comprehensive Economic and Trade Agreement
CITIES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CN	Combined Nomenclature
COFO	Committee on Forestry
COMEXT	Eurostat reference database for international trade in goods
COMTRADE	United Nations International Trade Statistics Database
COP	Conference of the Parties
CSA	Canadian Standard Association
DD	Due Diligence
DDS	Due Diligence System
DETER	Deforestation Detection and monitoring system Landsat satellite imagery; Terra-I (CIAT
ECA	European Court of Auditors
EEAS	European External Action Service
EFCA	European Fisheries Control Agency
EFSA	European Food Safety Authority
EMSA	European Maritime Safety Agency
EP	European Parliament

Abbreviation	Full term
EPBD	Energy Performance of Buildings Directive
EPREL	European Product Database for Energy Labelling
ESA	European Space Agency
ESPO	European Sustainable Palm Oil
ETS	Emission Trading System
EU	European Union
EUTR	European Union Timber Regulation
FAO	Food and Agriculture Organisation
FAR	First Assessment Report
FATF	Financial Action Task Force
FC	Fitness Check
FCPF	Forest Carbon Partnership Facility
FEFAC	The European Feed Manufacturers' Federation
FFB	Fresh Fruit Bunch
FLGT	Forest Law Enforcement, Governance and Trade
FPIC	Free, prior and informed consent
FRA	Forest Resource Assessment
FRC	Forest Risk Commodities
FRONTEX	European Border and Coast Guard Agency
FSC	Forest Stewardship Council
FTA	Free Trade Agreements
FTE	Full-time equivalent
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Products
GFW	Global Forest Watch
GHG	Greenhouse Gas
GIS	Geographic Information System
GMO	General Modified Organism
GRAS	Global Risk Assessment Services

Abbreviation	Full term
GSP	Generalised System of Preferences
HCS	High Carbon Stock
HCSA	High Carbon Stock Approach
HCV	High Conservation Value
HS	Harmonized System
IAA	Inception Impact Assessment
IDP	Internally Displaced People
IDR	Indonesian rupiah
ILO	International Labour Office
IMF	International Monetary Fund
IPCC	International Panel on Climate Change
ISCC	International Sustainability and Carbon Certification
ISO	International Organization for Standardization
ISPO	Indonesian Sustainable Palm Oil
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unreported and Unregulated
JA-ZDC	Jurisdictional Approach to Zero Deforestation Commodities
LULC	Land Use Land Cover
LULUCF	Land use and forestry regulation
MRL	Maximum Residue Levels
MS	Member States
MSPO	Malaysian Sustainable Palm Oil
MTCC	Malaysian Timber certification Council
NFRD	Non-financial Reporting Directive
NGO	Non-governmental Organisation
NGP	New Generation Plantations
NICFI	Norway International Climate and Forest Initiative
NYDF	New York Declaration on Forests
OPC	Open Public Consultation
PAL	Precautionary Allergen Labelling

Abbreviation	Full term
PEF/OEF	Product and Organisation Environmental Footprint
PEFC	Programme for the Endorsement of Forest Certification
PM	Particulate Matter
RCI	Red List of threatened species Index
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RED	Renewable Energy Directive
REDD+	Reducing Emissions from Deforestation and forest Degradation
RTRS	Round Table on Responsible Soy Association
RTSPO	Round Table on Sustainable Palm Oil
SDG	Sustainable Development Goals
SEPAL	System for Earth Observation Data Access, Processing and Analysis for Land Monitoring
SFM	Sustainable Forest Management
SME	Small and Medium Enterprise
SOC	Soil Organic Carbon
SVLK	Indonesian Timber Legality Assurance System
TBT	Technical Barriers to Trade
TFEU	Treaty on the Functioning of the European Union
TFFA	Trade Facilitation and Trade Enforcement Act
TLAS	Timber Legality Assurance System
TRASE	Transparency for Sustainable Economies
TSD	Trade and Sustainable Development
UNCTAD	United Nations Conference on Trade and Development
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
UNSPF	United Nations Strategic Plan for Forests
VGGT	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security
VPA	Voluntary Partnership Agreement
VSS	Voluntary Standard System
WFC	World Forestry Congress
WTO	World Trade Organisation

Abbreviation	Full term
WWF	World Wide Fund for Nature

1. Introduction

Trinomics, Wood E&IS GmbH, Ricardo Energy and Environment, Wageningen University & Research and Tyrsky are pleased to present this report to the European Commission. This **report** is the Final Report of the study on '*EU policy on forest products and deforestation*'.

1.1 Objectives of the report

The objective of this report is to identify and assess potential additional demand-side regulatory and non-regulatory measures in order to increase supply chain transparency and minimise the risk of deforestation and forest degradation associated with products placed on the EU market. The report presents final findings on problems and drivers of forest loss and degradation, identifies objectives to tackle these issues at EU level and describes and analyses several policy options and their impacts in addressing deforestation and forest degradation.

1.2 Structure of the report

The report is organised as follows:

- Chapter 1: This introduction.
- Chapter 2: Overview of approach.
- Chapter 3: Political and legal context.
- Chapter 4: What is the problem and why is it a problem?
- Chapter 5: Why should the EU act?
- Chapter 6: What should be achieved?
- Chapter 7: What are the various options to achieve the objectives, including the baseline?
- Chapter 8: What are the impacts of the different policy options and who will be affected?
- Chapter 9: How do the options compare?
- Chapter 10: The preferred option.
- Chapter 11: How would the actual impacts be monitored and evaluated?

2. Approach to the analysis

This section aims to provide a high-level overview of the approach taken to carry out this assignment, including key steps undertaken. More detailed descriptions of the methodologies, and their potential limitations, are presented in each of the following chapters, where relevant.

The methodology was designed to meet the requirements of the Better Regulation Guidelines[1] and provide the European Commission with timely evidence collection, stakeholder engagement and analysis of information gathered. The main steps have been:

- Collection of data through an extensive literature review.
- Complementing and validating the information through consultation activities, namely:
  - Feedback to the Inception Impact Assessment.
  - An online public consultation (OPC).
  - Targeted interviews.
  - Stakeholder meetings, through the expert group/multi-stakeholder platform on Protecting and Restoring the World's Forests, including the EUTR/FLEGT expert groups.
- Analysis and comparison of the policy options.

2.1 Literature review

A literature review was performed as part of the data collection and to provide a solid background to the study.

The literature review started with the identification of 'information and data' needs for the overall project along with the identification of relevant data sources. The literature review included materials from a wide range of stakeholders, including industry, government, researchers, and non-governmental organisations (NGOs). Key data sources included existing policy reports from the European Commission and other public bodies; academic papers; techno-scientific publications; databases, in particular data from COMTRADE, COMEXT and EUROSTAT to support the quantitative assessment; and other grey literature, such as position papers and press releases.

The identified literature was subject to a preliminary screening that determined the availability and reliability of information. A final list of relevant references was then identified, allowing a critical assessment of the information gathered. The detailed review of the literature allowed the identification of potential gaps, contradictory statements, and additional questions that were then discussed with the European Commission and during the consultation activities.

[1] https://ec.europa.eu/info/sites/default/files/file_import/better-regulation-toolbox-12_en_0.pdf

2.2 Consultation activities

Several consultation activities were carried out throughout the project and are briefly described below. Note that further details for each of these activities are presented in the consultation synopsis report and its annexes[2]. Stakeholder consultation results have been systematically integrated into the study.

2.2.1 Feedback on the inception impact assessment (IIA)

The public consultation on the inception impact assessment, was open for comments from the 5th February 2020 to 4th March 2020.[3] A total of 99 responses were submitted through the online portal and the categories of these respondents are shown in Figure 2.1. There were respondents from 22 countries, most of which were EU Member States.

Figure 2.1 Overview of categories of respondents (N=99)

A general assessment of the responses is that an EU action, seeking to minimise the EU's contribution to deforestation and forest degradation worldwide and promote the consumption of products from deforestation-free supply chains in the EU would be very welcome. In general, there was a strong preference for legal, binding regulatory action with many respondents also reporting their support of non-regulatory measures and voluntary actions to complement such regulatory action. A broad overview of the themes identified are presented in Table 2.1.

Table 2.1 Summary of the main issues to be addressed according to the respondents and number of times the issues were mentioned

Themes identified	Number of respondents who mentioned the issue
Opinion about EU action	• 87 responses supported EU action. • 11 responses were unclear on their support to EU action. • No responses were against EU action.
Views on regulatory measures	• 63 responses supported regulatory measures. • 34 responses were unclear on their support to regulatory measures

[2] The consultation synopsis report is presented in a separate deliverable

[3] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12137-Deforestation-and-forest-degradation-reducing-the-impact-of-products-placed-on-the-EU-market

Themes identified	Number of respondents who mentioned the issue
	• 2 responses did not support regulatory measures.
Included possible regulatory measures	• 65 responses proposed regulatory measures. • 31 responses recommended against regulatory measures.
Views on non-regulatory measures	• 62 responses supported non-regulatory measures. • 9 responses were unclear on their support. • No responses did not support non-regulatory measures.
Included possible non-regulatory measures	• 71 responses proposed non-regulatory measures
Discussion of definitions for 'deforestation-free' supply chains	• 9 responses discussed definitions.

The following analysis includes both an analysis of comments as well as the position papers submitted.

A **due diligence obligation (preferably mandatory) on companies** was suggested by most respondents as a regulatory measure, to be complemented with a/several voluntary or non-binding, non-regulatory measure(s). Many respondents reported that compliance with new requirements should apply to both companies as well as the **financial sector**. Independent, third-party monitoring systems would be required.

That **voluntary commitments have been ineffective and are not sufficient by themselves**, was widely regarded amongst respondents. However, the ability for non-regulatory measures to **complement any binding regulation** put in place, was widely considered to be feasible and supported. **Citizens should not bear the burden of achieving deforestation-free supply chains** if certification schemes were used as a sole option.

Other non-regulatory approaches suggested by respondents included the support for alternative products consumption and production; education and awareness campaigns; and the promotion of sustainable standards and existing voluntary certifications (including improving their verification processes and harmonising these, where possible, such as through third-party verification). The component of EU consumption affecting global deforestation needs to be addressed. At the same time, innovation in the agricultural sector shall be supported.

Partnership agreements and co-operation with third countries at producer level was highlighted as essential by many respondents. **Public-private sector agreements** and the promotion of sustainable forest and land governance in producer countries should be promoted.

Respondents reported on a range of **sustainability criteria** to be included in any measure and definition. Many responses reported **human rights** should be included, and supply-chains should incorporate the rights of local populations and indigenous people, as well as secure ownership and tenure rights. In addition to forests, other **ecosystems**, should also be included in the measures.

Compliance with **World Trade Organisation (WTO) rules and a level playing field** was supported, and regulatory measures should apply to producing countries both within and outside the EU.

On the definition for 'deforestation-free' supply chains, fewer respondents made specific comments, and those broadly supported using existing definitions rather than relying on new sustainability criteria.

2.2.2 Online public consultation

A 14-week online public consultation was carried out on between 3rd September 2020 and 10th December 2020. The online public consultation questionnaire was broken into two parts, one general and one specific

questionnaire, with questions directed at expert stakeholders. The consultation was translated in all EU languages.

In total, 1,194,761 public responses were obtained during the consultation period. This number was driven to a large extent by a campaign carried out by a group of NGOs[4] using pre-filled questionnaires. Of the 1,194,761 responses, 1,193,611 responses have been identified by the European Commission as submitted through the campaign, using a methodology known as "key-collision clustering algorithm". The content of the pre-filled questionnaire submitted as part of the campaign can be consulted online[5]. This makes this consultation the second most popular in the history of EU open public consultations.

Key messages from the campaign responses

The bullet points below present some of the key messages from the campaign #Together4Forests responses:

- All commodities listed in the questionnaire were deemed to be relevant for EU legislation in the prevention of deforestation and forest degradation.
- The finance sector was also highlighted as playing a role in deforestation and forest degradation.
- The "absence of sound policies at the EU level that minimise the contribution to deforestation and forest degradation" was highlighted as being the main problem leading to deforestation and forest degradation.
- The campaign stated that the responsibility to tackle the loss of forests and ecosystems cannot be left to consumers alone due to the scale of the issue.
- It was indicated that a large number of products including all (or nearly all) that have a potential impact on deforestation should be covered by the future EU policy measures.
- The importance of ensuring that human rights violations do not occur was highlighted.
- It was highlighted that beyond forests being, also savannahs, grasslands, peatlands, wetlands, and other valuable ecosystems are being destroyed due to our consumption habits. This is damaging to local communities and indigenous populations.
- The most suitable measures identified in the campaign to address the issue of deforestation and forest degradation associated with EU consumption were as "a deforestation-free requirement or standard that commodities or products in their product category must comply with to be placed on the EU market", "voluntary labelling", "mandatory labelling", "voluntary due diligence", and "mandatory due diligence".

Key messages from other respondents

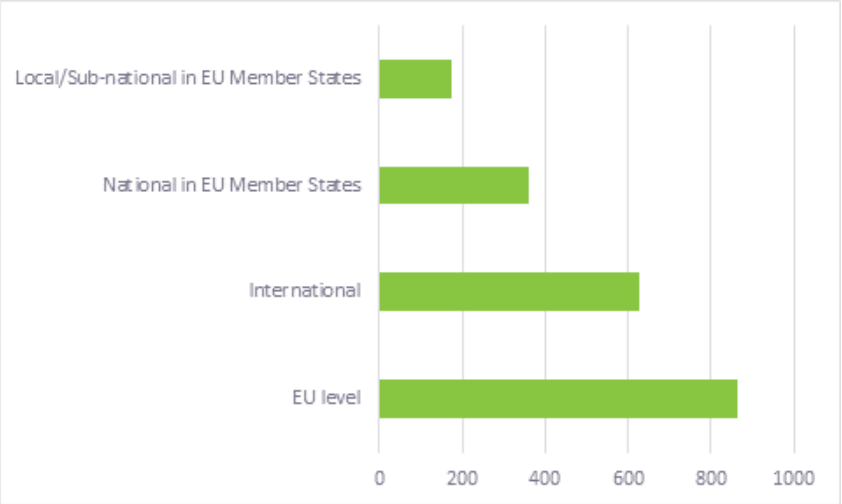
1,150 additional responses to the OPC were submitted from other respondents than the campaign. Of these, 816 (71%) filled in the questionnaire as EU citizens, 80 (7%) as non-governmental organisations, 67 (6%) as company/business organisations, 49 (4%) as business associations, 42 (4%) as non-EU citizens, 37 (3%) as academic/research institutions, 11 (1%) as public authorities, 11 (1%) as environmental organisations, 4 (<1%) as trade unions and 31 (3%) as other.

Key points from the OPC analysis include:

[4] https://together4forests.eu/about
[5] https://together4forests.eu/news-resources/answers

- As Figure 2.2 shows, respondents consider the EU to be best suited for taking action to address deforestation and/or forest degradation. Action taken at international level is regarded as the next best alternative.

Figure 2.2 Views from respondents on level best suited to take action



- The majority of companies and business organisations consider the deforestation and forest degradation impacts of their organisation's business decisions "very often" (55% N = 61), with less considering these impacts "often" (26% N = 61).
- There was strong support (88% N = 1,150) for tackling through EU measures the issue of sustainability related to the origin of products. Here sustainability refers to the products' compliance with EU-determined requirements related to forestry and land-use change based on an EU definition of "deforestation-free".
- Leakage (the unintended risk of transferring production activities to other regions with less stringent rules) was identified as a potential issue (23% N = 1,150); however, responses were mixed on the issue with many respondents (27% N = 1,150) not knowing the extent to which the measures could have unintended impacts of increasing damage to other ecosystems.
- "Animal-based food and non-food sector" and "plant-based food and feed sector" are deemed to be the highest contributors (respectively 72% and 66% of all respondents) to deforestation and forest degradation via the goods and services they provide on the EU market.
- On the scope of the EU intervention, there was more support for a large scope encompassing a large number of products including all (or nearly all) that have a potential to be linked to deforestation and forest degradation (72% N = 1,150). A significantly lower share of respondents (24% N = 1,150) would support a smaller scope of the EU intervention with a reduced number of products. There was support for a deforestation-free requirement or standard, that commodities or products must comply with, to be placed on the EU market, public national certification schemes, voluntary due diligence, mandatory due diligence, a mandatory public certification system and private certification systems already in place in the EU market than other options. As such binding measures have received high and similar levels of support.
- Conversely, voluntary measures have received the lowest rates of support, in particular voluntary due diligence, private certification and voluntary labelling.

- The biggest obstacle identified for effectively implementing deforestation-free supply chains in companies was that "deforestation-free products are more expensive".
- Public authorities respondents associated public national certification schemes, a mandatory public certification system and development and cooperation assistance to producing countries with the highest costs.
- A majority of businesses support EU measures as they could reduce unfair competition from competitors that do not care about deforestation-free supply chains.
- For third countries, it can be seen that most measures proposed in the questionnaire have an overall positive response. However, the least supported measures are voluntary labelling, voluntary due diligence and private certification systems already in place in the EU market.
- All respondents believe there is a way to encourage companies and suppliers to "clean" their supply chains not just for their sales in the EU market but also for other markets, preventing supply chain divergence.

2.2.3 Stakeholder meetings

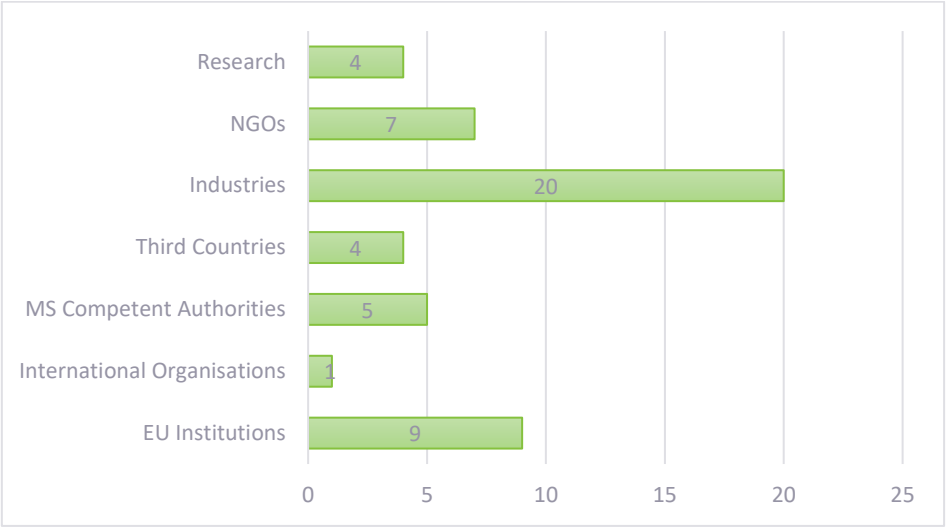
A series of stakeholder meetings took place virtually, during the Multi-Stakeholder Platform on Protecting and Restoring the World's Forests. The aim of these meetings was to gather further information on some of the key challenges encountered in the project and they also provided the opportunity to elaborate upon emerging findings. A first series of meetings took place on the 1 October and 2 October 2020. A second series of meetings took place on 24 and 25 February 2021.

In all meetings, attendees had the opportunity to ask questions and provide feedback.

2.2.4 Targeted interviews

Interviews were carried out to complement the outcome from the online public consultation. Initially, it was agreed that the project team would carry out a total of 25 individual interviews with stakeholders. However, given the high engagement of stakeholders in the field, the project team carried out 8 focus groups, 19 individual interviews and received 4 additional written responses to the interview questionnaire - covering 50 entities or organisations and 92 individuals. The following stakeholder categories were involved in the interviews.

Figure 2.3 Groups of participants by stakeholder type for the targeted interviews



Source: own analysis of groups of participants for targeted interviews.

2.3 Analysis

Triangulation of primary (consultation) and secondary (literature) data was carried out in order to validate the research, through the use of a variety of methods to collect data, with different types of samples and different methods of data collection, with the aim to cross-validate data as well as capture different dimensions on a same topic.

One important step was to compare data gathered (in particular from databases such as COMTRADE, COMEXT, Eurostat, and extracted from literature review), perceptions (from interviews and stakeholder meetings), observations (from the online public consultation) and documentation (written evidence from the literature), using transversal analysis and expert judgement. We reviewed the feedback received and cross-referenced responses collected from various engagement methods in order to validate, assess their quality and identify any possible trends and patterns or highlight inconsistencies. As part of this step, we kept in mind the possibility for bias to be included into some of the evidence base, in particular from public and expert consultations.

2.3.1 Limitations of the approach

The strength of an impact assessment is linked to the robustness of the evidence that has been gathered. Information on robustness of evidence is included under each relevant section, in addition the following general comments on the limitations are important to note:

- The report has been prepared over a limited time period and to a defined budget requiring a simplified approach and proxies and assumptions to being used when data was not available. These are clearly and transparently explained throughout the report.
- Data on trade of commodities have been in some instance challenging to collate and compare. Data have been extracted based on a list of HS/CN codes covering the bulk commodities under scope (see Section 7). The same HS/CN codes have been used as basis for the calculation of the baseline. However, while the import data in the scoping section focuses on non-EU countries (in order to inform the scope with the global trade perspectives), the baseline, which looks at how the situation will evolve without further legislative action, includes data for EU Member States (in terms of imports, as well as production). While this means that there is a risk of

double counting some imports (in the COMEXT data) this also means that commodities placed on the EU market by EU countries are accounted for. The latter was deemed more important by the team for the overall accuracy of our results. There are challenges in interpreting views from stakeholders when weighed against hard evidence in contrast to such opinions. Where differences have been encountered the approach taken to assessing impacts is further explained.

- Determining the impacts of prohibiting placing on the EU market from the EU is not straightforward due to the multiple supply chains and specifics of commodities and associated products considered. We have presented the possible outcomes in a general way, noting that a mix of impacts would likely occur depending on the commodities and products considered.

3. Political and legal context

This chapter presents the current political and legal context in which the initiative is being brought forward.

A broad understanding of the wider context is of particular relevance as this assignment only covers potential EU demand-side measures[6]. As such, it only represents one of many tools that can be deployed at EU (and other) level(s), to address the challenges of deforestation and forest degradation. The actions and outcomes of other policies, in particular those focused on the supply side must be considered as part of a wider range of policy instruments that help meet the overarching aim of reducing deforestation and forest degradation worldwide.

The table below presents the key information relevant when considering the political and legal context.

Table 3.1 Key takeaways

Political and legal context	Findings
At international level	• Agenda 2030 and the Sustainable Development Goals provide a relevant framework for this initiative. Most international initiatives emanate from the United Nations, with key instrument such as the UNFCCC and it's Paris Agreement linked to initiatives such as the REDD+ on reducing emissions from deforestation and forest degradation or the Convention on Biologic Diversity as well as the UN Forum on Forest. The World Forestry Congress is another relevant international venue for discussions. • Compliance with WTO rules is a critical pre-requirement for any EU intervention that would affect trade of products between EU and non-EU countries. Such rules are assumed to be applicable throughout this analysis.
At European level	• The European Commission indicated regulatory and non-regulatory measures to support deforestation-free value chains among the kay actions of the European Green Deal. • Key elements of the existing EU legal framework to address deforestation and forest degradation currently focus on the legality of trade in timber and timber products through the FLEGT Action Plan, namely the FLEGT and EUTR regulations. • Other legislation such as the RED, RED II and LULUCF are indirectly contributing to combating deforestation. • Recent or upcoming policies were initiated by the 2019 Communication on Stepping up EU Action against Deforestation and Forest Degradation, such as Forest Partnerships, an EU Observatory, the EU Taxonomy etc. In addition, DG JUST (European Commission) is working towards a sustainable corporate governance due diligence addressing human rights, environmental duty of care, etc.
At national level	• Very few EU Member States have adopted legislation to combat deforestation and forest degradation. • France adopted legislation in 2017 requiring due diligence for environmental and human rights risks throughout supply chain for larger companies[7], and published a strategy in 2018 to further reduce deforestation associated with selected commodities. • Some non-EU countries have launched initiatives: The UK is preparing legislation though its primary focus remains on the legality and it seems to be covering only a fraction of operators and focusing only on due diligence, while the US is seeking to restrict market access to commodities originated from illegally deforested land,

[6] Other supply side measure tools include for example the initiative from DG TRADE and DG INTPA on the Cocoa multi-stakeholder dialogue

[7] https://www.legifrance.gouv.fr/loda/id/JORFTEXT000034290626/

Political and legal context	Findings
	through a potential proposal covering several commodities such as palm oil, meat, etc.
Private initiatives	• Private initiatives to complement this landscape, including forest certification initiatives, agricultural commodities certification initiatives and other corporate initiatives driven by either large players in industry or NGOs.
Overall	• To date, there are no initiatives that contribute to increasing supply chain transparency across several commodity sectors and to minimising the risk of deforestation and forest degradation associated with products placed on the EU market.

3.1 European level

The sections below provide a detailed overview of the existing EU framework as well as recent or upcoming developments, which are directly or indirectly related to deforestation or forest degradation.

3.1.1 Existing EU policies and legislation

The Communication on the European Green Deal indicates that the Commission will take regulatory and non-regulatory measures to support imported products and value chains not associated with deforestation and forest degradation. Such measures will be taken in line with the new EU forestry strategy, the Common Agricultural Policy, and will be built on the Communication on Stepping up EU Action to Protect and Restore the World's Forests. Key elements of the existing EU legal framework to address deforestation and forest degradation currently focus on the legality of trade in timber/timber products, through the Forest Law Enforcement Governance and Trade (FLEGT) Action Plan, including the Forest Law Enforcement Governance and Trade (FLEGT) Regulation and the EU Timber Regulation. Other pieces of legislation address criteria that partially address some aspects related to deforestation and forest degradation, such as the Renewable Energy Directive and the LULUCF Regulation. In addition, several communications and strategies cover the issues at hand. The most relevant policies and initiatives at EU level are summarised in the table below.

The most relevant EU policy and legislation in place are summarised in Table 3.2.

Table 3.2 EU legislation and policies currently in place

Initiative	Description	(Non-)binding
The Forest Law Enforcement Governance and Trade (FLEGT) Action Plan[8]	It sets out the EU's policy to address the issue of illegal logging and associated trade, through both supply and demand-side measures. It has led to two key pieces of legislation:	Binding
	• **The EU Timber Regulation**[9] which entered into force on 3 March 2013, is a demand-side legislative instrument which prohibits placing of illegally harvested timber and timber products on the EU market, by laying down obligations on operators placing timber on the market for the first time to exercise due diligence and on traders to keep a traceable record of their suppliers and customers. The Regulation applies to both imported and domestically produced timber	Binding

[8] European Commission, Forest Law Enforcement Governance and Trade (FLEGT) Proposal for an EU Action Plan, COM(2003) 251 final, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52003DC0251&from=EN

[9] Regulation (EU) No 995/2010 of the European Parliament and of the Council of 20 October 2010. OJ L 295/23, 12.11.2010, p.1 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010R0995&from=EN

Initiative	Description	(Non-)binding
	and timber products and covers a broad range of products including solid wood products, flooring, plywood, pulp and paper[10].	
	• **The Forest Law Enforcement Governance and Trade (FLEGT) Regulation[11]** which lays down EU procedures for the implementation of a FLEGT licensing scheme through the conclusion of bilateral Voluntary Partnership Agreements (VPAs) with timber-producing countries, including a requirement for imports into the EU of timber products originating in FLEGT partner countries to be covered by a FLEGT licence. To date, Indonesia is the only country to have reached the stage of issuing FLEGT licences (since 15 November 2016), that certify the legality of timber exported to the EU. VPAs have been concluded with a further six countries (Cameroon, Central African Republic, Ghana, Liberia, Republic of Congo and Vietnam) and negotiations are ongoing with eight additional partner countries[12].	Binding
The recast Renewable Energy Directive	It sets rules and specifies targets for the EU to achieve a renewable energy target of at least 32% by 2030.[13] Article 29(3) of the RED sets 'Sustainability and greenhouse gas emissions saving criteria for biofuels, bioliquids and biomass fuels' which ensures that biofuels or biomass used comply with. The criteria included are relevant to considerations of forestry and deforestation, in particular the Directive states that biofuels, bioliquids and biomass fuels produced from agricultural biomass should not be considered as fulfilling the sustainability criteria if they have been made from raw material obtained from land with a 'high biodiversity value'. This concept of 'high biodiversity value' is further defined as covering 'primary forest and other wooded land (i.e., forest), where there is no clearly visible indication of human activity, highly biodiverse forest and other wooded land which is species-rich and no degraded or has been identified as being highly biodiverse or areas designated for nature protection purpose'[14]. Moreover article 29(4) points b and c exclude the use of agricultural biomass from continuously forested land and woodland that has been deforested since 2008, providing a specific definition for forests (land spanning more than one hectare with trees higher than five metres and a canopy cover of more than 30 %, or trees able to reach those thresholds *in situ*) and woodland (land spanning more than one hectare with trees higher than five metres and a canopy cover of between 10 % and 30 %, or trees able to reach those thresholds *in situ*).	Binding
EU LULUCF regulation[15]	The EU LULUCF regulation 2018/841 sets a binding commitment to all EU Member States to compensate accounted greenhouse gas (GHG) emissions from land use by an equivalent accounted removal of CO_2 and sets out the accounting rules for the land use, land-use change and forestry (LULUCF) sector in EU Member States for two compliance periods 2021-2025 and 2026-2030. Member States will need to	Binding

[10] https://ec.europa.eu/environment/forests/timber_regulation.htm
[11] Council Regulation (EC) No 2173/2005 of 20 December 2005, OJ L 347, 30.12.2005, p.1 https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1584107319512&uri=CELEX:02005R2173-20200101 and Commission Implementing Regulation (EC) No 1024/2008 of 17 October 2008 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008R1024
[12] https://ec.europa.eu/environment/forests/flegt.htm ; Côte d'Ivoire, Democratic Republic of the Congo, Gabon, Guyana, Honduras, Laos, Malaysia and Thailand
[13] Directive 2018/2001/EU European Commission, Renewable Energy Directive webpage. https://ec.europa.eu/energy/topics/renewable-energy/renewable-energy-directive/overview_en
[14] Article 29(3)
[15] Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU, https://eur-lex.europa.eu/eli/reg/2018/841/oj

Initiative	Description	(Non-)binding
	spatially explicit report on the emissions from deforestation. As emissions from deforestation are accounted gross-net (i.e., total emissions associated with deforestation in a given year are accounted in that year without comparison to a base year), this provides a strong incentive for preventing deforestation in EU Member States. It translates into European law the EU's nationally determined contribution under article 4 of the Paris Agreement. Since it is one of the first accounting approaches developed by Parties to Paris agreement it can potentially act as a benchmark for the ambition levels of other parties.	
The Communication on "Stepping up EU Action to Protect and Restore the World's Forests"[16]	Based on a feasibility study on options to step up EU action against deforestation that was published by the Commission in 2018[17] the Commission in July 2019 adopted a Communication on Stepping up EU Action to Protect and Restore the World's Forests, which included the commitment to explore and assess different measures to curb deforestation that is associated with the footprint of EU consumption.[18] Annex I of the Communication lists a series of actions proposed by the European Commission. The actions are: 1. Promote transparent supply chains 2. Promote deforestation free consumption (under which the demand side measure initiative fits) 3. Support sustainable land and forest use practices and forest protection 4. Support national efforts in partner countries to reduce pressure on forests 5. Push for strong commitments 6. Address deforestation and forest degradation in the trade policy 7. Support producing countries to mobilise public and private financing and ensure its effectiveness 8. Step up consideration as part of the Sustainable Finance Action Plan 9. Improve monitoring and provision of reliable information 10. Mobilise and better coordinate research and innovation This study supports the impact assessment that responds to one of the proposals listed in Annex I[19]. From this list of actions and the Communication it is clear that other initiatives from the Commission are also critical and that the EU initiative on demand side measure will only constitute a part of the bigger EU action that will lead to reduced deforestation and forest degradation.	Non-binding
The Communication on "Addressing the challenges of deforestation and forest degradation to tackle climate change and biodiversity loss"[20]	Adopted in 2008, it called for halting global forest loss by 2030 and reducing tropical deforestation at least by 50% by 2020. The Communication encouraged the development of a Global Forest Carbon Mechanism to integrate forest protection within climate change adaptation and mitigation.	Non-binding
The European Green Deal	Announced by the European Commission in December 2019, it is a new growth strategy to achieve a sustainable green transition, that commits the EU to becoming climate-neutral by 2050 whilst protecting its	

[16] European Commission, https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1565272554103&uri=CELEX:52019DC0352
[17] COWI (2018), Feasibility study on options to step up EU action against deforestation, https://ec.europa.eu/environment/forests/pdf/KH0418199ENN2.pdf.
[18] European Commission, Communication on Stepping up EU Action to Protect and Restore the World's Forests https://ec.europa.eu/environment/forests/eu_comm_2019.htm
[19] This project focuses on demand side measures as a response to one of the actions (action 2) of the Communication on Stepping up EU action. Other actions are being currently developed by the EU and are further presented in this table.
[20] European Commission, COM(2008) 645, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52008DC0645

Initiative	Description	(Non-)binding
	natural habitat to improve the well-being of people, planet and economy.[21] The EU Green Deal Communication presents a roadmap of key policies and measures to achieve the objectives of the EU Green Deal, several of which are relevant when considering deforestation and forest degradation and makes specific references to the Communication of July 2019. The Green Deal is also part of the Commission's strategy to implement the United Nation's 2030 Agenda and the Sustainable Development Goals. Key initiatives relevant to this study are:	
	• The **2030 EU Biodiversity Strategy**. Adopted by the Commission in March 2020, its key elements include establishing protected areas; restoring degraded ecosystems across Europe; unlock 20 billion EUR/year for biodiversity and place the EU in a leading position for addressing the global biodiversity crisis. The Strategy also encourages EU leadership in ensuring that a framework is adopted so that all of the world's ecosystems are restored, resilient, and adequately protected by 2050. The Strategy calls for ambitious global targets for 2030 to address the drivers of biodiversity loss, and a stronger implementation, monitoring and review process. The Strategy proposes the active use of trade policies to support the ecological transition, including better assessment of the impacts of trade agreements on biodiversity.[22]	Non-binding
	• The **Farm to Fork Initiative** adopted by the Commission in March 2020 as well aiming to make food systems fair, environmentally friendly, and healthy, including through reducing the environmental impact of the food processing and retail sectors.[23]	Non-binding
EU Taxonomy Regulation for sustainable activities	The Regulation will support the EU's climate and energy targets for 2030 and the attainment of the objectives of the EU Green Deal. The aim of the EU taxonomy is to provide definitions to assist companies, investors and policy makers in identifying environmentally sustainable activities. The EU taxonomy will be supported by an IT tool. • This initiative potentially contributes to the objectives of actions 3, 4, 9 and 10 of the EU Communication on Stepping up EU action.	Binding
The Non-financial reporting Directive (NFRD)	The NFRD describes requirements for disclosure of non-financial and diversity information by large companies[24]. The provisions cover c. 6,000 large companies located in the EU and require the disclosure of information related to environmental protection, social responsibility and treatment of employees, respect for human rights, anti-corruption and bribery and diversity of the boards. • This initiative potentially contributes to the objectives of action 9 of the EU Communication on Stepping up EU action.	Binding
European Parliament resolution	The European Parliament has recently adopted a resolution, containing a legislative recommendation to the European Commission requesting pursuant to Article 225 of the Treaty of the European Union the European Commission to submit, on the basis of Article 114(3) and Article 191 of the Treaty on the Functioning of the European Union, a	Non-binding

[21] European Commission, COM (2019) 640 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A640%3AFIN
[22] European Commission, COM (2020) 380 final https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1590574123338&uri=CELEX%3A52020DC0380
[23] European Commission, COM (2020) 381 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0381 https://ec.europa.eu/food/farm2fork_en
[24] https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting_en

Initiative	Description	(Non-)binding
	proposal for an EU legal framework to halt and reverse EU-driven global deforestation. Some of the key points from the resolution on the features that such an EU legal framework could have are presented in the box below.	
The EU Ecolabel Regulation[25]	This Regulation describes rules and requirements for the establishment and application of the voluntary EU Ecolabel scheme. Such label can be assigned based on the environmental impacts of products, allowing consumers to make informed decisions.	Non-binding

European Parliament resolution - key points

The resolution[26] includes the overall call for the Commission to "present a proposal, accompanied by an impact assessment, for an EU legal framework based on mandatory due diligence, reporting, disclosure and third party participation requirements, as well as liability and penalties in case of breaches of obligations for all companies placing for the first time on the Union market commodities entailing forest and ecosystem risks and products derived from these commodities, and access to justice and remedy for victims of breaches of these obligations; that traceability obligations should be placed on traders on the Union market, in particular regarding the identification of the origin of the commodities and products derived thereof at the moment they are placed on the Union internal market, to ensure sustainable and deforestation-free value chains, as laid down in the Annex to this resolution; emphasises that the same legal framework should also apply to all financial institutions authorised to operate in the Union that are providing money to companies that harvest, extract, produce, process or trade forest and ecosystem-risk commodities and derived products."

Additional points below extracted from the resolution provides further details on the suggested scope and details of such an EU legal framework:

- The scope of commodities to be covered should be based on objective and science-based consideration.
- The scope of the legal framework should consider the destruction and degradation of forests and high-carbon stock and biodiversity-rich ecosystems as well as the rights of indigenous people and human rights.
- The scope of such framework should be very wide and include high-carbon stock and biodiversity-rich ecosystems other than forests, such as marine and coastal ecosystems, wetlands, peatlands or savannahs.
- The EU legal framework should address the legality of the commodities but also their sustainability.
- The Commission should consider whether the current EU Timber Regulation scope could be covered in the new EU legal framework to halt and reverse EU-driven global deforestation.
- The European Parliament recommends the adoption of a rapid response mechanism at Union level to support environmental and forest defenders in the Union and worldwide.
- Third-party certification schemes alone cannot halt and reverse global deforestation and ecosystem degradation and should only be complementary to binding measures.

The European Parliament supports the creation of a forest observatory to collect data and information on deforestation in Europe.
The resolution states that the EU may negotiate VPA 'in accordance with the national law of the producing country and the environmental and human rights criteria laid out in the proposal', and that such VPAs would be based on 'national multi-stakeholder dialogues with effective and meaningful participation of all stakeholders, including civil society, indigenous peoples and local communities '. It is unclear what the negotiations would be focused on, as the content of the agreement would be dictated in the legislative proposal. On civil liability, the European Parliament states that operators should be jointly and severally liable for causing affecting human rights or damage to natural forests and ecosystems, when the harm derives from controlled or economically dependent entities. While they should be considered liable when the harm is linked to their products, services, or operations. Liability can be discharged if operators can prove that they acted with due care.

In setting definitions, including for 'deforestation free', the Commission is asked to take into account existing definitions from the Food and Agriculture Organisation of the United Nations, the European Environmental Agency, the Accountability Framework Initiative or the High Carbon Stock Approach.

[25] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02010R0066-20171114

[26] Report with recommendations to the Commission on an EU legal framework to halt and reverse EU-driven global deforestation https://www.europarl.europa.eu/doceo/document/A-9-2020-0179_EN.html

3.1.2 Upcoming EU policies and legislation

The table below presents an overview of new or upcoming initiatives in the European Union.

Table 3.3 New developments at the EU level

Initiative	Description	(Non-)binding
New EU Forest Strategy	A New EU Forest Strategy scheduled to be adopted in 2021 'will have as its key objectives effective afforestation, and forest preservation and restoration in Europe, to help to increase the absorption of CO2, reduce the incidence and extent of forest fires, and promote the bio-economy, in full respect for ecological principles favourable to biodiversity'[27].	Non-binding
Political dialogue, partnerships and support to partner countries	Since many years the EU has developed partnerships and extensively supported third countries to reduce pressures on forests and fight deforestation. The support to partner countries as part of political/policy dialogues promote the importance of forests in the EU external framework often in the context of development and builds on some of the positive outcomes reached through the implementation of previous programs such as the increase in stakeholders' participation, capacity building and cooperation. This initiative potentially contributes to the objectives of actions 1,3, and 4 of the EU Communication on Stepping up EU action.	Non-binding
EU Observatory	Annex I of the 2019 Communication calls for the establishment of an EU observatory on deforestation, forest degradation, changes in the world's forest cover and associated drivers to facilitate access to information on supply chains for public entities, consumers and businesses. Initial work on this has been initiated by the European Commission. This initiative potentially contributes to the objectives of actions 1 and 9 of the EU Communication on Stepping up EU action.	Non-binding
DG JUST on sustainable corporate governance	DG JUST is currently developing a general approach focusing on sustainable corporate governance addressing human rights, and environmental duty of care and acting upon the behaviour of companies. DG JUST initiative on corporate governance and general due diligence is complementary with the work from DG Environment on deforestation. While DG JUST approach addresses business operations, DG Environment approach is focusing on specific products and supply chains. Therefore, while general objectives might be shared, specific objectives are naturally different. This initiative potentially contributes to the objectives of actions 5 and 10 of the EU Communication on Stepping up EU action.	Non-binding (yet)
Environmental performance of products & businesses – substantiating claims	The initiative on substantiating green claims aims to make claims reliable, comparable and verifiable to aid more sustainable decisions to be made, as well as increase consumer confidence surrounding green labels and information.[28] In addition, the Commission's Circular Economy Action Plan proposes that companies substantiate environmental claims made about the environmental footprint of products/services by using EU Product and Organisation Environmental Footprint methods.[29]	Non-binding (yet)

[27] European Commission, COM (2019) 640 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A640%3AFIN
[28] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12511-Environmental-claims-based-on-environmental-footprint-methods
[29] https://ec.europa.eu/environment/circular-economy/pdf/new_circular_economy_action_plan.pdf. The Product Environmental Footprint (PEF) and the Organisation Environmental Footprint (OEF) are two methods to measure environmental performance throughout the lifecycle.

Initiative	Description	(Non-)binding
	This initiative potentially contributes to the objectives of actions 5 and 9 of the EU Communication on Stepping up EU action.	
A Fitness Check of the FLEGT Regulation (Forest Law Enforcement, Governance and Trade) and the EU Timber Regulation	The Fitness Check is in progress. The aim is to assess the measures already in place related to illegal logging. The initial results of the Fitness Check have been taken into account in particular on the analysis of the due diligence and VPAs measures. This initiative potentially contributes to the objectives of actions 1 and 2 of the EU Communication on Stepping up EU action.	Non-Binding

3.2 International level

In addition to the above EU framework, a range of international fora and processes are either directly or indirectly relevant for deforestation and forest degradation. These are mainly UN initiatives. The main ones are presented in the table below.

Table 3.4 International initiatives, instruments and agreements

Initiative	Description	(Non-)binding
The Convention on Biologic Diversity (CBD) [30]	The CBD was opened for signature in 1992 at the Earth Summit (Rio Summit) and entered into force in 1993[31]. Both the EU and Member States are parties. The Convention notes in its preamble that 'it is vital to anticipate, prevent and attack the causes of significant reduction or loss of biological diversity at source'. The main objectives of the CBD[32] can be summarised as follows: The preservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of genetic resources. The parties to the CBD have at the 10th Conference of the Parties - adopted further political commitments, the so-called **Aichi Biodiversity Targets**. These targets were set for 2020 and draft targets for 2030 are being considered. Of particular relevance to deforestation and forest degradation are[33]: • **Target 3**. By 2030, ensure active management actions to enable wild species of fauna and flora recovery and conservation, and reduce human-wildlife conflict by [X%]. • **Target 4**. By 2030, ensure that the harvesting, trade and use of wild species of fauna and flora is legal, at sustainable levels and safe. • **Target 9**: By 2030, support the productivity, sustainability and resilience of biodiversity in agricultural and other managed ecosystems through conservation and sustainable use of such ecosystems, reducing productivity gaps by at least [50%] • **Target 14**. By 2030, achieve reduction of at least [50%] in negative impacts on biodiversity by ensuring production practices and supply chains are sustainable. • **Target 15**. By 2030, eliminate unsustainable consumption patterns, ensuring people everywhere understand and appreciate the value of biodiversity, and thus make	Binding

[30] https://www.cbd.int/history/
[31] https://www.cbd.int/history/
[32] Source: https://www.cbd.int/
[33] CBD, Update of the Zero Draft of the Post-2020 Global Biodiversity Framework, https://www.cbd.int/doc/c/3064/749a/0f65ac7f9def86707f4eaefa/post2020-prep-02-01-en.pdf

Initiative	Description	(Non-)binding
	responsible choices commensurate with 2050 biodiversity vision, taking into account individual and national cultural and socioeconomic conditions. • **Target 20**: By 2030, ensure equitable participation in decision-making related to biodiversity and ensure rights over relevant resources of indigenous peoples and local communities, women and girls as well as youth, in accordance with national circumstances. • Preparation is ongoing for the **Post-2020 Biodiversity Framework**, which will be adopted at CBD CoP15 (2021, Kunming, China) as a steppingstone towards the 2050 Vision of "Living in harmony with nature"[34].	
REDD+[35] (Reducing Emissions from Deforestation and Forest Degradation)	The REDD+ is a climate change mitigation solution being developed by Parties to the UNFCCC. It aims at incentivising developing countries to keep their forests standing by offering them results-based payments for actions to reduce or remove forest carbon emissions. REDD+ includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.[36] Compensating tropical forest conservation was proposed in the 1980s and 1990s, but it wasn't until the latter half of the 1990s that the idea gained much currency at the international level, when it was discussed at various United Nations Framework Convention on Climate Change (UNFCCC) events, including COP3 in Kyoto in 1997. Nevertheless, technical concerns and opposition from environmental groups (led by WWF) resulted in forest conservation being excluded from the Kyoto Protocol by 2001. Support for REDD+ has deepened and broadened since the 13e climate change conference (United Nations Framework Convention on Climate Change Conference of parties (UNFCC COP 13) in Bali in December 2007). Two initiatives were particularly pertinent to support the development of national REDD+ systems: the World Bank's Forest Carbon Partnership Facility (FCPF) that was launched in 2007 in Bali and the UN Collaborative Program on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD).[37]	Binding
The UN Forum on Forests (UNFF)	The UNFF is an intergovernmental policy forum which promotes "management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end". UNFF was established in 2000 by the UN Economic and Social Council. The Forum has universal membership and is composed of all Member States of the United Nations. It is the successor to the Intergovernmental Panel on Forests that had been established following the 1992 Earth Summit (Rio Summit) during which the Agenda 21 and the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests (also known as Rio Forest Principles) were adopted. [38] The main outcomes of the work of the UNFF are: the establishment of the International Arrangements on Forests[39] and the UN Forest Instrument[40] as well as the adoption of the Strategic Plan for Forest 2017-2030 including the six Global Forest Goals.[41]	Non-binding

[34] https://www.cbd.int/conferences/post2020
[35] https://www.un-redd.org/
[36] https://www.unredd.net/about/what-is-redd-plus.html
[37] https://edepot.wur.nl/293742 Berg, van den J., V.J. Ingram, M-J. Bogaardt and B. Harms (2013, pp. 69-71)
[38] https://www.un.org/esa/forests/index.html
[39] https://www.un.org/esa/forests/documents/international-arrangement-on-forests/index.html
[40] https://www.un.org/esa/forests/documents/un-forest-instrument/index.html
[41] https://www.un.org/esa/forests/documents/un-strategic-plan-for-forests-2030/index.html

Initiative	Description	(Non-)binding
The UN Sustainable Development Goals (SDGs)	The SDGs were adopted in 2015 as part of the '2030 Agenda for Sustainable Development' that sets out a 15-year plan to reach the various goals[42]. The SDGs are the "blueprint to achieve a better and more sustainable future for all".[43] They address global challenges including poverty, inequality, climate change and environmental degradation.[44] Of particular relevance for deforestation and forest degradation are: • **SDG 12** on responsible consumption and production, in particular 12.2 aiming at that 'By 2030, achieve the sustainable management and efficient use of natural resources'. • **SDG 13** on climate action. • **SDG 15** on life on land, in particular 15.2 stating that 'By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally'[45].	Non-binding
The Paris Agreement	The Paris Agreement was adopted at the 2016 COP under the UN Framework Convention on Climate Change (UNFCCC). The aim of the Agreement is to keep global temperature rise below 2 degrees above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 degrees.[46] ○ **Article 5** of the Paris Agreement is focused on forests and calls on Parties to "take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases [...] including forests"[47]. ○ **Article 5.2** further calls on Parties to adopt " policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries; and alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, while reaffirming the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches". [48] This constitutes a direct reference the REDD+ Framework introduced at the 2005 COP under the UNFCCC.	Hybrid of legally binding and non-binding provisions
UN Decade of Ecosystem Restoration (2020-2030)[49]	It aims at building a strong, broad-based global movement to ramp up restoration and put the world on track for a sustainable future. That should include building political momentum for restoration as well as thousands of initiatives on the ground.	Non-binding
The World Forestry Congress (WFC)	The Durban Declaration 2050 vision for forests and forestry was adopted in 2015. This document sets out a vision for 2050 of forests and forestry, to contribute to the achievement of the 2030 Agenda for Sustainable Development.[50] The WFC is held every 6 six years under the auspices of the FAO since 1954.[51] The aim of the congress is to 'bring	Non-binding

[42] https://www.un.org/sustainabledevelopment/development-agenda/
[43] https://www.un.org/sustainabledevelopment/development-agenda/
[44] https://www.un.org/sustainabledevelopment/development-agenda/
[45] https://www.un.org/sustainabledevelopment/biodiversity/
[46] https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement
[47] Article 5.1, https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement
[48] Article 5.1, https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement
[49] https://www.decadeonrestoration.org/
[50] FAO, September 2015, Durban Declaration, http://www.fao.org/fileadmin/user_upload/wfc2015/Documents/Durban_Declaration_draft.pdf
[51] http://www.fao.org/forestry/96885/en/

Initiative	Description	(Non-)binding
	together the global forestry community to review and analyse key challenges facing the sector and ways to address these'.	
The Committee on Forestry (COFO) of the FAO	Brings together relevant authorities involved in forest management at national level to identify emerging policy and technical issues, seek solutions and advise on appropriate actions[52].	Non-binding
Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security (VGGT)	The VGGT were officially endorsed by the Committee on World Food Security in May 2012. They promote responsible governance of tenure of land, fisheries and forests with the overarching goal to achieve food security. [53]	Non-binding
New York Declaration on Forests (NYDF)	The NYDF is an international declaration to take action to halt global deforestation adopted in the margins of the 2014 UN Climate Summit held in New York. It overlaps with the UN SDG and the Paris Agreement, while complementing the Aichi Targets. It has been endorsed by over 200 entities including national and sub-national governments, private companies and NGOs.	Voluntary and non-binding
Forest Europe	The Ministerial Conference on the Protection of Forests in Europe is a pan-European high-level political process for intergovernmental dialogue and cooperation on forest policies in Europe. FOREST EUROPE develops common strategies for its 47 signatories (46 European countries and the European Union) on how to protect and sustainably manage their forests. Its aims to improve cooperation on forest policies in Europe, and secure and promote Sustainable Forest Management, as a voluntary process for co-operation on Europe forest policies.[54] Since 2012 Members of Forest Europe are also negotiating a holistic legally binding framework agreement on forests in Europe.	Voluntary and non-binding

Key context box: World Trade Organisation, principles and rules

Compliance with WTO rules is a critical pre-requirement for any EU intervention that would affect trade of products between EU and non-EU countries. Such rules are assumed to be applicable throughout this analysis, i.e., in the elaboration of the definition for 'deforestation-free', in assessing the scope of commodities and products under the intervention as well as in the design of the policy options. This box provides some further information on the WTO trade rules, which will be at the core of this intervention.

The World Trade Organisation (WTO) is the global international organisation that deals with the rules of trade between nations, aiming to ensure that trade flows as smoothly, predictably and as freely as possible. The WTO has many roles which includes operating a global system of trade rules; acting as a forum for negotiating trade agreements; settling disputes between members; and supporting developing countries' needs.[55]

The General Agreement on Tariffs and Trade (GATT) and the General Agreement on Trade in Services (GATS) include provisions and exceptions which are applicable to the EU as a member of the WTO and consequently to any new EU legislative act. One of the key concepts of the GATT is of the 'Most Favoured Nation Treatment'[56] obligation enclosed in Article II, which calls on Parties to the Agreement to ensure that "any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties".[57]

[52] http://www.fao.org/about/meetings/cofo/en/
[53] http://www.fao.org/cfs/home/activities/vggt/en/
[54] Forest Europe, https://foresteurope.org/foresteurope/
[55] https://www.wto.org/english/thewto_e/thewto_e.htm
[56] WTO, https://www.wto.org/english/tratop_e/serv_e/cbt_course_e/c1s6p1_e.htm
[57] Article I:1 of the GATT

Furthermore, Article III:4 of the GATT prohibits the discriminatory treatment of imported products in comparison to domestic products[58]. The WTO has stated on several high-profile cases to further define the related concept of 'less favourable treatments' and this needs to be carefully considered when setting the scope and mechanism of the EU intervention.
Potentially relevant exceptions to the general requirements of the GATT include Article XX(b),[59] that allows WTO members to justify restrictive measures in trade if they are necessary to protect human, animal or plant life or health, and Article XX(g)[60] allowing similar trade restrictions if they are aimed at the conversion of exhaustible natural resources, for example fauna and flora. For these exemptions to apply, proposed measures must be based on and justified with science-based considerations, linking the production process to a specific range of commodities, with the production processes posing serious risks to human, animal, or plant life and health[61].

The WTO member must make a further assessment on the necessity of the measures to achieve the relevant goal, to ensure that the legislative contribution will outweigh the trade impact. In order to meet this test, it will be important to consider the extent of the contribution of the exemption to the GATT in comparison to the impacts of the trade disruption. Another important aspect is demonstrating that similarly high level of protection cannot be achieved by other aims. Partiti et al notes that "considering that just three commodities are associated with 80% of tropical deforestation, their coverage in the measure is likely to identify a high level of protection. Generally, the higher the level of protection, the more complex would be the identification of a reasonably available measure capable of achieving the same level." [62]

3.3 National level

Individual countries including EU and non- EU countries are taking action at national level on deforestation and forest degradation. Table 3.5 provides an overview of the main in-progress national initiatives.

Table 3.5 In progress national initiatives (non-exhaustive)

Initiative	Description	(Non-)binding
The Amsterdam Declaration on Deforestation and the Amsterdam Declaration on Sustainable Palm Oil	The Declarations have been signed by 5 EU Member States (Denmark, France, Germany, Italy, and the Netherlands) as well as Norway and the United Kingdom. The Declarations were launched in 2015 in the context of the Paris Climate Agreement and is building on the New York Declaration on Forests commitments, acknowledging the role of deforestation and related land use change in global climate change. The members are committed to deforestation-free, sustainable commodities and support learning across national initiatives for trade in sustainable commodities and promote policy coordination and synergy between supply chain and landscape-level initiatives in producer countries. In the Amsterdam Declarations Partnership (ADP) country governments join efforts to influence key processes,	Non-binding

[58] Article III: 4. "The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use. The provisions of this paragraph shall not prevent the application of differential internal transportation charges which are based exclusively on the economic operation of the means of transport and not on the nationality of the product."
[59] Article XX(b): Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: (b) necessary to protect human, animal or plant life or health (https://www.wto.org/english/docs_e/legal_e/gatt47.pdf)
[60] Article XX(g): Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption (https://www.wto.org/english/docs_e/legal_e/gatt47.pdf)
[61] Partiti et al. (2020) Regulating Trade in Forest-Risk Commodities
[62] Partiti et al.. (2020) Regulating Trade in Forest-Risk Commodities

Initiative	Description	(Non-)binding
	cooperating with the private sector and producer countries[63]. In 2016, the two Declarations merged into one ADP implementation strategy[64].	
Strategie Nationale de Lutte contre la deforestation importee	**France** has adopted legislation in 2017 requiring due diligence for environmental and human rights risks throughout supply chain for larger companies[65]. In November 2018 France adopted a Strategy to fight against imported deforestation. The strategy is focused on 2018-2030 timeframe and on agricultural products and forestry products. The scope focuses on those commodities that are associated with the largest volume of deforestation, which for France is: soya, palm oil, beef, cocoa and rubber[66]. The strategy foresees the possibility to expand its scope to other commodities in a second step.	The 2017 legislation is binding. The 2018 strategy is non-binding.
UK Proposed law to prevent forests and other natural areas of importance from being illegally converted to agricultural land	**The UK** has led a consultation on due diligence for combatting deforestation and forest degradation.[67]. The proposed legislation would focus only on larger companies and require larger businesses to take measures to ensure that the 'forest risk' commodities[68] they use have been produced legally. As such, the focus of such approach is on legality only (not taking into account sustainability) and it would be made illegal for businesses to use illegally produced 'forest risk' commodities, with businesses needing to undertake due diligence to demonstrate that proportionate action has been taken to ensure that the commodities have been produced in accordance with the relevant local laws.[69] The proposal does not seem to take into account lessons learned from EUTR/UKTR as regards gaps that due diligence alone cannot cover or the risk that by focusing only on legality, deforestation actually would not be halted.	Non-binding (yet)
The US draft Schatz bill	**In the US**, the draft Schatz bill has been proposed calling "investment firms to help mitigate climate change by using their investment portfolios to stop tropical deforestation"[70]. The draft bill calls for more transparency on policies related to deforestation activities. The focus of the draft bill is on palm oil, soy products, beef and cattle products, cocoa, and rubber[71]. The draft bill would prohibit companies form importing commodities if they were produced on illegally cleared land[72]. This would be implemented through a reporting requirement and "reasonable care" standard. The Bill draws heavily on the US Lacey Act[73] and other key powers imbedded in the 1930s Tariffs Act[74] and the Trade Facilitation and Trade Enforcement Act[75]. This proposal also	Non-binding (yet)

[63] https://ad-partnership.org/about/
[64] https://ad-partnership.org/implementation/
[65] https://www.legifrance.gouv.fr/loda/id/JORFTEXT000034290626/
[66] Strategie Nationale de Lutte contre la deforestation importee, 2018-2030. Ministere de la Transition Ecologique et Solidaire.
[67] https://consult.defra.gov.uk/eu/due-diligence-on-forest-risk-commodities/
[68] Note that this impact assessment support study does not use the Forest Risk Commodity but rather refer to globally traded agricultural products associated with deforestation.
[69] https://consult.defra.gov.uk/eu/due-diligence-on-forest-risk-commodities/supporting_documents/duediligenceconsultationdocument.pdf
[70] Note the bill focuses on 'tropical deforestation' - https://www.schatz.senate.gov/press-releases/schatz-senators-push-financial-firms-to-help-stop-global-deforestation
[71] https://www.forest-trends.org/blog/meaningful-supply-chain-legislation-lessons-from-the-us-tariffs-act-for-demand-for-regulating-the-trade-in-forest-risk-commodities/
[72] https://www.forest-trends.org/blog/meaningful-supply-chain-legislation-lessons-from-the-us-tariffs-act-for-demand-for-regulating-the-trade-in-forest-risk-commodities/
[73] US Lacy Act is a 1900 United States law that bans trafficking in illegal wildlife. In 2008 it was amended to include plant and plant products such as timber and paper.; https://www.ucsusa.org/sites/default/files/attach/2015/10/ucs-lacey-report-2015.pdf
[74] The legislation foresees that products can be excluded from the American market if there is enough evidence that they are at risk of having been produced by forced labour. Companies have to demonstrate through due diligence that their imports are not as such (https://www.forest-trends.org/blog/meaningful-supply-chain-legislation-lessons-from-the-us-tariffs-act-for-demand-for-regulating-the-trade-in-forest-risk-commodities/)
[75] https://www.congress.gov/bill/114th-congress/house-bill/644

Initiative	Description	(Non-)binding
	seems to focus only on legality, with similar risks as the one immediately above. A House counterpart to the Schatz bill will be introduced Oregon.	

3.4 Private initiatives

In addition to the public sector initiatives described above, a large number of private sector initiatives are noteworthy. Some examples relevant for deforestation and forest degradation are presented in the table below.

Table 3.6 Private initiatives (examples, non-exhaustive list)

Initiative	Description
Forest Stewardship Council (FSC) Label[76]	The Forest Stewardship Council is an international not-for-profit, multi-stakeholder organisation established in 1993 dedicated to the promotion of responsible forest management worldwide. FSC certification enables businesses and consumers to make informed choices to select and purchase socially and environmentally responsible forest products. Standard setting, independent certification and labelling of forest products are the main tools used to achieve these aims.[77] The FSC offers a forest management certification whose aim is to "preserve biological diversity and benefits the lives of local people and workers, while ensuring it sustains economic viability"[78]. FSC certification is not the only initiative of this type, with other certification schemes accepted by a number of governments as proof of legality and sustainability of timber products, including the Canadian Standard Association (CSA), the Malaysian Timber certification Council (MTCC), PEFC and the Sustainable Forestry Initiative.[79]
The Programme for the Endorsement of Forest Certification (PEFC)[80]	PEFC is an international umbrella organisation for the assessment of national certification schemes. Within PEFC the criteria for national schemes are developed by their stakeholders. The PEFC offers a forest certification system that considers a range of economic, social and environmental criteria as part of its process. PEFC standards and guidelines include international standards applied directly to the field, benchmark standards for national forest certification systems, procedural documents governing the PEFC system, and guidance documents for additional guidelines. PEFC certifications are issued by independent certification bodies, following standardised ISO procedures and performing accurate auditing to verify that all requirements are met.
Round Table on Sustainable Palm Oil (RTSPO)	The RTSPO is a not-for-profit international membership organisation which promotes sustainable palm oil using global standards.[81] The RSPO Principles and Criteria for Sustainable Palm Oil Production (RSPO P&C) are the global guidelines for producing palm oil sustainably. The Roundtable has defined 8 principles and 43 practical criteria to define sustainable production of palm oil. They intend to ensure that fundamental rights of previous land owners, local communities, plantation workers, small farmers and their families are respected and fully taken into account, that no new primary forests or high conservation value areas are cleared for palm oil production since November 2005, and that mills and plantation owners minimize their environmental impact. The RSPO P&C must be reviewed every five years, in line with the demands from the global association for sustainability, the ISEAL Alliance. [82]

[76] https://fsc.org/en/fsc-labels
[77] https://edepot.wur.nl/293742 Berg, van den J., V.J. Ingram, M-J. Bogaardt and B. Harms (2013, pp. 47)
[78] https://fsc.org/en/forest-management-certification
[79] https://edepot.wur.nl/293742 Berg, van den J., V.J. Ingram, M-J. Bogaardt and B. Harms (2013, pp. 49)
[80] https://www.pefc.co.uk/
[81] https://www.rspo.org/about
[82] https://www.wur.nl/upload_mm/b/e/8/21e02a17-d9a5-4beb-a349-3c1847f6ae4b_WOt-technical%20report%206%20webversie.pdf
Berg, J. van den, V.J. Ingram, L.O. Judge and E.J.M.M. Arets, 2014. *Integrating ecosystem services into tropical commodity value chains of cocoa, soy and palm oil; Dutch policy options from an innovation system approach.* Wettelijke Onderzoekstaken Natuur & Milieu, WOt-technical report, 93 blz. 11 fig.; 9 tab.

Initiative	Description
Round Table Responsible Soy (RTRS)	The RTRS is a not-for-profit international membership organisation that promotes responsible soy through dialogue, knowledge exchange and global standards definition83. The RTRS has developed a standard for responsible soy production which includes requirements for the preservation of areas with high conservation value (HCVAs), the promotion of best management practices, the guarantee of fair labour conditions and the respect for land tenure claims. Alongside the standard and process of certification is the credit trading platform, allowing certified soy to be converted into credits and traded on a shared IT platform. The first version of the RTRS standard was approved in June 2010 and in 2011 the first RTRS certified soy became available. The standard has recently been revised and updated with the second version approved and released in September 2013.
Consumer Goods Forum[84]	A global industry forum that delivers a 'Forest Positive Future' strategy adopted in September 2020 through which a group of 18 individual companies (including some of the major global food actors such as Unilever, Danone, Carrefour, Walmart) have committed to 'leverage collective action and accelerate systemic efforts to remove deforestation, forest degradation and conversion from key commodity supply chains.'
Cargill Policy on Forests[85]	A corporate initiative in which Cargill commits to leverage its position, as one of the worlds' large agricultural goods buyer to mitigate the role of agriculture as a driver of deforestation through. Cargill's policy considers situational definition of deforestation free and propose a framework to be adopted for its supply chain.
Nestle responsible sourcing code and zero net deforestation pledge[86]	Responsible Sourcing Standards applied at corporate level for all commodities purchased and used.
Amazon Soy Moratorium	Announced in 2006 by Brazil's soya trading companies to ban the purchase of soya grown on land deforested after 2006.[87]
Supply chain transparency network	It brings together organisations and initiatives concerning supply chain transparency in addressing 'commodity-driven' deforestation as well as social and environmental impacts.[88]
The International Sustainability and Carbon initiative	It works towards implanting zero-deforestation; protecting land with high biodiversity value and high carbon stock; compliance with human, labour, and land rights; and traceability through supply chains, amongst others.[89]
New Generation Plantations[90] **(NGP)**	The NGP platform coordinated by WWF with private sector actors aims to develop sustainable solutions for plantation management.

[83] https://responsiblesoy.org/?lang=en
[84] https://www.theconsumergoodsforum.com/
[85] https://www.cargill.com/doc/1432136544290/cargill-policy-on-forests.pdf
[86] https://www.nestle.com/stories/responsible-sourcing-no-deforestation
[87] https://wayback.archive-it.org/9650/20200402232711/http://p3-raw.greenpeace.org/international/Global/international/code/2014/amazon/index.html
[88] https://www.supplychaintransparency.network/
[89] https://www.iscc-system.org/
[90] https://newgenerationplantations.org/

4. What is the problem and why is it a problem?

This chapter covers the main problems that require action, namely the loss and degradation of forests worldwide, the scale and drivers of this problem (including the role of EU consumption) and the main stakeholders affected by it.

Table 4.1 Key takeaways

Takeaway	Finding
Forests are being cut and degraded at an alarming rate.	This leads to increased climate change (through greenhouse gas emissions and loss of carbon sequestration opportunities) and biodiversity loss at the global level.
The main driver of deforestation and forest degradation is the expansion of agricultural land, which is in turn driven by the global demand for products such as soy, cattle, palm oil, and wood products.	In some regions the drivers of deforestation are different to the drivers of forest degradation and both of these drivers can vary between regions and nations. However, in all situations, agriculture remains the main driver with some estimates placing agricultural expansion as "the proximate driver of about 80 percent of deforestation worldwide (Kissinger, Herold and De Sy, 2012), albeit with differences in geographical distribution."[91]
The EU plays a significant role in global deforestation and forest degradation.	A 2013 study estimated that the EU consumed over one third of the globally traded agricultural products associated with deforestation between 1990-2008[92] and was responsible for 10% of the global deforestation associated with the production of goods and services[93, 94]. Our work on scoping and defining the baseline found that certain key commodities continue to play a significant role in driving deforestation. See further details in Section 7.3.
The current legislative framework is not sufficient/adequate to mitigate or solve the problem of EU-driven deforestation.	While the absence of legislation per se is not sufficient justification to adopt new legislation, in this case the absence of a legislative framework combined with a multitude of national initiatives (see Section 3.5.2) suggests the need for coherent action at EU level. It appears likely that deforestation will continue to increase in the absence of new legislative action. This finding is supported by our baseline analysis in chapter 7.

4.1 Loss and degradation of forests

Deforestation occurs when forest is cleared to make space for other activities such as agriculture, mining, urban development, or other land uses. **Forest degradation** is a more gradual process through which a forest's biomass declines, its species composition changes, or its soil quality declines, but the land still meets the definition of a forest regarding surface, crown cover, and tree height. Forest degradation is often a precursor to deforestation, mainly because degraded forests are often turned into agricultural land. Both deforestation and forest degradation represent significant problems. Deforestation and forest degradation are occurring at an alarming rate, raising concern for the related loss of biodiversity and climate change. A definition of 'deforestation' and 'forest degradation' is also presented in Section 6.3 and in Appendix A.

[91] the FAO 2016 report on land use

[92] Cuypers, D., T. Geerken, L. Gorissen, A. Lust, G. Peters, J. Karstensen, S. Prieler, G. Fischer, E. Hizsnyik and H. van Velthuizen. (2013). *The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation*. Technical Report - 2013 - 063. European Commission, DG ENV, Rome.

[93] Cuypers, D., T. Geerken, L. Gorissen, A. Lust, G. Peters, J. Karstensen, S. Prieler, G. Fischer, E. Hizsnyik and H. van Velthuizen. (2013). *The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation*. Technical Report - 2013 - 063. European Commission, DG ENV, Rome.

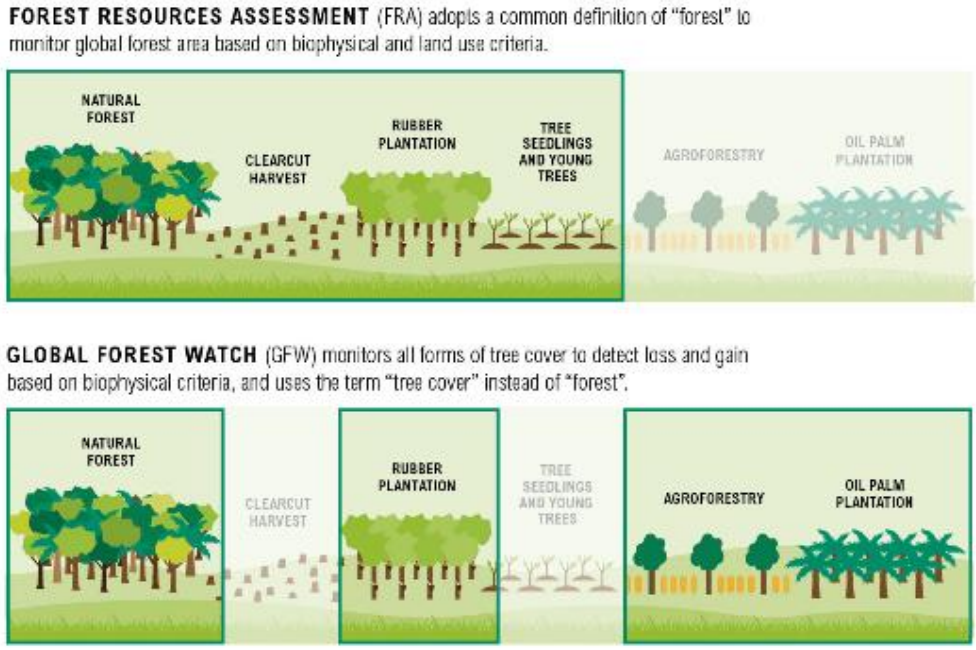
[94] Notwithstanding the fact that the data presented occurred more than 10 years ago, they can still be considered reliable. The IDH (2020) report shows that despite a decline of the EU's relative import share of many commodities associated with deforestation in recent years, EU imports have been increasing in absolute numbers. The EU impact is further explained in the sections below.

4.1.1 The problem of deforestation

Two main sources of data to observe trends on global deforestation are: the UN Food and Agriculture Organization's (FAO) data presented in its Global Forest Resources Assessment reports[95,96] and the Global Forest Watch (GFW) data[97].

The deforestation trends reported under the FAO and under the GFW data appear to convey different messages because data are analysed in different ways. The GFW data focuses on tree cover change whereas the FAO focus on land use changes according to its official definition of forest. For example, the FAO definition includes the criteria of forest land and forest use, where temporarily unstocked forests after harvesting are still considered to meet the forest definition. In cases where harvesting takes place, no forest area change will be reported. However, under the GFW definition, such forest loss will be shown, and once the forest starts to re-grow this will show up as afforestation. Another issue with the GFW data is that the resolution of the remote sensing images used has increased over time. As a result, in more recent years the potential to record small area changes has increased. The figure below shows key differences in what the FAO and the GFW consider to be a forest. While both data sets are useful in providing details on the scale and range of the issue, there is no harmonised picture. In both instances, the strength of data also relies on information provided by countries and the availability of satellite data[98].

Figure 4.1 Comparison of 'forest' considered under the FAO Forest Resource Assessment and the GFW data sets



Source: https://www.globalforestwatch.org/blog/data-and-research/global-forest-watch-and-the-forest-resources-assessment-explained-in-5-graphics-2/

[95] Published since 1946 at 5 to 10 years intervals

[96] It has to be noted that when countries report to FAO, the figures are reported at national level, so there is no split by different forest types or areas within a country. For large countries (e.g., Brazil), this can make reporting not very detailed.

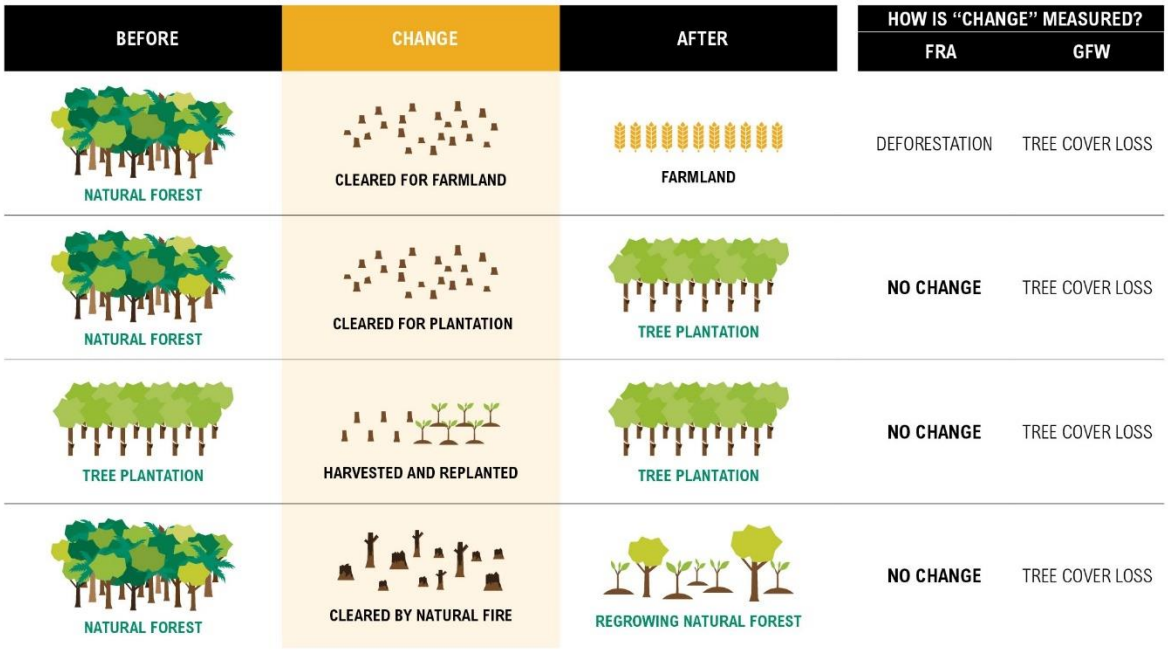
[97] This data has been developed by scientists and it is based on satellite imagery and the reporting of tree cover change. Satellite imagery even if detailed requires some flexibility in the forest definition. This is because what pixels identify as tree cover is not always a forest (for example in the case of a big tree). Therefore, tree cover needs to be measured and converted to forests by analysing the pixels to work to the definition of forest. From satellite imagery, it can also be very difficult to tell the difference between primary forests and plantations.

[98] Global Forest Watch, https://blog.globalforestwatch.org/data-and-research/global-forest-watch-and-the-forest-resources-assessment-explained-in-5-graphics-2/

The UN FAO reports on net change in forest area, GFW reports both gross loss and gross gain in tree cover. There are differences in what is considered deforestation under each monitoring system. For example, forests cleared for tree plantation will be recorded as a tree cover loss under GFW but no change under the FAO. A tree plantation harvested and replanted with another tree plantation will be recorded as a tree cover loss under GFW but no change under the FAO.

This comparison also shows the importance of clear and consistent definitions for forest and deforestation. Care should be taken that the monitoring and verification mechanisms to be applied actually represent the changes taking these definitions into account.

Figure 4.2 Comparison of measure of changes in tree cover / deforestation



Source: https://www.globalforestwatch.org/blog/data-and-research/global-forest-watch-and-the-forest-resources-assessment-explained-in-5-graphics-2/

The FAO found that, at global level, the rate of net forest loss has decreased substantially over the 1990-2020 period from an annual average loss of 7.8 Mha during the 1990-2000 period to an annual average loss of 4.7 Mha in 2010–2020 period (see also figure below).[99] This decrease in the rate of deforestation is explained by a reduction in deforestation in some countries and increases in afforestation and natural expansion of forests. [100] A total of 420 Mha of forest have been lost since 1990 of which 178 Mha represent net forest reduction. [101] The trend on annual forest area change including forest expansion and deforestation between 1990 and 2020 is presented in the figure below.

[99] FAO (2020), Global Forests Resources Assessment, http://www.fao.org/3/ca9825en/CA9825EN.pdf
[100] FAO (2020), Global Forests Resources Assessment, http://www.fao.org/3/ca9825en/CA9825EN.pdf
[101] FAO (2020), Global Forests Resources Assessment, http://www.fao.org/3/ca9825en/CA9825EN.pdf

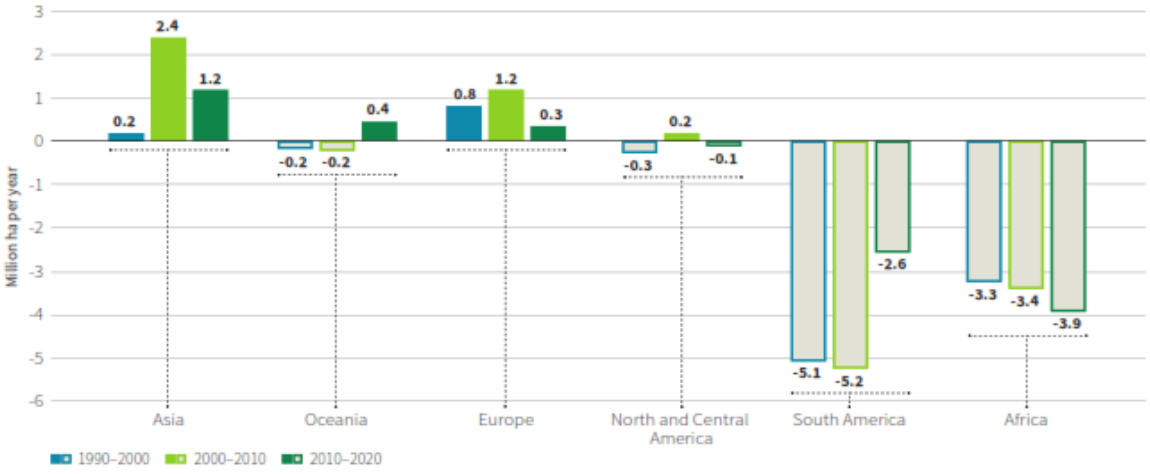
Figure 4.3 Forest expansion and deforestation between 1990-2020

Source: FAO, 2020, [102]

This trend in global reduction of forest loss has been linked to an increase in forest cover in particular in temperate and boreal regions. Africa had the highest annual rate of net forest loss in 2010–2020, at 3.9 Mha, followed by South America, at 2.6 Mha. The rate of net forest loss has increased in Africa in each of the three decades since 1990. However, it has declined in South America, to about half the rate in 2010–2020 compared with 2000–2010. Asia had the highest net gain of forest area in 2010– 2020, followed by Oceania and Europe.[103] The net gain in forest area in Europe was mainly linked to the average annual net gains in the Russian Federation (reporting 31,900 ha in 1990-2000, 587,000 ha in 2000-2010 and 17,600 in 2010-2020). The rest of the non-EU forest in the Eurasian region, i.e., Belarus and Ukraine, has seen a net increase of the extent of forest in the 1990-2020 period. In particular, in Belarus there has been a net increase of 6.2% in 1990-2000, 4.2% in 2000-2010, 1.6% in 2010-2020; in Ukraine there has been a net increase of 2.5% in 1990-2000, 0.4% in 2000-2010, 1.5% in 2010-2020[104].

An overview of the annual net forest area changes between 1990 and 2020 and by regions is presented in the figure below. These percentages reflect changes within each region, allowing an analysis of which region was mostly affected in each decade.

Figure 4.4 Global annual net forest area change between 1990-2020 by region



Source: FAO, 2020[105]

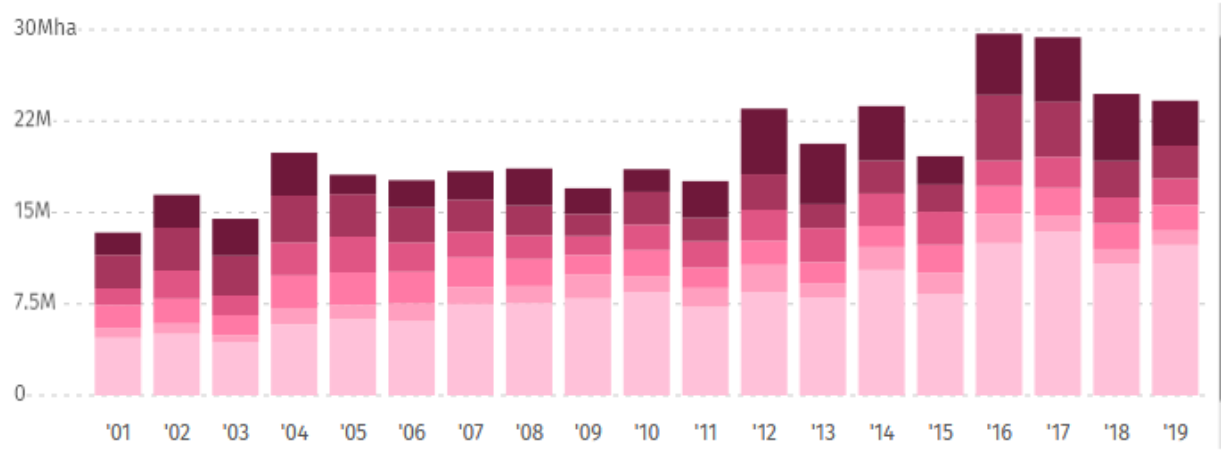
[102] FAO (2020), Global Forests Resources Assessment, http://www.fao.org/3/ca9825en/CA9825EN.pdf
[103] FAO (2020), Global Forests Resources Assessment, http://www.fao.org/3/ca9825en/CA9825EN.pdf
[104] FAO (2020), Global Forests Resources Assessment, http://www.fao.org/3/ca9825en/CA9825EN.pdf
[105] FAO (2020), Global Forests Resources Assessment, http://www.fao.org/3/ca9825en/CA9825EN.pdf

Finally, the FAO assessed progress made globally against some of the key international biodiversity goals[106] and assessed that:

- the target of the "United Nations Strategic Plan for Forests" to increase global forest area by 3% by 2030 is not likely to be met.
- Goal 1 of the New York Declaration on Forests (to halve the rate of loss of natural forests by 2020) is very unlikely to be met.

In comparison, the GFW concluded that from 2001 to 2019 the global annual tree cover has decreased – as shown in the graph below – for a total of 386 Mha, corresponding to an overall 9.7% decrease in global tree cover and 105 Gt of CO2 emissions[107].

Figure 4.5 Global annual tree cover loss between 2001- 2019



Source: GFW, note the chart does not account for tree cover gain

In addition to environmental damages, deforestation is associated with human rights violations, displacement of local communities and violence against environmental defenders. There is an important social dimension to the issue that, while not in the focus of the current project, is acknowledged.

4.1.2 The problem of forest degradation

Forest degradation is not universally defined. It is understood as a direct and human-induced decrease in carbon stocks in forests resulting from a loss of cover that is insufficient to be classed as deforestation. [108] It is commonly agreed that the disturbance observed should be persistent, although no time estimate to quantify that persistence has been commonly agreed upon.

Forest degradation is generally less measured and monitored than deforestation. Common remote sensing approaches (e.g., Landsat[109]) are not as effective at detecting forest degradation as they are deforestation. In addition, there are few international initiatives focusing on degradation. in 2013 the World Bank supported the Forest Carbon Partnership Facility (FCPF) Carbon Fund's Methodological Framework that provides a

[106] FAO and UNEP, (2020), State of the World's Forests 2020. Forests, biodiversity and people, Rome.
[107] Global Forest Watch, https://www.globalforestwatch.org/dashboards/
[108] https://cbmjournal.biomedcentral.com/articles/10.1186/s13021-017-0072-2
[109] In collaboration with NASA, Landsat provides essential land change data and trending information through satellite imagery https://landsat.visibleearth.nasa.gov/view.php?id=145988

methodology requiring emissions from forest degradation to be accounted where significant (i.e., more than 10% of forest related emissions).[110]

Forest degradation can lead to full-scale deforestation, given the ease with which degraded forests can be turned into agricultural lands. However, it is also possible for forests to remain degraded for long time, without reaching the deforestation status, as forest degradation can be reversed through management interventions[111].

The FAO assessed the state of global forest degradation as part of its global assessment through two proxies: forest ecosystem health and forest fragmentation. [112]

- On forest ecosystem health, the FAO noted increased reporting of disturbances including forest fires (affecting 98 Mha in 2015, of which two thirds were in South America), insect pests (affecting 40 Mha in 2015) and invasive plant and animal species.
- On forest fragmentation, the FAO found that 49% of the global forest area had a high level of integrity, while 10% of the global forests are considered to be severely fragmented[113, 114]. The report notes that in tropical dry and moist forests (e.g., the Cerrado forests in Brazil, the South American Gran Chaco, the Miombo woodlands in southern Africa and the tropical dry forests in India and the Mekong region) the fragmentations observed are linked to land use changes including agricultural expansion.

According to the FAO[115], Target 5 of the Aichi Target Declaration (to halve, by 2020, the rate of loss of all-natural habitats, including forests, and degradation and fragmentation is significantly reduced) is very unlikely to be met.

4.1.3 Impact of deforestation and forest degradation on biodiversity

Forest loss and degradation are major contributors to loss of biodiversity. It is estimated that forests provide habitat for 80% of the global documented species[116]. Therefore, the ongoing deforestation and forest degradation threaten biodiversity on a global level by reducing their habitats. Primary forests[117] are widely acknowledged as hosts to rich ecological ecosystems, including fauna and flora that are endemic to such forests as well as having high carbon stocks[118]. Naturally regenerating secondary forests are considered to be important for conservation and recovery of biodiversity and carbon stocks[119]. The FAO's latest estimate concluded that 3.74 billion ha of the world is covered with naturally regenerating forests (93% of all forest land), of which about 1 billion ha is primary forest. [120] This net area has decreased by 301 Mha (81 Mha of primary forest) since 1990.

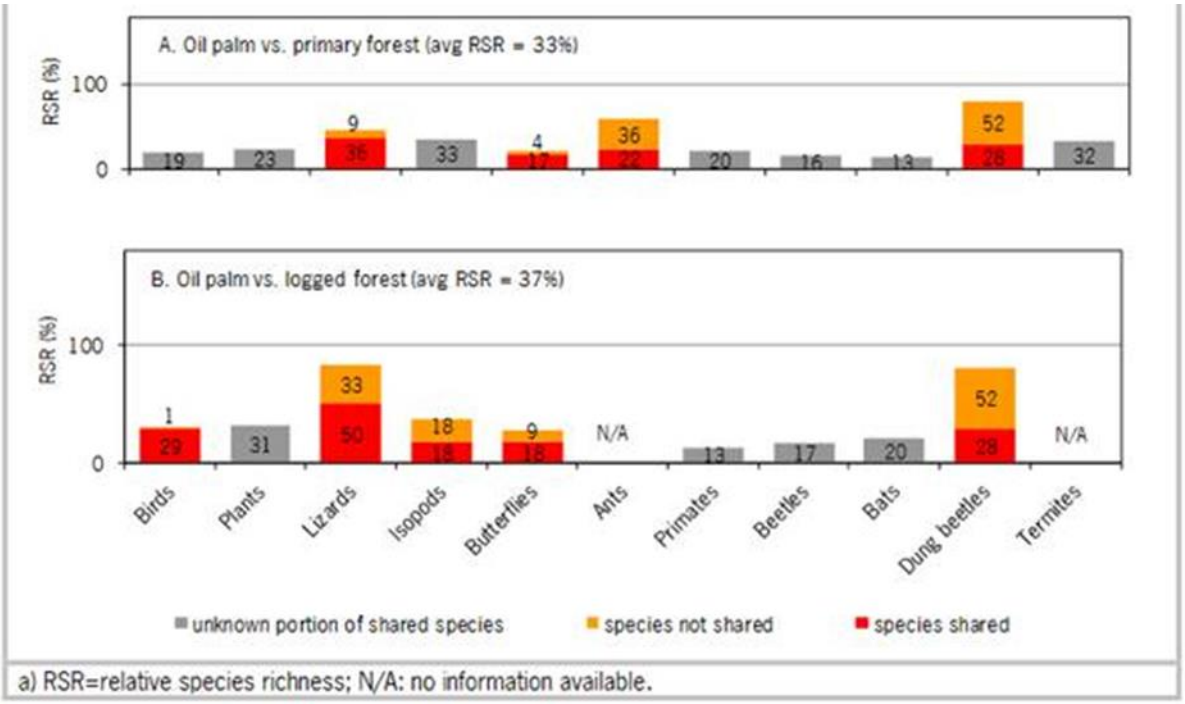
Biodiversity plays a critical role in forests' and animals' ability to adapt to climate change. Intact forests are capable of supporting humans in climate change adaptation and providing disaster resilience from extreme weather events (e.g., floods and droughts).[121] Deforestation and forest degradation cause fragile forest

[110] https://www.forestcarbonpartnership.org/carbon-fund-methodological-framework
[111] http://www.fao.org/sustainable-forest-management/toolbox/modules/reducing-forest-degradation/cases/en/?type=111
[112] FAO and UNEP, (2020), State of the World's Forests 2020. Forests, biodiversity and people, Rome.
[113] FAO and UNEP, (2020), State of the World's Forests 2020. Forests, biodiversity and people, Rome.
[114] Forest fragmentation is defined by the forest division in smaller and more isolated fragments. The integrity of a forest is thus measured by the size of forest patches, weighted by the forest density and connectivity. Fragmented forests have little or no connectivity, while a forest with high level of integrity has high value of area density.
[115] FAO and UNEP, (2020), State of the World's Forests 2020. Forests, biodiversity and people, Rome.
[116] EPRS, 2020, An EU legal framework to halt and reverse EU-driven global deforestation.
[117] Primary forests are forests composed of native species in which there are no clearly visible indications of human activity and the ecological processes have not been significantly disturbed.
[118] FAO and UNEP, (2020), State of the World's Forests 2020. Forests, biodiversity and people, Rome.
[119] Lennox et al., 2018; Roozendaal et al,, 2019
[120] FAO (2020), Global Forests Resources Assessment, http://www.fao.org/3/ca9825en/CA9825EN.pdf
[121] COWI (2019): Impact Assessment Study for the Revision of the Product Scope of the EU Timber Regulation, Annex to the Final Report.

ecosystems to break down, resulting in habitat loss, and declining biodiversity. Consequently, deforestation is a significant contributor to the accelerating loss of biodiversity.[122,123] Deforestation constitutes the single largest threat to biodiversity in terrestrial ecosystems and is the source of carbon dioxide (CO2) emissions of approximately 4.5 GtCO2 annually, substantially contributing to climate change. Whilst the loss of tropical rainforests has attracted much public attention, dry forests also store substantial amounts of carbon (although at a lower density than humid forests) and exhibit high levels of biodiversity and endemism. Dry forest ecosystems such as the Cerrado are often biodiversity hotspots, the loss of which is commonly overlooked.[124]

A 2011 research study conducted to assess and compare biodiversity richness of natural forest and palm oil plantations concluded[125] that relative species richness of palm oil plantation was only 33% of the species richness of natural forests and 37% of the species richness of logged forests, and that the number of shared species was limited. The figure below presents some key comparisons.

Figure 4.6 Comparison of species richness of plants and animals in oil palm plantations relative to primary forests (A) and logged-over forests (B)



Source: Kamphuis, B., E.J.M.M. Arets, C. Verwer, J. van den Berg, S. van Berkum and B. Harms. (2011). Dutch trade and biodiversity. The biodiversity and socio-economic impacts of Dutch trade in soya, palm oil and timber

Finally, forest degradation often creates a mosaic of forest fragments within a matrix of non-forest habitats, such as farmland. As degradation proceeds (including into deforestation), these fragments become increasingly isolated and degraded. Animal species in these landscapes vary in their susceptibility to these habitat changes. For example, specialist species that require unique resources such as diet and habitat conditions, are particularly vulnerable and are likely to experience population declines and local extinction. As species are often linked through ecological processes, such as competition and predation, population

[122] Kettunen, M, Bodin, E, Davey, E Susanna Gionfra, S & Céline Charveriat, C: An EU Green Deal for trade policy and the environment: Aligning trade with climate and sustainable development objectives
[123] NGO Statement: 'Tackling deforestation and forest degradation: a case for EU action in 2017' (June 2017)
[124] Persson, M, Henders, S and Kastner, T (2014): Trading Forests: Quantifying the Contribution of Global Commodity Markets to Emissions from Tropical Deforestation, Working Paper 384, October 2014 Center for Global Development (www.cgdev.org).
[125] Kamphuis, B., E.J.M.M. Arets, C. Verwer, J. van den Berg, S. van Berkum and B. Harms. (2011). Dutch trade and biodiversity. The biodiversity and socio-economic impacts of Dutch trade in soya, palm oil and timber. LEI report 2011-013 and Alterra report 2155. LEI, Wageningen UR, The Hague, The Netherlands. https://edepot.wur.nl/165349

declines of individual species have wider knock-on effects for animal and plant communities. Population declines and community re-structuring also take time, so a forest degradation followed by a deforestation event today can effectively 'commit' species to extinction in future years and it may take several years for communities to reach a new equilibrium.[126]

4.1.4 Impact of deforestation and forest degradation on climate change

Forest ecosystems contribute to climate regulation, through multiple actions. Firstly, by acting as a carbon sink, as trees and soil store large amounts of carbon. As such the loss of forest reduces the capacity of the forest to absorb carbon and consequently mitigate GHG emissions. Secondly, forests are deposits of carbon. Forest harvesting releases the majority of the carbon stored in biomass and soil, contributing to global GHG emissions. When forests are converted to agricultural land, all the carbon stored is released. Forests harvested for the production of harvested wood products may indirectly contribute to climate regulation, as they can replace carbon intensive materials, like cement[127]. However, the overall environmental impact is affected by other factors such as the loss of biomass and of logging, and the wood end use and the utilization of processing residues[128]. In addition, harvested food products are a source of biofuels[129]. Nonetheless, the environmental impact of biofuels is a controversial issue, as biofuel synthesis is not emission free.

The IPCC estimated that since 1850, global deforestation has contributed to 77% of emissions from land use and land use change[130]. In its 2019 report on climate change and land, the IPCC estimated that 25-30% of total GHG emissions are attributable to the food system, with 10-12% being from crop and livestock, while 8-10% from land use and land use change, including deforestation and peatland degradation and the remaining 5-10% are due to food supply chain activities.[131] Further, commodity-driven tropical deforestation is responsible for approximately 2.6 gigatons of CO_2 emissions annually—or 5% of global GHG emissions[132].

Drivers of carbon emissions from forest degradation include commercial and fuelwood harvesting, shifting agricultural cultivation, soil disturbance, and burning. A 2017 review of GHG from degradation of forests, in particular those located within tropical and subtropical latitudes, estimated that forest degradation account for 2.1 Gt CO2e year -1 across the 74 countries assessed[133]. Emissions are associated with timber harvest (53%), followed by wood fuel (30%) and fire (17%). When put in the context of total GHG emissions from deforestation, emissions from forest degradation represented 25% of the estimated total emissions. The report noted variations on regional basis, in South and Central America, timber harvest is the highest pressure, while it is wood fuel harvest in Asia. It also noted that in 28 of the 74 countries assessed, emissions from forest degradation exceeded those from deforestation. This further supports the importance of forest degradation to the overall problem and the need to tackle it alongside deforestation.

Recent research compared available data and estimates of saved emissions from reduced deforestation. It estimated that the protection of forests and natural ecosystems could contribute to between 16-30% of the climate change mitigation needs to meet the goal of the Paris Climate Agreement.[134]

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[126] Norris, K (2016): Ecology: The Tropical Deforestation Debt, Current Biology, Volume 26, Issue 16, 2016, pages R770-R772.
[127] FAO (2021). Carbon Storage and Climate Change Mitigation Potential of Harvested Wood Products. http://www.fao.org/forestry/49800-0812a13ea85265539335c760f45630d3d.pdf
[128]Butarbutar, T., Köhl, M., and Neupane, P. (2016): Harvested wood products and REDD+: looking beyond the forest border https://cbmjournal.biomedcentral.com/articles/10.1186/s13021-016-0046-9
[129] FAO (2021). Carbon Storage and Climate Change Mitigation Potential of Harvested Wood Products. http://www.fao.org/forestry/49800-0812a13ea85265539335c760f45630d3d.pdf
[130] IPCC, 2019, Climate Change and Land https://www.ipcc.ch/site/assets/uploads/2019/11/SRCCL-Full-Report-Compiled-191128.pdf
[131] IPCC, 2019, Climate Change and Land https://www.ipcc.ch/srccl/
[132] Ceres, 2020, The Investor Guide to Deforestation and Climate Change
[133] https://cbmjournal.biomedcentral.com/articles/10.1186/s13021-017-0072-2
[134] Estimate from Ceres, conducted in the following way: three estimates of the mitigation potential of forests and other natural ecosystems: (1) Roe et al. (2019) estimated that reduced land use change and restored forests, peatlands and coastal wetlands could, by

Climate change is expected to further increase pressures on ecosystem health. For example, climate change is expected to exacerbate the impacts of fire with longer fire-seasons leading to more fire events like those witnessed in Australia and California more recently. The FAO notes that these fire events are particularly destructive to human life, wildlife and the environment[135].

4.1.5 Other environmental impacts of deforestation

Water quality and availability

Whilst forest science and hydrology studies suggest that deforestation often increases water yield, an increase in the quantity of water in streamflow does not translate to an increased availability of water for human consumption. The quality of this water is often severely impacted as a result of increased runoff (decreased soil infiltration) and soil erosion leading to the capacity of rivers and dams often being negatively impacted. This results in lower water quality and an increase in the cost of drinking-water treatment, which imposes a serious constraint on the installation and maintenance of a water system for local communities in low-income countries.[136]

Soil erosion

Deforestation and/or forest degradation can have a serious negative impact on both soil erosion and water quality.

Deforestation and land clearing in the Great Barrier Reef catchment has also led to soil erosion and run-off of sediment into the Great Barrier Reef World Heritage Area. This run-off has reduced sunlight to seagrasses and smothered coral and other reef organisms. Agricultural activity in the area has intensified after land clearing, driving additional chemical run-off into the waters on top of the existing chemical loads. As a consequence of this degraded water quality there has been a decline in coral cover and lack of coral recovery. [137]

Air quality

Deforestation typically culminates in fires as the vegetation remaining after trees are removed is set alight, often illegally. Such fires produce air pollution (including PM2.5) that pose a severe health risk. Children, older people, those that are pregnant and people with pre-existing lung or heart diseases are especially vulnerable.[138]

2050, provide 16 percent of the mitigation needed to limit warming to1.5 degrees C in 2100. (2) Combining multiple solutions from Wilkinson et al.(2020), protection and restoration of forests and other natural ecosystems could provide 18 percent of the mitigation needed between now and 2050 to limit warming to1.5degrees Celsius in 2100.(3) Griscom et al. (2017) estimated that natural climate solutions based on forests, grasslands, and wetlands could, by 2030,provide30 percent of the mitigation needed to limit warming to 2 degrees C in 2100. Roe,Stephanie, Charlotte Streck, Michael Obersteiner, Stefan Frank ,Bronson Griscom, Laurent Drouet et al. (2019). Contribution of the land sector to a 1.5°C world. Nature Climate Change 9:817828.https://doi.org/10.1038/s41558-19-0591-9.Wilkinson, Katherine.(2020). The Drawdown Review 2020.San Francisco,CA:ProjectDrawdown.https://drawdown.org/drawdown-ramework/drawdown-review-2020.Griscom, Bronson W, Justin Adams, Peter Ellis, Richard Houghton, Guy Lomax, Daniela A. Miteva, et al. 2017). Natural Climate Solutions. Proceedings of the National Academy of Sciences 114(44):11645-11650.www.pnas.org/cgi/doi/10.1073/pnas.1710465114.

[135] FAO and UNEP, 2020. The State of the World's Forests 2020. Forests, biodiversity and people. Rome. in EPRS, 2020, An EU framework to halt deforestation

[136] Mapulanga, A and Naito, H (2019): Effect of deforestation on access to clean drinking water, PNAS, 2019, 116 (17) 8249-8254; https://doi.org/10.1073/pnas.1814970116

[137] Wilderness Society (2019): Drivers of Deforestation and land clearing in Queensland

[138] "The Air is Unbearable" Health Impacts of Deforestation-Related Fires in the Brazilian Amazon (2020) https://www.hrw.org/report/2020/08/26/air-unbearable/health-impacts-deforestation-related-fires-brazilian-amazon#

A study in the Amazon region, Brazil indicates that deforestation-related fires were associated with a significant negative impact on public health in 2019.[139] The impacts included 2,195 hospitalisations due to respiratory illness attributable to the fires, of which 21% where infants (0-12 months) and 49% involved people aged 60 years and over. Patients were found to spend a total of 6,698 days in hospital in 2019 as a result of exposure to air pollution from fires. In the long term, exposure to air pollution has also been linked to chronic disease and premature death. Biomass burning is estimated to cause around 250,000 (confidence interval 73,000–435,000) of premature deaths per year worldwide[140]. However, such estimates provide a rough indication and shall be taken with caution because of data and modelling uncertainties. [141]

4.2 Drivers of deforestation and forest degradation

The main driver of deforestation is the expansion of agriculture, followed by mining, infrastructure development, urban expansion, logging[142], and land speculation[143]. However, the importance of each driver is location specific and differs between regions and within continents. Commercial agriculture is the main driver in Latin America; subsistence agriculture followed by mining in Africa; and a mix of subsistence and commercial agriculture in Asia. Drivers of forest degradation include unsustainable forest management, pest and invasive species and fires. Drivers of deforestation and forest degradation go beyond the forest sector in itself, as they include weak land tenure regimes, weak government and legal enforcement, and low protection of the rights of indigenous population. [144]

In the period between 1990 and 2010, timber extraction and logging were responsible for 52% of forest degradation in developing countries, 31% was related to fuelwood collection and charcoal production, 9% to forest fire, and 7% to livestock grazing[145].

At a global level, the FAO is clear that 'agricultural expansion continues to be the main driver of deforestation and forest fragmentation and the associated loss of forest biodiversity'.[146] Combined with poor forest and land-use governance, these factors result in agriculture being the major driver of deforestation. Recent studies confirm this trend, showing that showing that between 2000 and 2010 up to 80% of deforestation worldwide was caused by agricultural expansion.[147] The remaining was due to mining, infrastructure, and urban expansion. This concerns not only tropical forests, but also temperate and boreal forests.

Several estimates are available in the literature:

[139]Fires do not occur naturally in the wet ecosystem of the Amazon basin. Instead, they are started by people completing the process of deforestation where the trees of value have already been removed, often illegally. Fire can also spread from areas recently deforested and old pasture fields that are set ablaze into forested areas causing further damage. Wildfires, prompted by natural ignition like lightning, are extremely rare in the rainforest and are estimated to happen only every 500 years or more.

[140] Jacobson, M (2014). Effects of biomass burning on climate, accounting for heat and moisture fluxes, black and brown carbon, and cloud absorption effects. Journal of Geophysical Research: Atmospheres, 119 (14). Pages 8980-9002. https://agupubs.onlinelibrary.wiley.com/doi/10.1002/2014JD021861

[141] Jacobson, M., 2014. Effects of biomass burning on climate, accounting for heat and moisture fluxes, black and brown carbon, and cloud absorption effects. Journal of Geophysical Research: Atmospheres. http://web.stanford.edu/group/efmh/jacobson/Articles/VIII/bioburn/14BburnJGR.pdf

[142] FAO and UNEP, 2020. The State of the World's Forests 2020. Forests, biodiversity and people. Rome. in EPRS, 2020, An EU framework to halt deforestation

[143] Interview with EU institutions.

[144] EU Parliament, 2020, REPORT - with recommendations to the Commission on an EU legal framework to halt and reverse EU-driven global deforestation (2020/2006(INL))

[145] Hosonuma, N., Herold, M., De Sy, V., De Fries, R.S., Brockhaus, M., Verchot, L., Angelsen, A., and Romijn, E., 'An assessment of deforestation and forest degradation drivers in developing countries', Environmental Research Letters 7(4), 2012, 044009. https://doi.org/10.1088/1748-9326/7/4/044009

[146] FAO and UNEP, 2020. The State of the World's Forests 2020. Forests, biodiversity and people. Rome. in EPRS, 2020, An EU framework to halt deforestation

[147] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/65505/6316-drivers-deforestation-report.pdf

- It was estimated that during the 2000-2010 period, large-scale commercial agriculture (including mainly cattle farming and the cultivation of soya and oil palm) was associated with 40% of the tropical deforestation followed by local subsistence agriculture associated with 33% of the tropical deforestation observed. [148] Another estimate presented in a 2013 study[149] concluded that for the 1990-2008 period, gross deforestation was estimated at 239 Mha, out of these 55% were clearly attributed to the conversion of forest land to land for crop production, ruminant livestock production and industrial roundwood production.

- During the period 2005-2013, 5.5 Mha of forest were lost annually (total 44 Mha) in the tropics and subtropics due to expansion of the agricultural and forestry land use, this represented 62% of the total deforestation. The remaining 38% were attributed to a mix of logging and natural forest loss (e.g., fires)[150].

- Out of the area of forest lost to agricultural and forestry land more than 40% of the deforestation embodied in products was associated with expanding pastures for beef production, accounting for the loss of 2.2 million hectares of forest per year, making it the globally traded product associated with deforestation with the highest accounted forest loss per year. Following cattle meat, the other commodities associated to deforestation were forestry products (associated with the loss of 0.8 million hectares of forest per year), palm oil associated to the loss of 0.4 Mha per year, cereals (excl. rice)[151] (0.4 Mha/yr.) and soybeans (0.4 Mha/yr.) – which combined accounted for approximately another 40% of total embodied deforestation.[152]

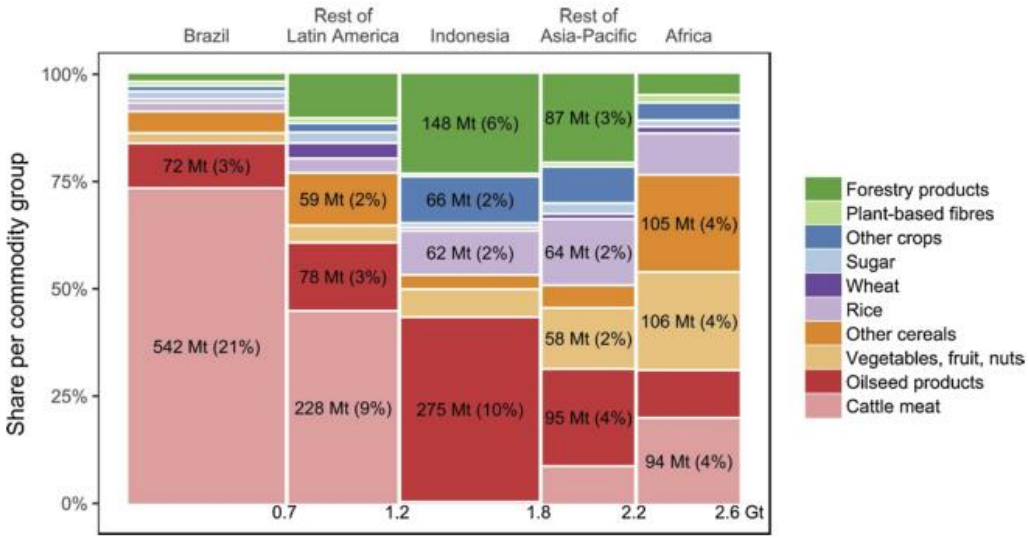
While there are differences in the sources, there is some consensus on the share of deforestation attributed to agriculture.

From an economic perspective, the causal relationship between income and deforestation should be taken into account. In particular, a study on economic development and forest cover found that countries with highest income per capita have approximately 10% more forest cover on average and ceteris paribus than do countries developing countries[153]. Such link is stronger for countries at early stage of their economic development and weakens in advanced economies[154]. The causal relationship between income and forest cover may be due to changes in yield in non-forested land, access to credit because of liquidity constraints of forest owners in low-income countries, and the more substantial income that farmers can derive in the short run from agricultural activities and trade if compared to forestry activities.

Research published in 2019[155] undertook a detailed supply chain analysis in order to link greenhouse gas emissions from deforestation to specific commodities, the overall results of which are presented below. This study shows the relative importance of specific commodities in the most relevant regions in terms of embodied greenhouse gas emissions.

[148] FAO and UNEP, 2020. The State of the World's Forests 2020. Forests, biodiversity and people. Rome. in EPRS, 2020, An EU framework to halt deforestation
[149] VITO, 2013, The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation
[150] Pendrill et al 2019, Deforestation displaced: trade in forest-risk commodities and the prospects for a global forest transition https://iopscience.iop.org/article/10.1088/1748-9326/ab0d41/pdf
[151] Other cereals included wheat, barley, maize, rye, oats, millet, sorghum, buckwheat, quinoa, fonio, triticale, canary seed, and grain – note that rice was treated separately as this is a major crop in tropical regions
[152] Pendrill et al 2019, Deforestation displaced: trade in forest-risk commodities and the prospects for a global forest transition https://iopscience.iop.org/article/10.1088/1748-9326/ab0d41/pdf
[153] Crespo Cuaresma, J., Danylo, O., Fritz, S. et al. Economic Development and Forest Cover: Evidence from Satellite Data. Sci Rep 7, 40678 (2017). https://doi.org/10.1038/srep40678
[154] Crespo Cuaresma, J., Danylo, O., Fritz, S. et al. Economic Development and Forest Cover: Evidence from Satellite Data. Sci Rep 7, 40678 (2017). https://doi.org/10.1038/srep40678
[155] Pendrill et al 2019, Deforestation displaced: trade in forest-risk commodities and the prospects for a global forest transition https://iopscience.iop.org/article/10.1088/1748-9326/ab0d41/pdf

Figure 4.7 Overview of the greenhouse gas emissions from deforestation of specific commodities and per region



Source: Pendrill et al 2019[156]
Note: "Region's width on the x-axis corresponds to the embodied emissions produced in that region, while the y-axis shows the share of emission attributed to each commodity group within each region, implying that the rectangles within the plot are scaled according to the emissions embodied in each region commodity combination. The percentages within the rectangles indicate the share of the total (2.6 GtCO2 yr.) embodied emissions. "

The delay between deforestation and the start of agricultural activities on cleared lands need to be considered, as it can last several years – e.g., soybean is planted on cleared areas after 5-7 years on average[157]. As a result, there is no immediate temporal link between deforestation event and crop production[158].

Agricultural expansion is in turn driven by the global demand for specific products and commodities, market pressures, dietary preferences, and lack of efficiency in agricultural practices and waste. [159] As such there is a very strong link between deforestation and forest degradation and international trade[160]. In particular, FTA recorded by WTO are an important factor for agricultural land expansion and thus for net deforestation[161].

Drivers of deforestation and the related commodities that are associated with the deforestation and forest degradation vary according to the region considered:

- In the **Brazilian Amazon**, land grabbing and cattle ranching are the main drivers of deforestation. Large-scale conversion of Brazil's pasturelands to soy production has also caused indirect land-use change by displacing pastures onto Amazon and Cerrado native vegetation, as well as elsewhere in South America[162].

[156] Pendrill et al 2019, Deforestation displaced: trade in forest-risk commodities and the prospects for a global forest transition https://iopscience.iop.org/article/10.1088/1748-9326/ab0d41/pdf
[157] Interview with EU institutions
[158] Interview with EU institutions
[159] FAO and UNEP, 2020. The State of the World's Forests 2020. Forests, biodiversity and people. Rome. in EPRS, 2020, An EU framework to halt deforestation Forests
[160] European Parliament, 2019. How can international trade contribute to sustainable forestry and the preservation of the world's forests through the Green Deal? https://www.europarl.europa.eu/RegData/etudes/IDAN/2020/603513/EXPO_IDA(2020)603513_EN.pdf
[161] Abman, R. and Lundberg, C., 'Does Free Trade Increase Deforestation? The Effects of Regional Trade Agreements', Journal of the Association of Environmental and Resource Economists 7(1), 2020, pp. 35–72, https://doi.org/10.1086/705787
[162] Seymour & Harris (2019), "Reducing tropical deforestation", Science Magazine

- In **Africa**, the main cause of deforestation is subsistence farming reflecting the increase in population coupled with a relatively low efficiency of the agricultural practices. Nevertheless, commercial agriculture is also playing an increasingly important role in deforestation in Africa with industrial agriculture and selective logging on an upward trend since 2007 and are likely to expand further.[163]

- In **Indonesia**, deforestation has been driven by complex interactions between selective logging and conversion to industrial oil palm and pulpwood plantations. Ten years ago, more than half of Indonesia's deforestation was for the expansion of industrial plantations, but by 2016, this driver accounted for less than 15% of the total. Between 2014 and 2016, small-scale farming drove more than one-quarter of all deforestation. The fires of 2015 accounted for 20% of forests lost that year by transforming them into grass and shrub land.

- **Elsewhere in Southeast Asia**, deforestation for smallholder agriculture is accelerating. [164]

- **The Russian boreal forest** is the largest forest area in the world and has been identified as a deforestation hot spot with large forest areas lost to wildfires (up to 62.5% of deforestation due to forest fires, 87% of which are estimated to have been initiated by human) [165]. Forest fires occur naturally, however degraded forests are more vulnerable and can burn easily. Degraded forests include heavily logged forests and cleared forests for agricultural purposes, whether illegally or not. Between 2001 and 2019, 69.5 Mha of tree cover have been lost in Russia, corresponding to 9.1% of its tree cover.[166] Note that this information partly contradicts some of the information reported above from the FAO Global Forest Resources Assessment. In particular, the net gain in forest area in Europe between 2000 and 2010 was mainly due to the Russian Federation.

- Illegal logging has been raised as a growing issue in the **Balkans** in the last 10 years. Forests in According to Global Forest Watch, Albania has registered a tree cover loss of 39 kha between 2001 and 2019, corresponding to a change of 0.45 percentage points in the percentage of tree cover[167].

- Between 1990 and 2011, a total of 366,000 ha of forests have been illegally cleared in **Romania[168]**. As a result, the European Commission sent a formal notice to Romania urging the government to halt illegal logging, as it is not complying with the EUTR, the Habitats and Birds Directives, and the Strategic Environmental Assessment Directives[169].

- Between 1990 and 2010, 70% of forest degradation in **Latin America** and **Asia** was due to timber extraction and logging. The remaining was associated to fuelwood collection and charcoal production. Uncontrolled fires occur mainly in Latin America[170].

[163] Seymour & Harris (2019), "Reducing tropical deforestation", Science Magazine
[164] Seymour & Harris (2019), "Reducing tropical deforestation", Science Magazine
[165] Deforestation in far eastern Siberia https://lcluc.umd.edu/hotspot/boreal-deforestation-far-eastern-siberia
[166] Global Forest Watch, Russia Dashboard, https://www.globalforestwatch.org/dashboards/country/RUS/
[167] https://bit.ly/3g3RlWC
[168] http://www.curteadeconturi.ro/Publicatii/economie7.pdf
[169] https://ec.europa.eu/commission/presscorner/detail/en/inf_20_202
[170] Hosonuma, N., Herold, M., De Sy, V., De Fries, R.S., Brockhaus, M., Verchot, L., Angelsen, A., and Romijn, E., 'An assessment of deforestation and forest degradation drivers in developing countries', Environmental Research Letters 7(4), 2012, 044009. https://doi.org/10.1088/1748-9326/7/4/044009

- In the period between 1990 and 2010, fuelwood collection and charcoal production was the main driver for forest degradation in the **African continent**, accounting for 48 of total degradation[171].

Beyond agricultural expansion, forests suffer from a range of pressures including habitat change, loss and degradation, invasive species, overexploitation (including illegal logging) and trade in wildlife. These pressures are further exacerbated by climate change.

4.2.1 The link between deforestation and the pandemic

A recent study attempted to quantify the comparative costs of investment needed to prevent deforestation and costs from a pandemic, using the example of the ongoing COVID-19 pandemic. The hypothesis behind the research is that there is a causal link between deforestation and wildlife trade on the one hand and virus emergence on the other hand[172]. The WHO attempt to trace back the origin of the SARS-CoV-2 has tried to establish a direct link with the Huanan Wholesale Seafood Market in Wuhan City. However, further investigations are needed given the earlier timeframe of the first proven case[173]. Analyses have shown that deforestation and land use change are among the factors causing viruses to break the interspecies barriers, thus leading to epidemics and pandemics when they infect humans[174]. As such by reducing deforestation and wildlife trade there would be a related reduction in the risk of new pandemics triggered by novel human viruses. The study found that the preventive costs of the considered measures (including reducing by half global deforestation) would be 'substantially less than the economic and mortality costs of responding to these pathogens once they have emerged'[175].

4.3 Role of the EU in worldwide deforestation and forest degradation

Again, there are different sources of data available on the role of the EU in worldwide deforestation and forest degradation. In addition to the data presented in Section 4.2 on drivers of deforestation, which showed the overwhelming link between agricultural expansion and deforestation, a 2013 study specifically estimated the impact of EU consumption on deforestation[176].

The study concluded that for the 1990-2008 period, gross deforestation was estimated at 239 Mha, out of which 55% was clearly attributed to the conversion of forest land to land for crop production, ruminant livestock production and logging. The report also looked at EU consumption and concluded that the EU consumed 10% of the global embodied deforestation consumption (representing 732 kha per year). Over the period 1990-2008, the EU 27 imported almost 36% of all deforestation in crop and livestock products traded between regions. This estimate is the most robust available data on attribution of deforestation to EU consumption, to date.

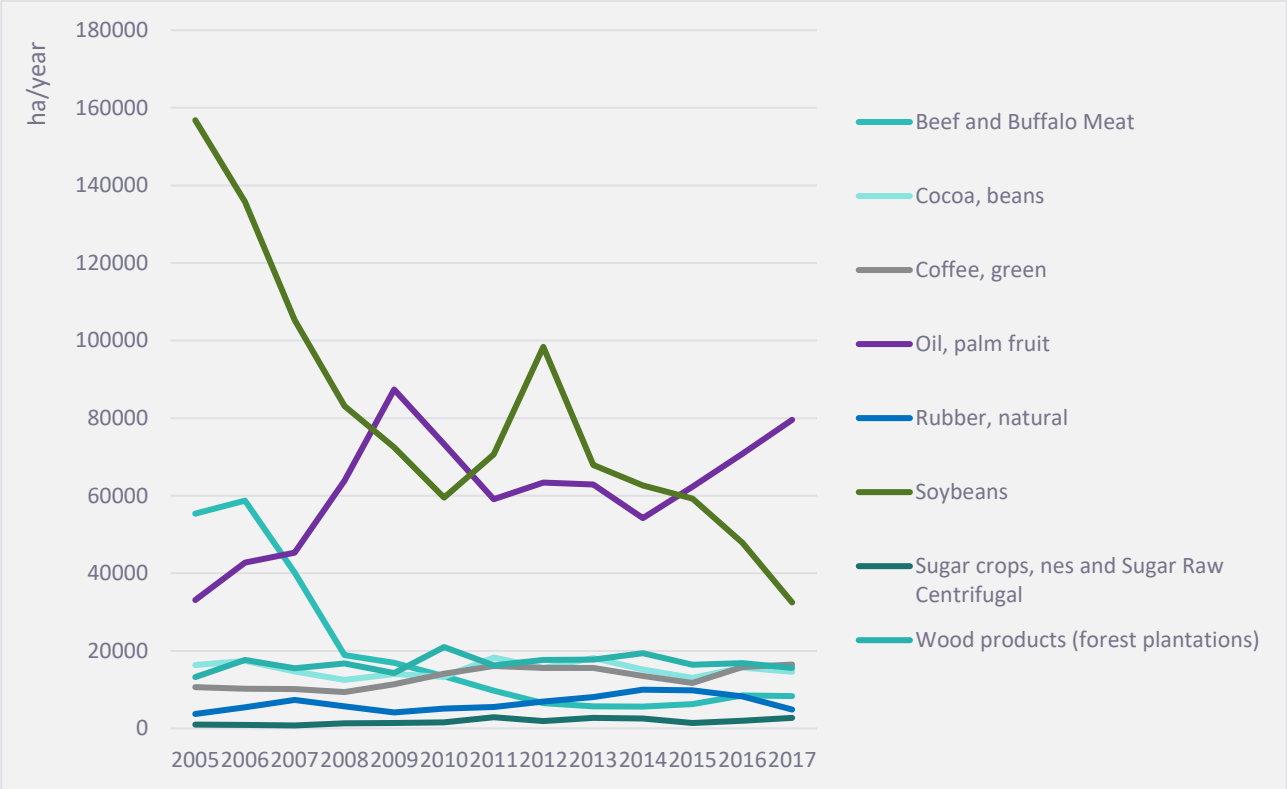
More recent estimate based on Bager et al[177] found that between 2015 and 2017, the EU consumption of globally traded agricultural products associated with deforestation had an estimated annual deforestation risk of 190,000 ha, particularly due to a set of commodities (palm oil, soybeans, forest products, cocoa, and

[171] Hosonuma, N., Herold, M., De Sy, V., De Fries, R.S., Brockhaus, M., Verchot, L., Angelsen, A., and Romijn, E., 'An assessment of deforestation and forest degradation drivers in developing countries', Environmental Research Letters 7(4), 2012, 044009. https://doi.org/10.1088/1748-9326/7/4/044009
[172] Dobson et al. 2020, Ecology and economics for pandemic prevention, Science Magazine, July 2020
[173] https://apps.who.int/iris/bitstream/handle/10665/332197/WHO-2019-nCoV-FAQ-Virus_origin-2020.1-eng.pdf
[174] https://www.who.int/publications/i/item/who-convened-global-study-of-origins-of-sars-cov-2-china-part
[175] Dobson et al. 2020, Ecology and economics for pandemic prevention, Science Magazine, July 2020
[176] VITO, 2013, The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation.
[177] Bager et al. (2020), Reducing commodity-driven tropical deforestation: Political feasibility and 'theories of change' for EU policy options, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3624073

coffee). The deforestation associated with this small group of commodities and associated with EU consumption represented 5.6% of the global deforestation[178].

A recent dataset on the deforestation embodied in the production and consumption of agricultural and forestry commodities by country, year and commodity has been compiled for the period 2005-2017. The chart below presents the evolution of embodied deforestation, in hectare per year, associated with a range of commodities and linked to EU-27 countries. It can be seen that while deforestation associated with soybeans is mostly decreasing throughout the period, deforestation associated with palm oil seems to increase again since 2014. Deforestation associated with cocoa, coffee, sugar crops and wood products remain constant throughout the period.

Figure 4.8 Deforestation embodied in the EU 27 production and consumption of agricultural and forestry commodities for selected commodities over 2005-2017 period

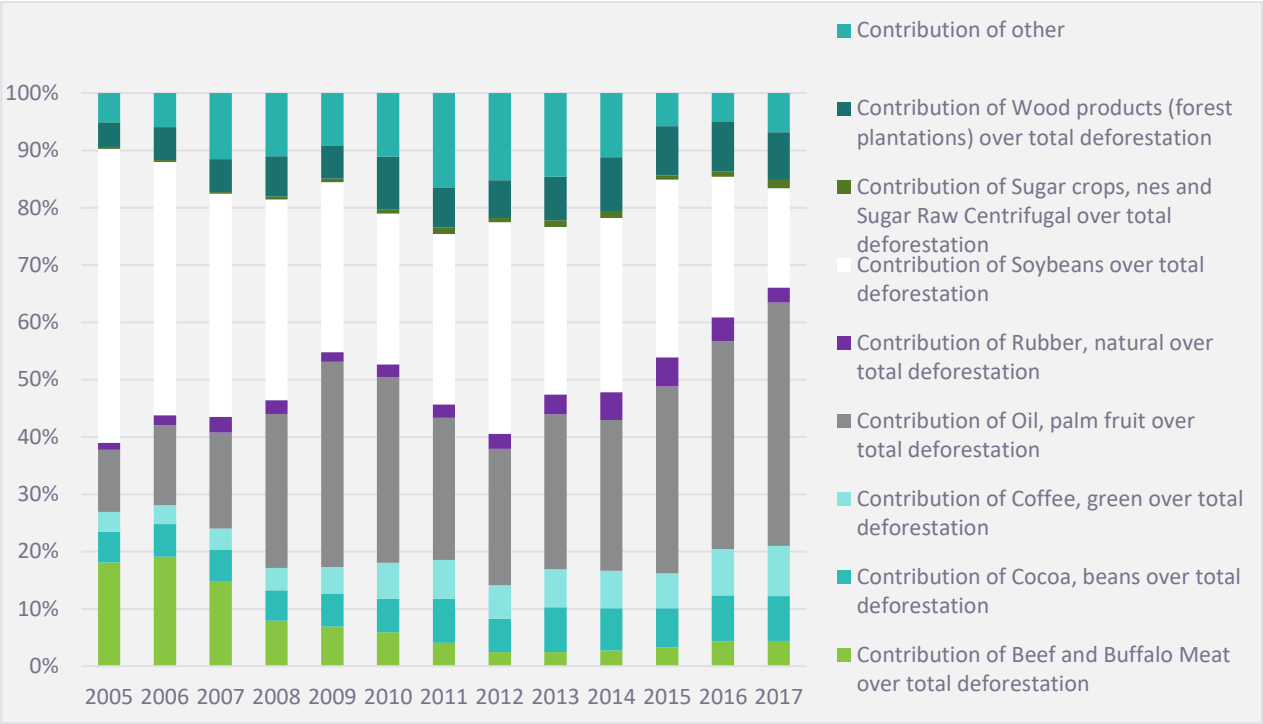


Note: Data from Florence Pendrill, U. Martin Persson & Thomas Kastner (2020). 'Deforestation risk embodied in production and consumption of agricultural and forestry commodities 2005-2017'. Chalmers University of Technology, Senckenberg Society for Nature Research, SEI, and Ceres Inc. DOI: 10.5281/zenodo.4250532

The graph below shows the contribution to deforestation (in terms of ha/year of forest loss) of selected commodities[179]. Assuming that the Pendrill et al. dataset addresses all the commodities associated with deforestation, the graph shows the share (%) of each commodity over the total contribution to deforestation over the years. The column 'other' aggregates all the other commodities included in the dataset, other than those selected in the present study.

[178] 190,000 hectares for selected crops associated with EU vs average total deforestation between 2015-2017 of 3,389,523.2 hectares
[179] The selected commodities are wood, sugar, rubber, palm oil, soybeans, coffee, cocoa, and beef. The selection of the commodities is explained in section 7.1.3.

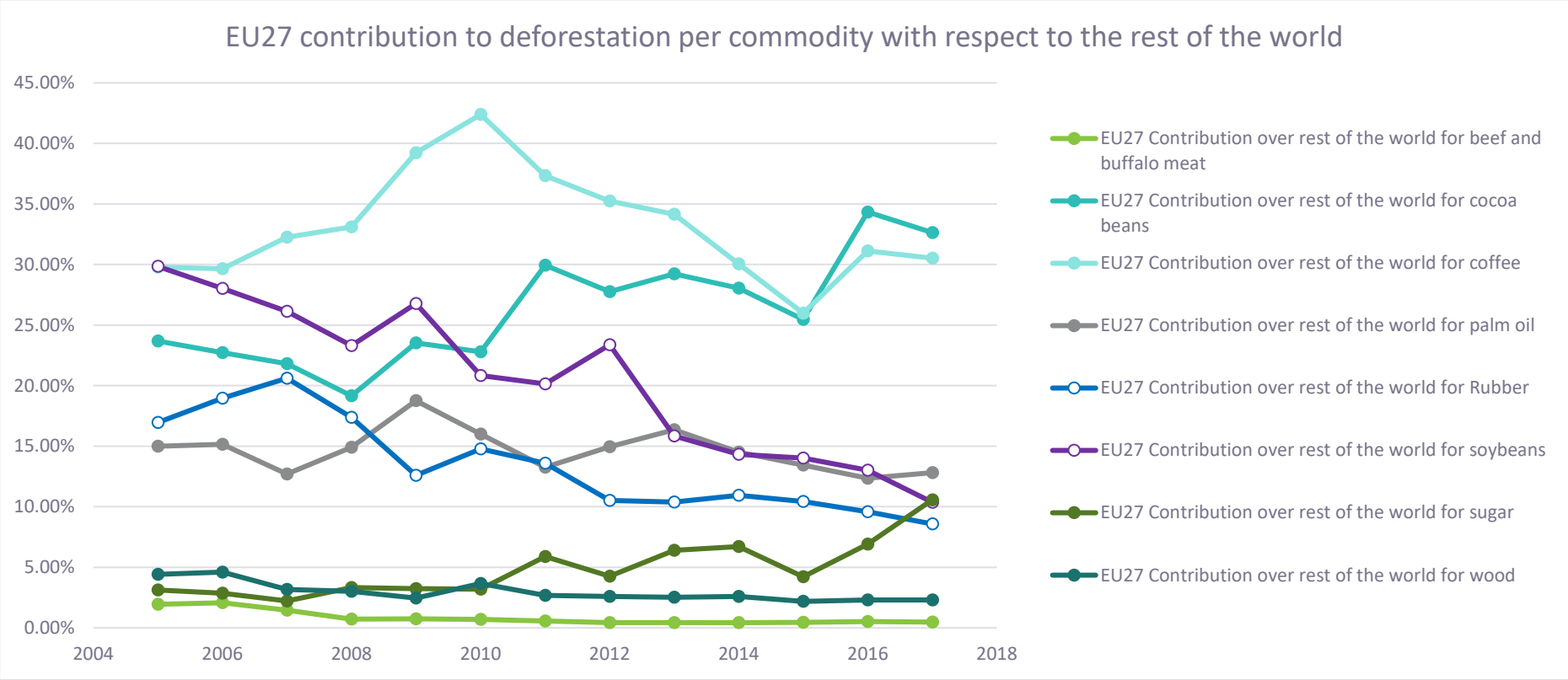
Figure 4.9 Contribution of each commodity to deforestation over the years for the EU27



Note: Data from Florence Pendrill, U. Martin Persson & Thomas Kastner (2020). 'Deforestation risk embodied in production and consumption of agricultural and forestry commodities 2005-2017'. Chalmers University of Technology, Senckenberg Society for Nature Research, SEI, and Ceres Inc. DOI: 10.5281/zenodo.4250532

The graph below shows the share (%) of the EU27 contribution to deforestation (in terms of ha/year of forest loss) for each of the selected commodity with respect to the rest of the world by year. The EU27 contribution is thus divided by the aggregate of the contribution of the other countries (including the EU).

Figure 4.10 Contribution of EU27 to deforestation per commodity in comparison to rest of the world



Note: Data from Florence Pendrill, U. Martin Persson & Thomas Kastner (2020). 'Deforestation risk embodied in production and consumption of agricultural and forestry commodities 2005-2017'. Chalmers University of Technology, Senckenberg Society for Nature Research, SEI, and Ceres Inc. DOI: 10.5281/zenodo.4250532

Furthermore, the EU has the highest consumption per capita of embodied deforestation through goods placed on the EU market (before the USA and China).[180] Most of the imported commodities are used and consumed within the EU and it was estimated that only a minority (15%) is processed and re-exported.[181]

A general conclusion that can be made, is that while detailed data vary, there is overall a clear consensus on the fact that deforestation associated with EU consumption is significant and continues to remain relevant.

4.4 Market failures and gaps in the legislative framework

The EU intervention aims at addressing a range of market failures and legislative gaps.

4.4.1 Externalities

Externalities occurs when 'market prices do not reflect how one activity produces costs or benefits for other activities[182]. This is the case when considering products and commodities associated with deforestation and forest degradation. Specifically, as elaborated in the previous sections, deforestation results in negative externalities, including elevated risk of erosion, floods and lowered water tables, and increased release of carbon into the atmosphere associated with global climate change, biodiversity loss, increased risks of pandemic[183].

The destruction of forests has negative environmental and social effects on producing countries in which it occurs, in importing countries from an economic perspective. For producing countries, deforestation leads to a decline in agricultural activity because of changes in microclimate, of soil erosion and water availability[184]. In addition, the production activity would accumulate in the remaining areas, because of the low regenerative capacity of the destroyed forest, leading to an unsustainable producing pace. Meanwhile, the increase in GHG emissions would result in loss of production capacity and several environmental damages worldwide. Finally, consumers welfare is negatively affected by the declining supply of environmental goods due to biodiversity loss and climate change in general[185].

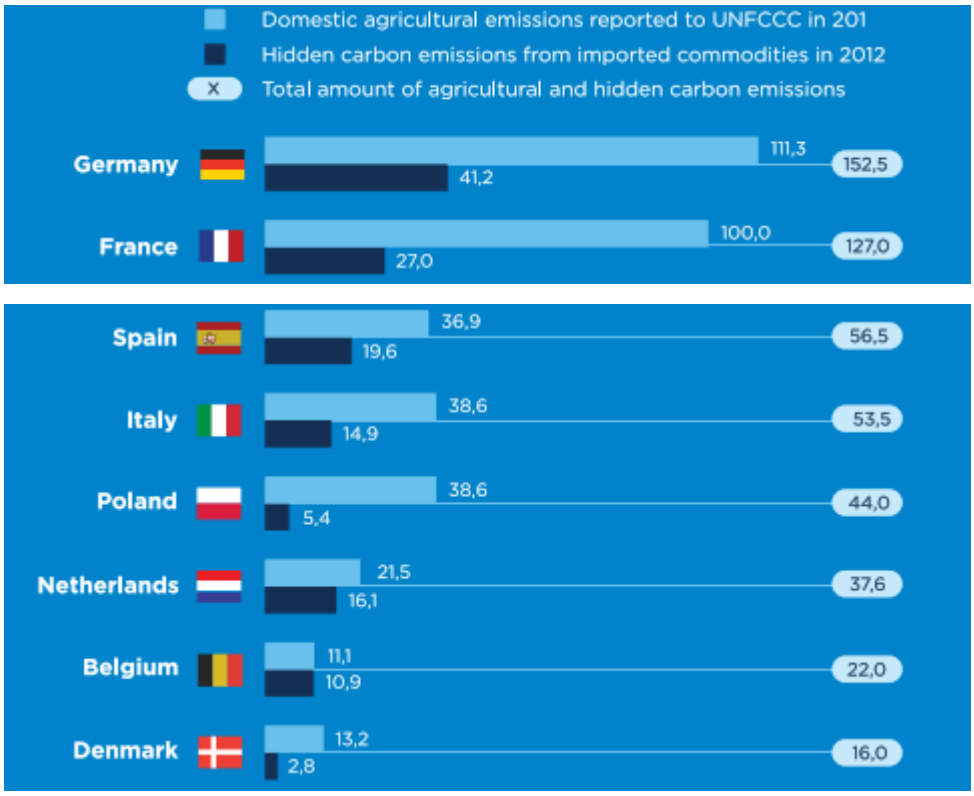
In addition, when exporting products associated with deforestation a problem of carbon leakage might occur[186] GHG emissions linked to the production process, and thus to deforestation, are reported as emissions from the producing country rather than the importing country.

Solutions to externalities include ensuring that prices reflect the externality more accurately (i.e., internalise) or by correcting the market through 'regulation of the particular activity'[187].

[180] EPRS, 2020, An EU legal framework to halt and reverse EU-driven global deforestation. https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf
[181] EPRS, 2020, An EU legal framework to halt and reverse EU-driven global deforestation. https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf
[182] European Commission (n.d.), Better Regulation Toolbox, https://ec.europa.eu/info/sites/info/files/better-regulation-toolbox.pdf
[183] Gibson, C; McKean, M; Ostrom, E. (1998) Explaining Deforestation: The Role of Local Institutions. Forests, Trees and People Programme
Working Paper No. 3. https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/46/Forest-Resources_and_institutions_chapter_1_explaining_deforestation.pdf?sequence=1&isAllowed=y
[184] Amelung T. (1993) Tropical Deforestation as an International Economic Problem. In: Giersch H. (eds) Economic Progress and Environmental Concerns. A Publications of the Egon-Sohmen-Foundation. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-78074-5_10
[185] Amelung T. (1993) Tropical Deforestation as an International Economic Problem. In: Giersch H. (eds) Economic Progress and Environmental Concerns. A Publications of the Egon-Sohmen-Foundation. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-78074-5_10
[186] Carbon leakage refers to a situation in which a company moves its business to a region with less stringent climate policies, resulting in the overall increase of emissions.
[187] European Commission (n.d.), Better Regulation Toolbox, https://ec.europa.eu/info/sites/info/files/better-regulation-toolbox.pdf

An analysis was conducted to compare national GHG emissions from agriculture with emissions from imported commodities associated with deforestation. It found that for a "third of industrialised countries, imported deforestation is estimated to amount to more than 50% of national agricultural emissions"[188].

Figure 4.11 Comparison of domestic and imported emissions in EU countries



Source: IDH, 2020, Note figure has been edited to focus on EU countries

4.4.2 Absence of an international, legally binding framework for forests protection

One of the key gaps in the current legislative framework is the absence of an international legally binding framework for the protection of forests from deforestation and degradation. While the absence of a legislation per se is not a sufficient justification to adopt a new legislation, the absence of a legislative framework combined with the increase of national initiatives (see Section 3) hints at the need for a coherent action at EU level. Deforestation and forest degradation are a global problem, and as such coordinated action is required to address them, in particular to avoid leakage risks (see Section 8.3).

4.4.3 Information asymmetries

There are information asymmetries, derived from a lack of common standards and reliable information being made available to consumers. Information asymmetries occur when in an economic transaction, one party has more information than the other. Particularly, consumers have less information than producers and sellers because they lack reliable information on products and their links to deforestation. Common standards agreed at international level would provide consumers with more knowledge, considerably reducing the information asymmetry problem.

[188] IDH, 2020. Note that in the UNFCCC reporting Agriculture and land-use, land-use change and forestry (LULUCF) are different categories. Sometimes these are combined under AFOLU (agriculture, forestry and other land use). Deforestation would be an emission under LULUCF (reported by the producer country) . If total AFOLU emissions of a country is taken as a basis, this means that also CO2 removals from growing forest in that importing country are included.

4.5 Who is affected by the problem?

The table below provides an overview of stakeholders affected by the problem.

Table 4.2 Overview of stakeholders affected

Category affected	Area of concern
Citizens worldwide	Citizens are affected by the loss of biodiversity and the effects from increased climate change. The loss in biodiversity results in a loss of ecosystem services, which provide wider population support system in terms of food, water, and air[189]. The IPCC estimated that human-induced warming ranged 0.8-1.2C in 2017, increasing at 0.2C per decade. The projection of possible impacts from climate change showed the world needed to remain under 1.5-2 degree increase in order to avoid the worse effects of climate change including the increased likelihood of severe, pervasive and irreversible impacts for people and ecosystems (e.g., heatwaves, extreme precipitation, acidification of the ocean and global sea level rise are some of the most likely effects)[190].
Indigenous peoples and rural households	At a local level, forests provide subsistence and income to about 25% of the world's population, many of them indigenous people[191]. The FAO conducted a review of estimates available on 'forest dependent people' to conclude on the share of the population depending on forest and forest products. It estimated that one-third of humanity could be described as being 'closely dependent' of forests. [192] Deforestation threatens livelihoods and their way of life. Very often, their collective property rights are violated. Activists defending forests and protect the rights of indigenous people are often threatened and sometimes killed. Furthermore, 'wood and non-wood forest products' provide up to 20% of the income of rural households in developing countries. [193] Therefore, an unsustainable use of forest natural resources jeopardises the livelihood of the local population. However, it has to be noted that the expansion of land for subsistence agriculture is one of the main causes of deforestation, as previously explained.
Economic operators	Economic operators are affected in that they knowingly or unknowingly are involved in supply chains associated with deforestation or forest degradation. The FAO's state of the forest report considered the role of forests in global economy and it concluded that the formal forestry sector covers more than 45 million jobs globally, this is completed by an additional 41 million jobs in the informal sector[194]. In the context of increased deforestation, these jobs could be at risk.
Financial institutions	Financial institutions are knowingly or unknowingly involved in supply chains associated with deforestation or forest degradation. The involvement of financial institutions was supported by many stakeholders involved in the study consultations. Justifications for this include to stop financial institutions investing and lending to companies linked to deforestation and forest degradation and to encourage the investment in more sustainable agricultural practices. The European Parliament emphasised that "the same legal framework should apply to all financial institutions authorised to operate in the Union that are providing money to companies that harvest, extract, produce, process or trade forest and ecosystem-risk commodities and derived products', in relation to mandatory due diligence.
Consumers	Consumers are affected in that they might have limited access, choice for products that are not associated with deforestation.
National and supra-national authorities	The European Union, as well as EU Member States and third countries without a legislative framework or monitoring mechanisms to ensure that commodities and derived products placed on their national markets are not associated with deforestation or forest degradation.

[189] European Commission (2015). Ecosystem Services and Biodiversity. In-depth report Issue 11. https://ec.europa.eu/environment/integration/research/newsalert/pdf/ecosystem_services_biodiversity_IR11_en.pdf
[190] IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.
[191] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52019DC0352&from=EN
[192] FAO and UNEP, 2020. The State of the World's Forests 2020. Forests, biodiversity and people. Rome. in EPRS, 2020, An EU framework to halt deforestation Forests
[193] FAO and UNEP, 2020. The State of the World's Forests 2020. Forests, biodiversity and people. Rome. in EPRS, 2020, An EU framework to halt deforestation Forests
[194] FAO and UNEP, 2020. The State of the World's Forests 2020. Forests, biodiversity and people. Rome. in EPRS, 2020, An EU framework to halt deforestation Forests

4.6 Expected evolution of the problem

Detailed information on evolution of the problem without further action is presented in Section 7.3.

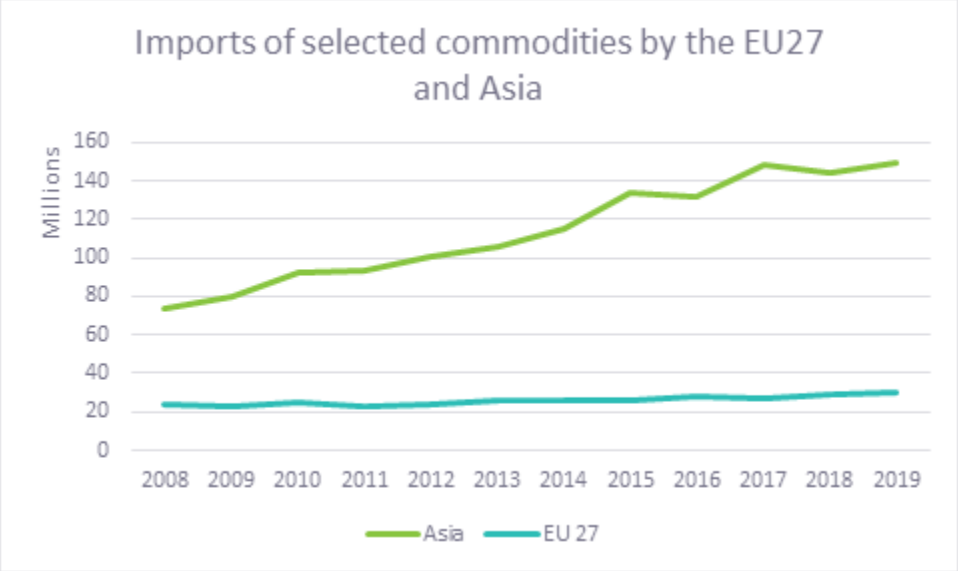
In brief, without further action, it is expected that deforestation will continue, at rates that are incompatible with international objectives, including the objectives of the Paris Agreement of keeping global temperature rise below 1.5-2 C and the objectives and commitments under the Convention on Biological Diversity.

A feasibility study undertaken for the Commission[195] considered that the global production and the export of globally traded agricultural products associated with deforestation will grow in the coming years. Much of this growth will occur in countries like Argentina, Brazil, India and Indonesia. The projected area of deforestation in these countries until 2030 accounts for a large majority of the global, tropical deforestation projections by the WWF (2015). In Africa, the feasibility study predicted that deforestation will also grow, particularly in the Congo Basin and East Africa, of which an estimated 24 Mha are at risk between 2010 and 2030. The major commodities driving this will be beef, palm oil, soy, and timber. [196]

The study[197] also found that EU consumption of globally traded agricultural products associated with deforestation will stagnate for some (e.g., beef, soy, rubber, pulpwood), but increase for other (e.g., palm oil, cocoa and coffee). Overall, it was predicted that the absolute amount of deforestation associated with EU consumption would increase, with the approximate range of EU embodied deforestation rate being between 0.3 and 0.6 Mha in 2030.

Nevertheless, the relative role of the EU as a driver behind deforestation will decrease, as Asia is expected to increase its relative share of the global demand for commodities related to deforestation such as soy and beef.

Figure 4.12 Relative growth of import of selected commodities (in tonnes) by the EU27 and Asia in the period 2008-2019. Source FAOSTAT. Based on palm oil, soy, beef, cocoa and coffee



Source FAOSTAT. Based on palm oil, soy, beef, cocoa and coffee

While this will reduce the impact of potential policy options in the EU aimed at reducing or redirecting EU consumption only, it will increase the importance of dialogues with other major market players on globally

[195] COWI, 2018, Feasibility study on options to step up EU action against deforestation
[196] COWI, 2018, Feasibility study on options to step up EU action against deforestation
[197] COWI, 2018, Feasibility study on options to step up EU action against deforestation

traded agricultural products associated with deforestation.[198] In relation to this, other EU actions related to the 2019 Communication will be relevant, in particular on political and policy dialogue with third countries and international cooperation.

Global population is expected to increase to 9.8 billion by 2050 (vs 7 billion in 2010).[199] In that period food demand is expected to increase by more than 50% by 2050 (compared to 2010) and demand for animal-based foods by nearly 70%.[200] This demand for food will likely lead to an increase in area required and used for agriculture. Studies have projected that even with the expected increase of crop and livestock yields, cropland and pastures will need to expand by 42% by 2050 to meet food demand. This suggests that pressure from agricultural land into existing forest will further increase in the coming years.[201] The report concluded that increasing the productivity of agricultural practices is a necessary condition to fill the 'food gap' and thus prevent further expansion of agricultural land. This increase in agricultural productivity is also necessary to reduce the expected increase of GHG emissions from land use changes and loss of biodiversity. [202] Furthermore, inefficiencies in food supply chains, including losses during transport and food wastage lead to additional production which can also contribute to deforestation[203].

In addition to the predicted increase in global demand for food and products associated with deforestation and forest degradation, the report looked into EU specific trends focusing on 12 European countries that together represent 70% of the import of commodities into Europe (including EEA) associated with deforestation and forest degradation [204, 205]. The report concluded that 'despite year-to-year fluctuations, net imports of most commodities' show an upward trajectory[206]. For detailed information on the evolution, see the section on baseline in section 7.

[198] COWI, 2018, Feasibility study on options to step up EU action against deforestation
[199] World Resource Institute, 2018, Creating a Sustainable Food Future A Menu of Solutions to Feed Nearly 10 Billion People by 2050 (Synthesis Report)
[200] World Resource Institute, 2018, Creating a Sustainable Food Future A Menu of Solutions to Feed Nearly 10 Billion People by 2050 (Synthesis Report)
[201] https://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0418199enn_main_report.pdf
[202] World Resource Institute, 2018, Creating a Sustainable Food Future A Menu of Solutions to Feed Nearly 10 Billion People by 2050 (Synthesis Report)
[203] World Resource Institute, 2018, Creating a Sustainable Food Future A Menu of Solutions to Feed Nearly 10 Billion People by 2050 (Synthesis Report)
[204] IDH (2020) The urgency of action to tackle tropical deforestation. February 2020. Prepared for IDH by FACTS Consulting, COWI A/S and AlphaBeta Singapore. IDH: Utrecht, the Netherlands.
[205] The report focused on these commodities: beef, palm oil, soy, tropical timber, cocoa, wood pulp, rubber, coffee, and other food crops and these countries: Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Switzerland, and the United Kingdom
[206] IDH (2020) The urgency of action to tackle tropical deforestation. February 2020. Prepared for IDH by FACTS Consulting, COWI A/S and AlphaBeta Singapore. IDH: Utrecht, the Netherlands.

5. Why should the EU act?

This chapter provides an overview of the legal basis for the EU to take action, as well as describing the necessity for such action and the added value and relevance for the action to be taken by the European Union (as opposed to Member states acting alone).

Table 5.1 Key takeaways

Takeaway	Finding
The EU has a legal basis for action.	Action is possible legally under Article 191(2), 192(1) of the Treaty on the Functioning of the European Union.
The EU can contribute to more effectively meeting the UN Sustainable Development Goals	Current policies at global level do not meet the objective of halting deforestation and forest degradation. The EU has the power to ensure more sustainable and deforestation-free value chains, and to promote awareness of deforestation-free consumption within the EU through collective and focused action.
National actions are being taken, leading to a possible lack of harmonisation in tackling a global problem and legislative fragmentation	Some Member States have started to adopt legislation and strategies to tackle deforestation associated with their consumption. The protection of the internal market justifies action at EU level.

5.1 Legal basis

Article 191(2) of the Treaty on the Functioning of the European Union requires the Union policy on environment to aim at a high level of protection[207]. It states that the "*Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay*".

In this context, harmonisation measures answering environmental protection requirements shall include, where appropriate, a safeguard clause allowing Member States to take provisional measures, for non-economic environmental reasons, subject to a procedure of inspection by the Union". Article 192 (1) states that "*the European Parliament and the Council, acting in accordance with the ordinary legislative procedure and after consulting the Economic and Social Committee and the Committee of the Regions, shall decide what action is to be taken by the Union in order to achieve the objectives referred to in Article 191' and Article 21(2.f) that requires the Union to help develop international measures to preserve and improve the quality of the environment and the sustainable management of global natural resources, in order to ensure sustainable development*"[208].

Action would, therefore, be taken according to these three key provisions.

[207] Treaty on the Functioning of the European Union https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12012E/TXT
[208] Treaty on the European Union, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:12008M021

5.2 Subsidiarity: necessity and added value of EU action

The Union intervention is justified as:

- **Similar challenges exist across EU Member States**. The problems identified are shared in a similar way for a large number of Member States, with 9 Member States[209] and 3 European countries having been identified to be associated with 70% of the imports of commodities associated with deforestation[210].

- **A contribution to meeting more effectively the UN Sustainable Development Goals.** In a recent document published by the council of the European Union in 2019 entitled "Conclusions of the Council and of the Governments of the Member States sitting in the Council on the Communication on Stepping Up EU Action to Protect and Restore the World's Forests,"[211] EU Member States expressed their concern on the current deforestation situation and expressed their support for action as response to the EU's "Communication on Stepping Up EU Action to Protect and Restore the World's Forests". Member States further expressed that they were deeply concerned that current policies and action at global level on conservation, restoration and sustainable management of forests do not suffice to halt deforestation and forest degradation and emphasised that enhanced EU action is needed in order to contribute more effectively to meeting the UN Sustainable Development Goals.

- **The EUTR and the FLEGT would be affected.** The EUTR and the FLEGT Regulations focus on legality of timber imports. Any action affecting these legislations needs to be taken at EU level. The lack of regulatory framework to reduce the impact of EU consumption on deforestation and forest degradation is an opportunity to complement the EUTR and the FLEGT Regulations. In particular, the Fitness Check undertaken as part of this project, concluded that while the policy mechanism underpinning the EUTR allows flexibility to respond to new and emerging challenges linked to illegal logging and illegal land use change, the FLEGT framework was found to be not fit for purpose (see Fitness Check report for further details).

- **Relevance to international trade**. As presented in previous sections, the drivers underpinning the deforestation and forest degradation issues are complex and linked to international trade. As such, an intervention at EU level to address the consumption footprint of the EU could benefit from the EU experience in dealing with complex supply chain issues (e.g., the illegal logging legislation) and addressing international trade issues in a coordinated and harmonised way.

- **Internal market concerns**. As some Member States have started taking action at national level, the potential impacts on the internal market and the protection of the internal market also justify action at EU level. The EU action could complement and strengthen national efforts of Member States. There is the need to make sure that alongside legal actions on products placed on the EU market, external co-operation is considered, especially for commodities where Europe is fully dependent on a few export countries.

- **Action taken at national level is not effective.** As reported in a study by the European Parliament, current national measures addressing deforestation have a minimal effect on

[209] Member States covered are: Germany, France, Spain, Italy, Poland, Netherlands, Belgium and Denmark
[210] IDH, 2020, The report considered the following commodities: palm oil, soy, beef, cocoa, coffee, rubber, pulp and paper and tropical timber
[211] https://www.consilium.europa.eu/media/41860/st15151-en19.pdf

reducing and eliminating deforestation embodied in EU imports.[212] Such measures have struggled to change consumption patterns or stimulate demand for deforestation-free products and commodities. For example, it is reported that ADP signatories are still exposed to high levels of deforestation risk due to the sourcing partners of their main importing companies.[213,]

- **Complexity of the issue**. EU action on the demand side would focus on the EU's contribution to deforestation and forest degradation associated with the production of globally traded agricultural products associated with deforestation. This includes the contribution generated through flows of finance and investment from the EU to activities associated with deforestation overseas.[214] Manufacturer associations noted that action at national level is too modest, and a wide EU action is more viable. In addition, because companies operate their business over multiple countries, they would need to comply with a different legislation per Member State if measures are not taken at the EU level.

The necessity of the EU to act is strongly supported by EU citizens. The recent Open Public Consultation that closed in December 2020, received 1,194,758 responses, showing the overwhelming interest of the EU citizens in the topic. Respondents identified that measures tackling EU-driven deforestation and forest degradation should be designed and implemented foremost at EU level (N=866 of 1,130) followed by international level (N=628 of 1,130) and national in EU Member States (N=363 of 1,130). Similarly, the response to the #Together4Forests campaign from WWF, which fed largely into the Open Public Consultation, clearly supported action from the EU and noted that it can do this by passing a new law that would stop products linked to the destruction of nature from ending up on the EU's supermarket shelves'[215].

Were the EU not to act, the problem of deforestation and forest degradation related to EU consumption would persist and grow further. This could negatively affect the EU's efforts in the field of biodiversity protection, climate change, human rights, peace and security and the rule of law.

[212] European Parliament (2020), An EU legal framework to halt and reverse EU-driven global deforestation, https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf.
[213] European Parliament (2020), An EU legal framework to halt and reverse EU-driven global deforestation, https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf.
[214] https://www.euractiv.com/section/biomass/opinion/tackling-tropical-deforestation-the-need-for-eu-leadership/
[215] Together 4 Forest https://www.wwf.eu/campaigns/together4forests/

6. What should be achieved?

This chapter aims to set the level of policy ambition for an EU intervention, including both the general policy objectives and the specific objectives which the policy options should help achieve. The proposed objectives are purposely broad to allow the consideration of alternative policy options without prejudging any particular solution. The chapter also provides an intervention logic, linking the identified problems with drivers and objectives.

Table 6.1 Key takeaways

Takeaway	Finding
General objectives	• To reduce global deforestation, GHG emissions and biodiversity loss • Minimise the EU's contribution to deforestation and forest degradation worldwide thus reducing the EU contribution to GHG emissions and global biodiversity loss. • Promote sustainable consumption and production patterns in the EU
Specific objectives	• Replacing consumption of products that contribute to forest degradation and deforestation by products from deforestation-free supply chains. • Replace the demand in the EU for unsustainable and deforestation linked supply chains with sustainable products and 'deforestation free' supply chains. • Raising awareness among the public of the impact of demand for some commodities and products on deforestation and forest degradation. • Incentivise financial and economic investors to consider deforestation in their investment decisions. • Facilitate the trade of legal and sustainable commodities and products.

6.1 Objectives of an EU intervention

Although the problems of deforestation and forest degradation are wide and embrace many different areas, including human rights, economic aspects, and environmental issues, this initiative focuses specifically on demand-side measures to tackle the environmental aspects of the problem. Other initiatives are being developed to address the problem from the other perspectives, as explained in section 3.

6.1.1 General objectives

A set of general objectives were formulated as part of the Inception Impact Assessment. These have been slightly amended following inputs from stakeholders as part of the consultations and further analysis. The general objectives are:

- Reduce global deforestation, GHG emissions and biodiversity loss.
- Minimise the EU's contribution to deforestation and forest degradation worldwide thus reducing the EU contribution to GHG emissions and global biodiversity loss.
- Promote sustainable consumption and production patterns in the EU

These general objectives are further complemented by specific objectives, set out in the next section.

6.1.2 Specific objectives

Specific objectives set out in more details what the policy intervention is meant to achieve and are articulated as follows:

- Replacing consumption of products that contribute to forest degradation and deforestation by products from deforestation-free supply chains.
- Replace the demand in the EU for unsustainable and deforestation linked supply chains with sustainable products and 'deforestation free' supply chains.
- Raising awareness among the public of the impact of demand for some commodities and products on deforestation and forest degradation.
- Incentivise financial and economic investors to consider deforestation in their investment decisions.
- Facilitate the trade of legal and sustainable commodities and products.

6.2 Intervention logic

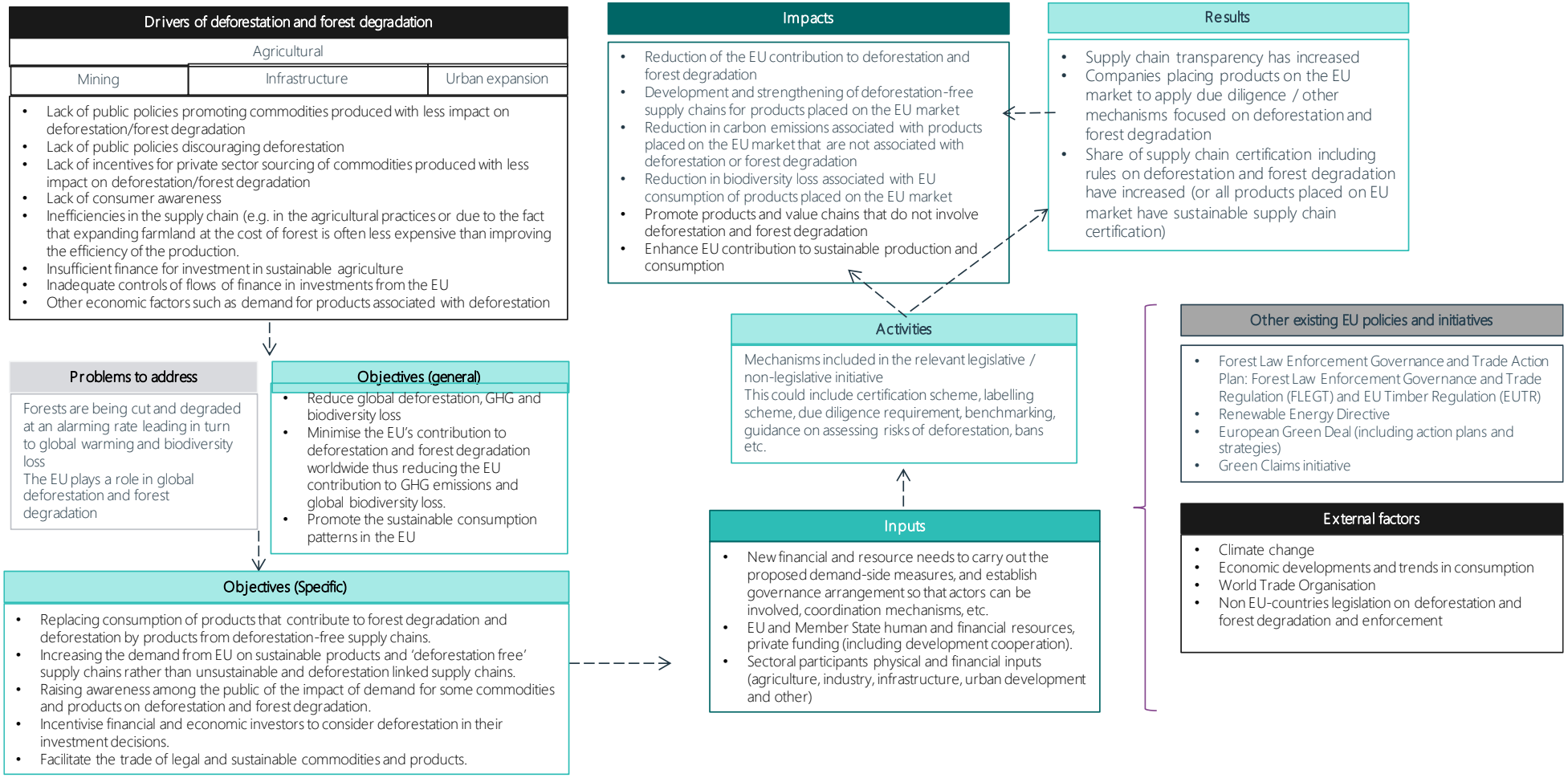
The intervention logic provides a (narrative) description and / or diagram summarising how the intervention is expected to work (i.e., it describes the expected logic of the intervention or chain of events that should lead to the intended change)[216]. An intervention logic is presented in the figure below.

The intervention logic reflects the need to address the problem of forests being cut and degraded at an alarming rate. Deforestation and forest degradation lead to increased global warming (through increased GHG emissions and loss of emissions capture capacity from trees) and loss of biodiversity. The drivers of deforestation are predominantly linked to agriculture, and also to a lesser extent to mining activity, infrastructure development and urban expansion. Agricultural expansion is led by an increase in demand for bulk agricultural commodities and products containing these commodities such as soy, palm oil, cocoa, meat and wood. The EU as part of the global economy, contributes to this demand through its consumption of agricultural commodities and derived products associated with deforestation and forest degradation. As such, the objectives of the intervention are twofold: to minimise the EU's contribution to deforestation and forest degradation worldwide and to encourage sustainable consumption and production patterns. The EU intervention action will be undertaken through demand-side measures, focusing on the EU market. The focus on demand-side is justified by other complementary activities being undertaken to support supply side needs.

The specific objectives of the intervention include, replacing the consumption of products that contribute to forest degradation and deforestation by products from deforestation free supply chains, promoting trade of sustainable commodities and products, raising awareness of the public, increasing the knowledge of the consumers, providing a framework to incentivise changes in countries' agricultural practices and encourage sustainability to be considered in investment and financial decisions. The inputs to reach these objectives are defined as a series of policy options further described in Section 7. The possible activities are reflected in the viability screening of measures (included in Appendix B) and include a range of possible measures such as due diligence, labelling requirements, certification scheme, benchmarking. The expected results of the intervention are to increase the transparency of the supply chains, enabling market operators, buyers and consumer to have access to more sustainable options for production and consumption and thus strengthen deforestation free supply chains. Ultimately, the impacts of a more sustainable consumption in the EU should be reflected globally through an increase in the demand of deforestation free products and commodities and a reduction of unsustainable agricultural practices that involve deforestation and forest degradation.

[216] Better Regulation guidelines

Figure 6.1 Intervention logic



6.3 Deforestation free definition – our recommendation

In developing the objectives that link the analysis of the problem (and drivers) to the options for possible demand-side measures we need to develop an operational definition of 'deforestation-free supply chains'. As such, a definition for 'deforestation-free' is required.

6.3.1 Key requirements for a definition

There are a number of requirements that the deforestation free definition must meet:

- The definition must be sufficiently broad to cover both deforestation and forest degradation.
- The definition will be used by a range of stakeholders including private companies, competent authorities and third country stakeholders. It must be sufficiently clear to not lead to diverging interpretations and be measurable based on quantitative, objective data.
- Due to its range of application and the need for legal clarity, a single definition should be developed and used as part of the EU intervention to apply to all commodities.
- The definition should support a robust decision-making process through implementation, monitoring and enforcement.
- The definition must go beyond legality (i.e., legal according to the rules of the country of origin).

Context box – The need to go beyond legality

The deforestation free definition proposed should include both illegal (i.e., legal according to the rules of the country of origin) and legal deforestation and forest degradation, and therefore, go beyond legality to include sustainability criteria.

'Zero illegal deforestation' would make action reliant on national legislation only. Based on this it is clear that tackling illegal deforestation only would not be sufficient: for example, only 49% of all recent tropical deforestation (of total tropical deforestation between 2000 and 2012) was the result of illegal conversion for commercial agriculture[217]. Whilst a significant portion of commodities produced and exported into the global market are products of illegal deforestation,[218] by focusing only on illegal deforestation, the intervention would rely on the stringency of national requirements and their enforcement, which in some regions may be insufficient to meet the desired ambition of the intervention. There is also the concern that national laws can be 'downgraded or repealed', as political situations change and regulatory changes are made (see Conservation International and Global Forest Watch, 2020).[219]

Few countries (including some EU Member States) completely prohibit deforestation. Therefore, companies focusing on illegal deforestation targets are less likely to be effective in reducing deforestation, as much deforestation may remain legal and therefore, not targeted in their commitment as those align with government regulations. Garrett et al. (2019) also report that in areas where laws are already well enforced, zero-illegal targets are unlikely to result in any additional conservation actions.[220]

It is also reported by Conservation International and Global Witness that relying on local laws can create a considerable burden for companies, as they would need to navigate and assess national and/or local legal frameworks in their supply chains.[221] Focusing only

[217] Lawson et al. (2014). https://www.forest-trends.org/wp-content/uploads/imported/for168-consumer-goods-and-deforestation-letter-14-0916-hr-no-crops_web-pdf.pdf
[218] https://www.forest-trends.org/wp-content/uploads/imported/for168-consumer-goods-and-deforestation-letter-14-0916-hr-no-crops_web-pdf.pdf
[219] https://blog.globalforestwatch.org/data-and-research/global-tree-cover-loss-data-2019/; https://www.conservation.org/docs/default-source/publication-pdfs/ci-position-final.pdf?Status=Master&sfvrsn=ea9e4ad4_2
[220] Garrett et al. (2019). https://core.ac.uk/download/pdf/304162042.pdf
[221] https://www.conservation.org/docs/default-source/publication-pdfs/ci-position-final.pdf?Status=Master&sfvrsn=ea9e4ad4_2; https://www.globalwitness.org/en/blog/the-uk-governments-move-to-legislate-to-tackle-imported-deforestation-is-a-welcome-step-but-must-go-further/

Context box – The need to go beyond legality

on legality would not result in halting deforestation and could (likely) result in further deforestation. However, in trying to meet commitments producers may have to choose between achieving legality at their national and/or local level and meeting their deforestation-free commitments (Garrett et al. 2019).[222]

Some stakeholders argue that only illegal deforestation should be considered in the definition. However, the majority of stakeholders agree that going beyond legality to include sustainability consideration is necessary to obtain an effective deforestation-free definition.
Focusing only on illegal deforestation is also suggested to lag behind the approach taken by industry for the last 10 years, such as the New York Declaration on Forests, which addresses both legal and illegal deforestation.

6.3.2 Challenges encountered in defining deforestation free

There is presently no universally used definition of 'deforestation-free'. Confusion surrounds existing deforestation-free commitments, due to many definitions and synonyms existing. Similar or synonymous definitions may include 'no deforestation', 'zero deforestation', 'zero gross deforestation', 'zero net deforestation' and 'zero illegal deforestation'. International and private organisations use definitions suited to achieve the organisation's specific aims, which means that definitions may not be transferable and comparable between commodities, geographic regions or company commitments. Commitments relating to 'deforestation-free' can be implemented by governments, industry groups, multi-stakeholder groups, NGOs, multi-lateral organisations and companies. Different definitions also use different sustainability criteria. This may be qualitative and/or quantitative and can apply to different commodities.

There is also no universally agreed definition of 'forest' or 'deforestation', which adds a further challenge to selecting a definition. More than 800 definitions of 'forest' worldwide are recognised by the United Nations Environmental Programme.[223] Different definitions may reflect differences in bio geophysical conditions or may have been developed for different purposes.

6.3.3 Approach

The recommended definition has been built from the bottom up, based on existing definitions and completed with research, feedback from stakeholders and interviews with experts.

Three recommendations are presented in Appendix A, with Definition Option 1 starting from the FAO definition. Definition Option 2 and 3 then aim to improve and complement the FAO definition by including further elements from other existing definitions and stakeholder input, also adapting the definition to the EU situation.

These three definition options can be summarised as:

- Definition Option 1: FAO definition.
- Definition Option 2: FAO definition, with further elements included as in some definitions from the Accountability Framework Initiative.
- Definition Option 3: FAO definition, Accountability Framework Initiative plus elements from the UNFCCC definition.

[222] Garrett et al. (2019). https://core.ac.uk/download/pdf/304162042.pdf
[223] https://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/WWF-Study_Deforestation-Free_Supply_Chains.pdf

6.3.4 Our recommendation

Recommended definition

The recommended definition is Definition Option 3. The definition is based on the one used by the FAO in the Forest Resource Assessment (FRA)[224] and is closely related to the Accountability Framework initiative 'no-deforestation' definition, but with some additional elements to better capture the needs of the EU intervention. The FAO definition is modified in two main ways: one, restricting to natural forests with the intention to ensure that natural forest cannot be replaced with a plantation, and secondly, it also covers forest degradation. A definition for 'forest' also had to be recommended as an important element of the definition of 'deforestation-free'. The definition must be applicable for stakeholders across the supply-chain.

'Deforestation-free': *A product/commodity that has neither caused nor contributed towards deforestation or forest degradation. Commodities should not be sourced from areas converted from a status of high biodiversity value.*

- **Forest is defined as**: *'Land spanning more than 0.5 hectares with trees higher than 2-5 m and a canopy cover of more than 10% (land-cover criteria), or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.'* (as per FAO modified to integrate UNFCCC)
- **Deforestation is defined as**: *'the conversion of forest to other land use, including conversion to plantations, independently whether human-induced or not'* (as per FAO definition, modified to cover also conversion to plantations, to ensure alignment with internationally agreed biodiversity and climate related goals).
- Loss of natural forest can also result from severe and sustained degradation (Accountability Framework Initiative). **Degradation is defined as** changes within a natural forest *'that significantly and negatively affect its species composition, structure, and/or function and reduce the ecosystem's capacity to supply products, support biodiversity, and/or deliver ecosystem services'* (closely adapted and adopted from the Accountability Framework Initiative definition of 'degradation').

The table below provides an overview of the key elements of the deforestation, and our justification for including it.

Table 6.2 Overview of key elements of the recommendation of a 'deforestation-free' definition

Definition element	Does it match existing definition	Justification
Natural forest only, which includes primary forests, regenerated (second-growth) forests, managed natural forests and forests that have been partially degraded but meet the quantitative thresholds. This excludes plantation.	Yes, matches AFi definition More strict than FAO definition	Without the focus on natural forest, it would be possible to convert from primary, natural forest to plantation forest and this would not be considered as deforestation.
Plantations excluded from the definition of 'forest'	Yes, matches AFi definition. More strict than FAO definition.	Ensure that any conversion of natural forest to plantations is considered deforestation.
Excludes land predominantly under agricultural or urban land use	Matches the FAO definition.	Areas of agricultural or urban land use are not considered forest.

[224] FAO (2018). http://www.fao.org/3/I8661EN/i8661en.pdf

Definition element	Does it match existing definition	Justification
Threshold of 10% canopy cover and trees able to reach this threshold in situ	Yes, Matches the FAO definition Yes, Matches the AFi definition (although legitimate national or sub-national definitions may take precedence). Yes, Matches the UNFCCC definition	Quantitative threshold assists monitoring and implementation. Other ecosystems (e.g., woodland or mangroves) can be considered 'forest' if this threshold and other criteria are met.
Trees reaching a minimum height of 2-5 metres, or in situ.	Greater range provided than in the AFi and FAO definitions. Yes, Matches the UNFCCC definition.	Range is adapted for the EU forest landscape.
Legal and illegal deforestation are included	Matches the FAO definition Matches the AFi definition.	This facilitates monitoring and implementation.
Human-induced deforestation and deforestation from natural causes are included	Matches the FAO definition Matches the AFi definition.	This facilitates monitoring and implementation.
Gross deforestation[225]	Matches the AFi definition Not specified in the FAO definition.	Avoidance of some leakage by not allowing deforestation to be off-set through planting of new forests is a different location.[226] Net deforestation rates conceal the scale of total deforestation.
No conversion allowed	Stricter than the AFi definition Not specified in the FAO definition	This facilitates monitoring and implementation.
Degradation	Matches the AFi definition	This encompasses degradation of natural forests.

Recommended cut-off date

A cut-off date not earlier than 2015 and not later than 2020, would align with the availability of satellite imagery and data to identify deforestation and forest degradation.

The European Parliament recommended a cut-off date of no later than 2015, while a cut-off date of 2020 would be coherent with the New York Declaration on Forests and UN Sustainable Development Goals, as well as the global goal of halting deforestation by 2020. It reflects the most recent available data. However, limitations include the issue of commodities from deforestation still being placed on the market in several years' time, due to the delay between forest clearance and commodity harvesting.

There was a great divergence of views amongst stakeholders as to which cut-off date should be implemented. Table 6.3 presents an overview of other cut-off dates identified, and a justification for the suggested exclusion. Justifications are based on a review of the literature, stakeholder and expert input. Further detail on the cut-off dates is provided in Appendix A.

[225] Gross deforestation generally refers to total amount of tree cover loss, without deducting offsets through afforestation and other means. Net deforestation takes into account both losses from deforestation as well as gains and offsets. See Appendix for more information.

[226] Note that the economic activities of logging (NACE II 02.20); silviculture and other forestry activities (NACE 02.10); gathering of wild growing non-wood products (02.30) and support services to forestry (02.40) could be associated with the category of 'Afforestation', 'Rehabilitation and restoration of forests, including reforestation and natural
forest regeneration after an extreme event', 'Forest management' and 'Conversion Forestry', under the EU Taxonomy Regulation. There may therefore be some contradiction where these activities can be considered sustainable under the EU Taxonomy Regulation.

Table 6.3 Overview of excluded cut-off dates

Cut-off date	Justification for exclusion
1990	Setting a date beyond 5-10 years ago will be challenging to implement for the following reasons: Data and satellite technology is unavailable or not detailed enough. Difficulties to identify ownership as well as whether deforestation took place this long ago. In addition, a date too far in the past may not be inclusive, with smallholders facing issues in identifying the previous status of land.
2008	2008 is already used by many international and private commitments, including RED. This date was preferred by several stakeholders, but significant updates to data availability have occurred since 2008. Expert opinion noted that a cut-off date more recent than 2008, would still bring those working to the cut-off date of 2008 through private commitments into compliance.
A future year of entry into force of the EU legislative instrument	A future date would risk there being a surge in deforestation up until the cut-off date.

When choosing a cut-off date between 2015 and 2020, several elements should be considered, with the final decision a political decision[227]:

- The cut-off date's alignment with international deforestation-free and voluntary private sector and industry commitments should be considered. Overviews of key commitments are provided in Appendix A.
- Different cut-off dates may have different impacts in the EU and on Producer Countries. Impacts such as supply tensions, prices increases and shortages (EU impacts) as well as impacts on producer countries where a high percentage of their GDP relates to exports to the EU, or where smallholders are likely to be impacted. Countries with a high number of smallholder producers include those producing cocoa in Cote d'Ivoire and Ghana, and also those smallholders producing palm oil in Malaysia and Indonesia.
- The consequences of choosing a cut-off date should also consider that traceability is likely to be difficult for commodities with longer and more complex supply chains and for smallholder producers. Identifying how much land has been cleared to grow commodities for EU import since the cut-off date, and therefore how easily due diligence may be complied with.
- Other elements of the Deforestation Communication need to be utilised for the new regulation/legislation to be effective have a minimal negative impact.

The following Figures illustrate cases on the evolution of commodity production and deforestation, based on data from TRASE.

[227] Expert opinion.

Figure 6.2 Volume of Cocoa from Cote d'Ivoire 2016-2019 and proportion of imports to the European Union (t)

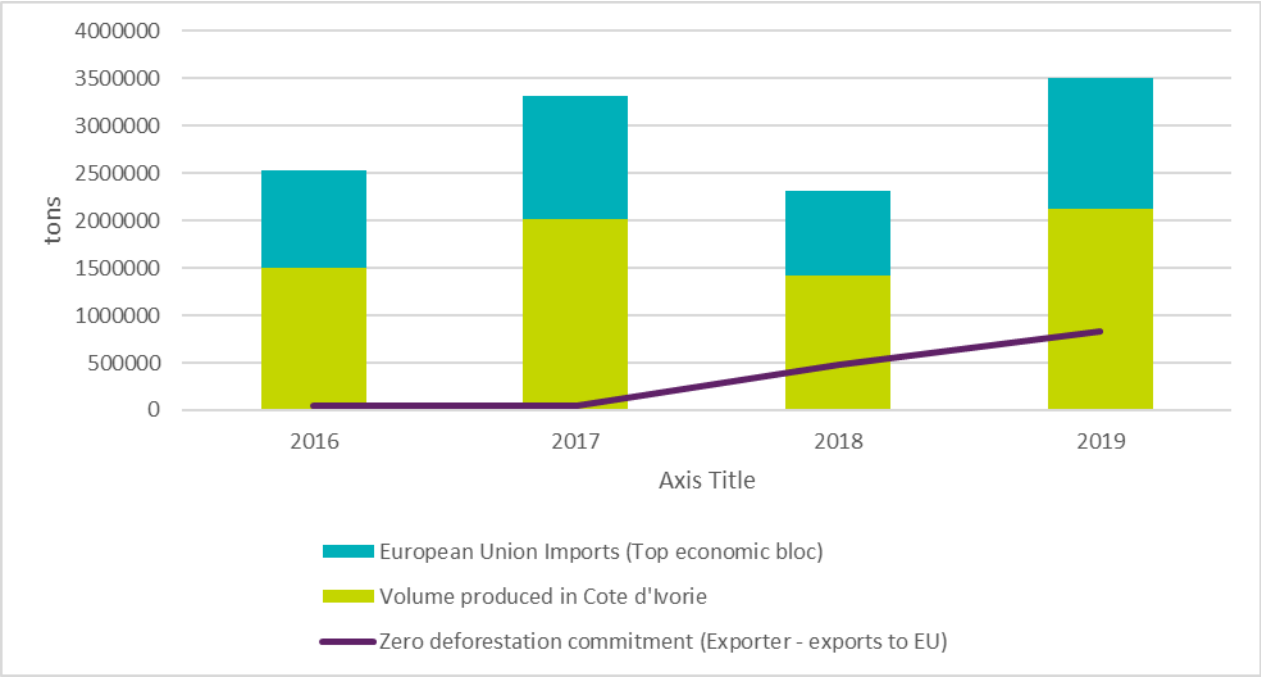


Figure 6.2 is based on data available from TRASE.[228] This illustrates the proportion of exports to the EU, as well as the tonnes covered by zero deforestation company commitments made by exporters to the EU. Whilst the proportion of deforestation occurring due to the production of cocoa in Cote d'Ivoire is not presented above, quantities of commodity production may be used as a proxy to demonstrate this, with some indication of the impact zero deforestation has, in terms of tonnage.

[228] https://supplychains.trase.earth/flows/data-view?toolLayout=1&countries=113&commodities=14&selectedContextId=64&selectedColumnsIds=0_11-1_1-2_22-3_16&selectedYears%5B%5D=2016&selectedYears%5B%5D=2016 Data was unavailable for 2015 and 2020. https://supplychains.trase.earth/flows/data-view?toolLayout=1&countries=27&commodities=1&selectedContextId=1&selectedColumnsIds=0_14-1_22-2_9-3_5&selectedYears%5B%5D=2015&selectedYears%5B%5D=2015&selectedRecolorBy=215&destinations=555

Figure 6.3 Volume of Soy from Brazil 2015-2018 and proportion of imports to the European Union (t)

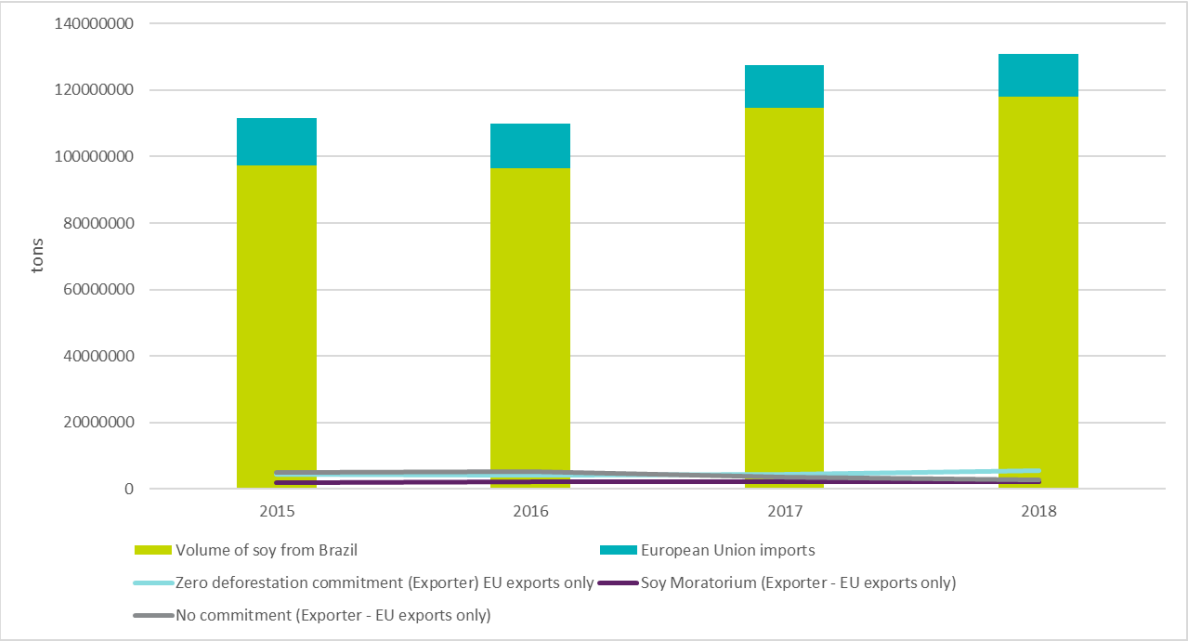


Figure 6.3 presents the volume of soy produced in Brazil as well as exports to the European Union. As above, whilst the proportion of deforestation occurring due to the production of soy in Brazil is not presented above, quantities of commodity production may be used as a proxy to demonstrate this, with some indication of the impact zero deforestation commitments have, in terms of tonnage.

7. What are the various options to achieve the objectives?

This chapter provides a description of the possible regulatory and non-regulatory options for meeting the objectives and tackling the problem, in particular, it covers the major options that are supported by stakeholders and can be assessed based on existing literature. The option of changing nothing, known as the baseline scenario, is also considered and the impacts from alternative options will be assessed against this baseline.

Table 7.1 Key takeaways

Takeaway	Finding
Recommended scope of the policy options	• Measures will apply to a **selection of bulk commodities** (commodities in raw form, e.g., wood, palm oil, soy, etc.) that are causing deforestation and/or forest degradation, and also to the **derived products from these commodities**: these include products that contain the commodity as an ingredient (e.g., biscuit containing cocoa) and products requiring the commodity in their production (e.g., livestock fed with soy). • A **progressive scope** is recommended (rather than a static limited scope or an expanded one). The scope of options will need to be dynamic to address issues such as the risk of leakage or rebound. It is suggested that an adaptive approach is adopted, in order to accommodate changes in consumption patterns in the EU, new knowledge or technological developments. • Despite a lack of comprehensive scientific research on the role of commodities and deforestation and/or forest degradation, there seems to be consensus in the literature supported by most stakeholders that the following commodities could be considered for the measures: **palm oil, beef, cocoa, coffee, soy, and wood**. Note that commodities that were not identified as part of this literature are not proposed as part of the scope in this study. • It is recommended that a mechanism is put in place where operators are responsible for identifying whether their products are derived from a commodity within the scope whilst ensuring that for products that cannot contain the commodities concerned operators are not unnecessarily tasked with burdens with no added value. An approach targeting all products derived from the commodities in their ingredients would ensure that all the considered commodities are covered. The recommended scenario is thus, to use a list of CN codes mapping product categories likely to contain the considered commodities (at level 4-digit), with a progressive scope allowing the update of CN codes to address any gaps in the future. Operators can use lists of ingredients to identify derived products under scope, including a list of alternative names that exist for each commodity (e.g., palm oil appearing under vegetable oils and fats). Operators whose products fall under the listed CN codes but do not contain the commodities must only provide evidence that the products do not contain the commodities under scope and operators should not, therefore, apply the measures in this case.
Overview of baseline scenario	The baseline scenario projects the following impacts in the absence of any extra action: • Cumulated total imports placed on the EU27 market (Mtonne): from 1,763 in 2009-2019 to 2,935.2 in 2020-2030 • Cumulated total embodied deforestation ('000 ha): from 4,089.7 in 2009-2019 to 8,057.3 in 2020-2030 • Cumulated total embodied emissions (MtCO2): from 1,589.5 in 2009-2020 to 2,549.7 in 2020-2030
Overview of policy options	• Five policy options are proposed and described: 1) improved due diligence system (DDS) relying on a deforestation-free definition; 2) a benchmarking system (with DDS); 3) mandatory public certification (with DDS); 4) a mandatory labelling scheme (with DDS) and 5) a deforestation-free requirement with benchmarking system (IUU-like)

7.1 Scope of the policy options

7.1.1 Overview of scope

Defining the commodities and products falling under the scope of the several measures and policy options is a key element of the impact assessment. Setting out clearly which commodities and products are covered by the measures and options, and which are not (along with a justification for excluding some) will contribute to:

- Increasing the effectiveness and efficiency of potential action.
- Help assess what enforcement and monitoring activities will be workable and implementable.

The measures and policy options considered in the impact assessment will cover three elements:

- Selected **bulk commodities or 'commodities in a raw form'** that are associated with deforestation and/or forest degradation. Examples of this level are: wood, palm oil, soy.
- All **products derived from or containing the above-mentioned commodities** that are associated with deforestation and/or forest degradation. As such, some intermediate and final products of the covered commodities would be included in the scope. Partiti et al, (2019) explains further the rationale behind this scope, that "the EU demand for covered commodities is not transferred back to the farmers exclusively through the supply chains of raw or post-processed commodities, but also through supply chains for products containing, or derived from, the covered commodities"[229]. In addition, the same report states that including derived products in the scope of measures and policy options contributes to not incentivising the demand for those products instead of commodities to avoid any potential obligations under the measures[230]. As such, products containing the considered commodities with other inputs would also fall under this scope. Examples of this level are: shampoo or toothpaste containing palm oil, as well as poultry fed with soy. Note that for the purpose of this report, both products 'containing' the commodities and products 'derived' from the commodities are included in the scope under the heading of 'derived products'.

When defining the scope, the following principles are key:

- A flexible approach will be taken in future to allow updating the scope, either by adding other commodities and products, or removing others, if necessary.
- The approach should ensure that there is no geographical or other unfounded discrimination.

7.1.2 Approach to scoping

The steps taken to determine the scope of commodities and derived products were:

- Carrying out a review of existing materials to identify those bulk commodities that are linked to deforestation and/or forest degradation. This is based on the available literature and existing data that links certain commodities to deforestation and/or forest degradation. **Note that commodities that were not identified as part of this literature are not proposed as part of the scope**.

[229] Partiti, E. (2020). A proposal for an EU Regulation on forest and ecosystem risk commodities.
[230] Ibid

- Further testing and validating the initial list of bulk commodities linked to deforestation and/or forest degradation, through consultation activities, such as interviews and stakeholder meetings.
- Identifying products derived from (and containing) the considered (bulk) commodities.
- Proposing an approach to apply the suggested scope to the measures.
- Finally, the team also explored the extent to which certain (bulk) commodities linked to deforestation and/or forest degradation were placed on the EU market, in order to set a context for the prioritised commodities. As shown in previous sections, EU consumption is responsible for a share of worldwide deforestation associated with the production of goods and services, and by the EU which places many of the above-mentioned bulk commodities on the EU market. Therefore, the aim of the measures and options will also be to consider those commodities (linked to deforestation or forest degradation) which are effectively consumed by the EU, and the larger the share of intra/extra EU imports (and thereby, the larger the consumption), the larger the leverage that the EU can expect to have through a legislative instrument in both addressing deforestation and forest degradation directly attributable to EU behaviour, as well as encouraging third countries to do the same. Note that this analysis was no used to prioritise the list of bulk commodities, but rather they provide additional context into the above selection.

Commentary on limitations

The following limitations were encountered while carrying out the above-described methodological steps:

State of the scientific research. Partiti et al. notes that, despite some consensus around several commodities causing the most significant impacts on worldwide deforestation, there is no scientific study that assesses all commodities potentially causing deforestation in a comprehensive manner. The report further highlights a lack of data on several commodities and their contribution to deforestation. The report concludes that "there is therefore no single and exhaustive fit-for-purpose data on the basis of which to establish which commodities determine the highest risk for global deforestation"[231]. A report recently published by the European Parliament[232], based on a paper from Sorrenti S. from 2017[233], also notes that there is not a common definition covering forest-related products that go beyond timber and timber products (including for example cork, bamboo, resins, etc.) and that there is a substantial gap in current global statistics that would reflect the means of production for those commodities or products.

The number and diversity of derived products containing the considered commodities. While it is relatively straightforward to extract certain statistics on (bulk) *commodities*, such as exports or imports, carrying out a similar analysis on derived products with the same level of detail, granularity and accuracy is not possible in the scope of this study. It is possible to identify certain derived products categories under HS/CN codes, but not for all, as certain derived products will be categorised in a group that contains other non-derived products. There are thus intrinsic limits to the use of HS/CN codes for tracing products under the scope of a possible EU intervention, in particular for products containing commodities as a result of the relative granularity of customs code data. For example, if a biscuit containing palm oil was imported into the EU it would likely fall under a four-digit HS description such as 1905 'bread, pastry, cakes, biscuits and other bakers' wares..' and may end up at the eight-digit CN description of 19053191 'sandwich biscuits' However, this categorisation does not allow the separation of those biscuits that do contain palm oil and those that do

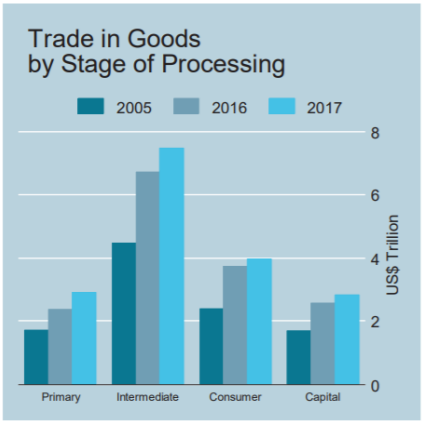
[231] Partiti, E. (2020). A proposal for an EU Regulation on forest and ecosystem risk commodities.
[232] European Parliament, 2019, How can international trade contribute to sustainable forestry and the preservation of the world's forests through the Green Deal?
[233] Sorrenti, S., Non-wood forest products in international statistical systems. Rome: Food and Agriculture Organization of the United Nations, 2017.

not – the granularity of the categorisation is insufficient. This limitation was also raised by Partiti et al[234]. We propose an approach to select and cover derived products as part of step 3 in the next section.

Re-exports. COMTRADE and COMEXT record a flow called 're-exports' included in 'exports', which is defined as "exports of foreign goods in the same state as previously imported"[235]. Therefore, the figures shown below (in particular, top exporters to the EU) should be considered with caution, as a share of those exports may be re-exports.

Growth in the exports of intermediates (i.e., derived products). Already in 2007, an OECD report[236] indicated that global value chains led to a rapidly growing volume of intermediate inputs being exchanged between different countries. This is reflected in a recent study from UNCTAD published in 2018[237], which highlights the substantial rise in trade in intermediate goods, as shown in the figure below.

Figure 7.1 Trade in goods by stage of processing



Note: UNCTAD secretariat calculations based on COMTRADE

7.1.3 Commodities associated with deforestation and forest degradation

This section assesses the extent to which the production and consumption of certain (bulk) commodities are associated with deforestation and/or forest degradation, based on the available literature. The table below presents a list of bulk commodities that were reported in the recent literature to be associated to deforestation and forest degradation. It provides an overview of the evidence (both quantitative and qualitative) supporting the link between a bulk commodity and deforestation and/or forest degradation, as well as the extent of information available, i.e., whether there is sufficient primary research to establish this link. This was further validated during several consultation activities. **As noted above, commodities that were not identified as part of this literature are not proposed as part of the scope.**

The tables differentiate between primary research conducted on the topic and other sources of information. It is important to note that several of the most recent sources reviewed rely on primary data from the same study published by Pendrill et al in 2019[238]. For instance, it is used in:

- A 2020 "Proposal for a regulation on forest and ecosystem risk commodities" by Partiti.

[234] Partiti, E. (2020). A proposal for an EU Regulation on forest and ecosystem risk commodities.
[235] UN Statistics, https://unstats.un.org/unsd/tradekb/Knowledgebase/Reexports-and-Reimports
[236] https://www.oecd.org/sti/ind/38558080.pdf
[237] https://unctad.org/system/files/official-document/ditctab2019d2_en.pdf
[238] Pendrill et al 2019, Deforestation displaced: trade in forest-risk commodities and the prospects for a global forest transition https://iopscience.iop.org/article/10.1088/1748-9326/ab0d41/pdf

- A 2020 study by Bager et al on political feasibility of EU options to reduce deforestation.
- A 2020 EU parliament report with recommendations to the Commission on an EU legal framework to halt and reverse EU-driven global deforestation.
- A 2020 Greenpeace report on a new regulation to protect the world's forests and ecosystems.
- An IDH report on the urgency of action to tackle tropical deforestation.

The majority of sources used were published between 2015 and 2020, but some literature dating from before 2015 was used to further complement and support the findings, as it is expected that reported impacts remain in the same order of magnitude.

This mapping provides an overview of extracts from the literature review, carried out so far, supporting the link between certain commodities and deforestation and/or forest degradation. The mapping shows that there appears to be a consensus in the literature on the links between deforestation and the following commodities: palm oil, soy, wood, beef, cocoa, and coffee, based on the following indicators; 1) these bulk commodities are consistently reported in the selected literature and 2) these bulk commodities are supported by selected literature relying on primary research.

Table 7.2 Literature on bulk commodities and links to deforestation/forest degradation

Commodity	Contribution to deforestation (size and scale)	EU responsibility	Literature coverage
Cattle	Current scientific research indicates a considerable consensus around beef in causing the highest impact on global deforestation, among other goods[239]. However, some other sources note that despite cattle being responsible for more tropical deforestation than any other 'forest risk commodity', the beef and leather industries are lagging far behind others such as palm oil and cocoa in addressing their role[240]. A study also shows that year-on-year deforestation on land now occupied by beef has changed little over time[241]. • Overall, **2 710 000 ha** of tropical forest are annually lost due to beef livestock [242, 243]. • The production of cattle livestock (mainly beef) led between **1992 and 2008** to the direct or indirect deforestation of nearly **63 Mha**[244]. • Pasture grazed by cattle occupies around **45.1 Mha** of land deforested between **2001 and 2015**, corresponding to **3Mha per year**[245].	• The EU was responsible for **41%** of the global demand of beef over the period **1990-2008** [246].	High: • 4 primary research [1], [2], [3], [37] • 11 secondary research [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14]
Palm oil	Current scientific research indicates a considerable consensus around palm oil in causing the highest impact on global deforestation, among other goods[247]. Palm oil exports rose steadily from 2005[248]. However, a study shows that year-on-year deforestation on land now	• The embodied deforestation associated with EU27 Net	High: • 10 primary research [1], [2], [3], [9], [15], [16], [17], [18], [19], [37]

[239] Partiti (2020)
[240] Earthsight. 2020. Grand theft chaco
[241] Goldman, E., M.J. Weisse, N. Harris, and M. Schneider. 2020. "Estimating the Role of Seven Commodities in Agriculture-Linked Deforestation: Oil Palm, Soy, Cattle, Wood Fiber, Cocoa, Coffee, and Rubber." Technical Note. Washington, DC: World Resources Institute. Available online at: wri.org/publication/estimating-the-role-of-sevencommodities-in-agriculture-linked-deforestation
[242] FAO and UNEP. 2020. The State of the World's Forests 2020. Forests, biodiversity and people. Rome. https://doi.org/10.4060/ca8642en
[243] Henders, S., Persson, U.M. & Kastner, T. 2015. Trading forests: landuse change and carbon emissions embodied in production and exports of forest-risk commodities. Environmental Research Letters 10, no. 12, doi:10.1088/1748-9326/10/12/125012.
[244] VITO. 2013. "The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation"
[245] Goldman, et al. (2020)
[246] Ecofys, Milieu and COWI (2018) Final report on feasibility study on options to step up EU action against deforestation. http://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0418199enn_main_report .pdf.
[247] Partiti (2020)
[248] Ordway, Asner and Lambin. 2017. "Deforestation risk due to commodity crop expansion in sub-Saharan Africa".

Commodity	Contribution to deforestation (size and scale)	EU responsibility	Literature coverage
	occupied by palm oil has decreased in recent years[249]. It is also noted that palm oil is a perennial crop, which can grow in shaded areas, limiting the conversion of forests.[250] • **270 000 ha** of tropical forest are annually lost due to palm oil plantation[251, 252] • Globally in the period between **1990 and 2009**, oil palm contributed directly or indirectly to deforestation for an area of **8.7 Mha**. • Over the period **2001–2015, 10.5 Mha** have been replaced by palm oil plantation, corresponding to **0.7 Mha per year**[253]. • Between **2000 to 2012**, land area covered by palm oil plantations increased from 10 to 17 million hectares globally[254]. • Given the growing global demand for palm oil, which is expected to convert some 400 million ha of African forest to monoculture by the year **2050**, population decline, and habitat loss is projected to threaten over **40 species of African primates**[255, 256]. • **270 000 ha** of tropical forest are annually lost due to palm oil plantation[257, 258] • Globally in the period between **1990 and 2009**, oil palm contributed directly or indirectly to deforestation for an area of **8.7 Mha**.	imports of oil palm is **0.97 Mha**[263]. • The EU was responsible for **17%** of the global demand of palm oil over the period **1990-2008**[264]. • In **2014** the EU was responsible for **25%** of global **imports** of palm oil [265, 266].	• 8 secondary research [5], [6], [8], [12], [20], [21], [22], [23]

[249] Goldman, et al. (2020)
[250] Hylander et al. (2013), Effects of coffee management on deforestation rates and forest integrity, https://pubmed.ncbi.nlm.nih.gov/23772911/.
[251] FAO and UNEP (2020)
[252] Henders et al. (2015)
[253] Goldman, et al. (2020)
[254] Pirker, J., Mosnier, A., Kraxner, F., Havlík, P., & Obersteiner, M. (2016). What are the limits to oil palm expansion? Global Environmental Change, 40, 73-81. https://www.sciencedirect.com/science/article/pii/S0959378016300814
[255] Estrada et al. (2019)
[256] Strona G, Stringerb SD, Vieilledenta G, Szantoia Z, Garcia-Ulloa J, Wich SA. 2018. Small room for compromise between oil palm cultivation and primate conservation in Africa. Proceedings of the National Academy of Sciences of the United States of America 115(35):8811–8816 DOI 10.1073/pnas.1804775115.
[257] FAO and UNEP (2020)
[258] Henders et al. (2015)
[263] VITO (2013)
[264] Ecofys, Milieu and COWI (2018) Final report on feasibility study on options to step up EU action against deforestation. http://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0418199enn_main_report .pdf .
[265] Partiti (2020)
[266] Ecofys, Milieu and COWI (2018) Final report on feasibility study on options to step up EU action against deforestation. http://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0418199enn_main_report.pdf.

Commodity	Contribution to deforestation (size and scale)	EU responsibility	Literature coverage
	• Over the period **2001–2015, 10.5 Mha** have been replaced by palm oil plantation, corresponding to **0.7 Mha per year**[259]. • Between **2000 to 2012**, land area covered by palm oil plantations increased from 10 to 17 million hectares globally[260]. • Given the growing global demand for palm oil, which is expected to convert some 400 million ha of African forest to monoculture by the year **2050**, population decline, and habitat loss is projected to threaten over **40 species of African primates**[261, 262].		
Cocoa	Year-on-year deforestation on land now occupied by cocoa increased over time[267]. Cocoa is gaining importance in tropical deforestation as global demand is growing and readily available substitutes do not exist[268]. However, cocoa is a perennial crop, which can grow in shaded areas, limiting the conversion of forests[269]. • Over the period **2001–2015**, **10.5 Mha** have been replaced by cocoa plantation[270]. However, cocoa is a perennial crop, which can grow in shaded areas, limiting the conversion of forests[271]. • Over the period **2001–2015**, **10.5 Mha** have been replaced by cocoa plantation[272].	• Of the estimated 0.9 Mha deforestation embodied in stimulants imported into the EU27, around **0.6 Mha** is attributed to cocoa in the period between **1990-2008**[273]. • The EU was responsible for **80%** of the **global demand** of cocoa in 2014[274].	Medium: • 5 primary research [1], [3], [16], [18], [37] • 1 secondary research [15]

[259] Goldman, et al. (2020)
[260] Pirker, J., Mosnier, A., Kraxner, F., Havlík, P., & Obersteiner, M. (2016). What are the limits to oil palm expansion? Global Environmental Change, 40, 73-81. https://www.sciencedirect.com/science/article/pii/S0959378016300814
[261] Estrada et al. (2019)
[262] Strona G, Stringerb SD, Vieilledenta G, Szantoia Z, Garcia-Ulloa J, Wich SA. 2018. Small room for compromise between oil palm cultivation and primate conservation in Africa. Proceedings of the National Academy of Sciences of the United States of America 115(35):8811–8816 DOI 10.1073/pnas.1804775115.
[267] Goldman, et al. (2020)
[268] IDH (2020)
[269] Hylander et al. (2013)
[270] Goldman, et al. (2020)
[271] Hylander et al. (2013)
[272] Goldman, et al. (2020)
[273] VITO (2013)
[274] Ecofys, Milieu and COWI (2018) Final report on feasibility study on options to step up EU action against deforestation. http://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0418199enn_main_report .pdf.

Commodity	Contribution to deforestation (size and scale)	EU responsibility	Literature coverage
Coffee	Year-on-year deforestation on land now occupied by coffee increased over time[275]. Coffee is gaining importance as global demand is growing and readily available substitutes do not exist[276]. However, coffee is a perennial crop, which can grow in shaded areas, limiting the conversion of forests.[277] • Over the period **2001–2015**, **1.9 Mha** have been replaced by coffee plantation[278] • Global market trends expect annual growth rates in demand to be 6.1% until 2024.[279] Coffee growers may have to triple their production by 2050 to meet such demand forecasts.[280] • Over the period **2001–2015**, **1.9 Mha** have been replaced by coffee plantation[281] • Global market trends expect annual growth rates in demand to be 6.1% until 2024.[282] Coffee growers may have to triple their production by 2050 to meet such demand forecasts.[283]	• Of the estimated 0.9 Mha deforestation embodied in stimulants imported into the EU27, **around 0.3 Mha** is attributed to coffee in the period between **1990-2008**[284]. • The EU is responsible for **60%** of the **global demand** of coffee[285]. • The EU is responsible for **60%** of the **global demand** of coffee[286].	High: • 7 primary research [1], [3], [16], [18], [24], [25], [37] • 1 secondary research [15]
Wood	Current scientific research indicates a considerable consensus around wood in causing the highest impact on global deforestation, among other goods[287]. However, year-on-year deforestation on land now occupied by wood has decreased in recent years[288] • Deforestation embodied in wood products from logging preceding was estimated at **4.5 Mha for the period 1990-2008.**	• The **EU27 net imports** of deforestation associated with wood and wood-based products (from countries outside the region) amounts to only **0.2 Mha**[302]**.**	High: • 6 primary research [1], [2], [3], [10], [17], [37] • 3 secondary research

[275] Goldman, et al. (2020)
[276] IDH (2020)
[277] Hylander et al. (2013)
[278] Goldman, et al. (2020)
[279] CBI. 2019. What is the demand for coffee on the European market? https://www.cbi.eu/market-information/coffee/trade-statistics
[280] Conservation International. 2016. Coffee in the 21st Century, https://www.conservation.org/docs/default-source/publication-pdfs/ci-coffee-report.pdf.
[281] Goldman, et al. (2020)
[282] CBI. 2019. What is the demand for coffee on the European market? https://www.cbi.eu/market-information/coffee/trade-statistics
[283] Conservation International. 2016. Coffee in the 21st Century, https://www.conservation.org/docs/default-source/publication-pdfs/ci-coffee-report.pdf.
[284] VITO (2013)
[285] VITO (2013)
[286] VITO (2013)
[287] Partiti. 2020. "Proposal for a regulation on forest and ecosystem risk commodities".
[288] Goldman, et al. (2020)
[302] VITO (2013)

Commodity	Contribution to deforestation (size and scale)	EU responsibility	Literature coverage
	• Over the period **2001–2015**, **1.8 Mha** have been replaced by wood fibre plantation[289]. • Between **2005 and 2013**, **0.8 Mha yr−1** of forest loss across the tropics and subtropics is attributed to forestry products[290]. • **380 000 ha** of tropical forest are **annually lost** due to timber and pulp[291, 292]. • Deforestation embodied in wood products from logging preceding was estimated at **4.5 Mha for the period 1990-2008.** • Over the period **2001–2015**, **1.8 Mha** have been replaced by wood fibre plantation[293]. • Between **2005 and 2013**, **0.8 Mha yr−1** of forest loss across the tropics and subtropics is attributed to forestry products[294]. • **380 000 ha** of tropical forest are **annually lost** due to timber and pulp[295, 296]. • Between **2005 and 2013**, **0.8 Mha yr−1** of forest loss across the tropics and subtropics is attributed to forestry products[297]. • **380 000 ha** of tropical forest are **annually lost** due to timber and pulp[298, 299]. • **380 000 ha** of tropical forest are **annually lost** due to timber and pulp[300, 301].		[5], [6], [8]
Soy	Current scientific research indicates a considerable consensus around soy in causing the highest impact on global deforestation, among other goods[303]. However, year-on-year deforestation on land now occupied by soy has decreased in recent years[304].	• The embodied deforestation associated with **EU27 net**	High: • 6 primary research [1], [2], [3], [9], [16], [37]

[289] Goldman, et al. (2020)
[290] Pendrill et al. 2019
[291] FAO and UNEP (2020)
[292] Henders et al. (2015)
[293] Goldman, et al. (2020)
[294] Pendrill et al. 2019
[295] FAO and UNEP (2020)
[296] Henders et al. (2015)
[297] Pendrill et al. 2019
[298] FAO and UNEP (2020)
[299] Henders et al. (2015)
[300] FAO and UNEP (2020)
[301] Henders et al. (2015)
[303] Partiti (2020)
[304] Goldman, et al. (2020)

Commodity	Contribution to deforestation (size and scale)	EU responsibility	Literature coverage
	• The expansion of soybean production contributed to **19% of global deforestation** (direct and indirect) in the period between **1990-2008** (**13 Mha**) [305]. • Over the period **2001–2015, 8.2 Mha** have been replaced by soy plantation[306] • Between **2005 and 2013, 0.4 Mha yr−1** of forest loss across the tropics and subtropics is attributed to soybeans[307] • **480 000 ha** of tropical forest are **annually lost** due to soy plantation [308, 309] • The expansion of soybean production contributed to **19% of global deforestation** (direct and indirect) in the period between **1990-2008** (**13 Mha**) [310]. • Over the period **2001–2015, 8.2 Mha** have been replaced by soy plantation[311] • Between **2005 and 2013, 0.4 Mha yr−1** of forest loss across the tropics and subtropics is attributed to soybeans[312] • **480 000 ha** of tropical forest are **annually lost** due to soy plantation [313, 314] • Between **2005 and 2013, 0.4 Mha yr−1** of forest loss across the tropics and subtropics is attributed to soybeans[315] • **480 000 ha** of tropical forest are **annually lost** due to soy plantation [316, 317]	**imports** of soybean is **4.3 Mha**[320]. • The EU is responsible for **15% of the global demand** of soy in 2014[321]. • The EU is responsible for **15% of the global demand** of soy in 2014[322].	• 8 secondary research [6], [26], [27], [28], [29], [30], [31], [32]

[305] VITO (2013)
[306] Goldman, et al. (2020)
[307] Pendrill et al. 2019
[308] FAO and UNEP (2020)
[309] Henders et al. (2015)
[310] VITO (2013)
[311] Goldman, et al. (2020)
[312] Pendrill et al. 2019
[313] FAO and UNEP (2020)
[314] Henders et al. (2015)
[315] Pendrill et al. 2019
[316] FAO and UNEP (2020)
[317] Henders et al. (2015)
[320] VITO (2013)
[321] Ecofys, Milieu and COWI (2018) Final report on feasibility study on options to step up EU action against deforestation. http://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0418199enn_main_report.pdf.
[322] Ecofys, Milieu and COWI (2018) Final report on feasibility study on options to step up EU action against deforestation. http://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0418199enn_main_report.pdf.

Commodity	Contribution to deforestation (size and scale)	EU responsibility	Literature coverage
	• **480 000 ha** of tropical forest are **annually lost** due to soy plantation [318, 319]		
Rubber	Rubber is gaining importance in tropical deforestation as global demand is growing and readily available substitutes do not exist[323]. However, year-on-year deforestation on land now occupied by rubber has decreased in recent years[324]. In addition, rubber is a perennial crop, which can grow in shaded areas, limiting the conversion of forests.[325] • Natural rubber has been estimated to contribute **1.3 Mha** to deforestation[326]. • In 1960, four Mha worldwide were devoted to rubber cultivation and, **by 2016**, the area of land converted to rubber plantations had reached **11.4 billion ha**[327]. • It is estimated that an **additional eight million** ha of rubber plantations will be required to meet world demand **by 2024**[328]. Global demand for natural rubber also has increased rapidly in the past decades, with 70% of global consumption used for tires[329, 330, 331]. • Natural rubber has been estimated to contribute **1.3 Mha** to deforestation[332]. • In 1960, four Mha worldwide were devoted to rubber cultivation and, **by 2016**, the area of land converted to rubber plantations had reached **11.4 billion ha**[333].	• An estimated **0.2 Mha** of deforestation are associated with **EU27 net imports** in the period **between 1990-2008**[342]. • The EU was responsible for **25%** of the global demand of rubber in **2014**[343].	High: • 5 primary research [1], [3], [16], [18], [37] • 7 secondary research [4], [15], [22], [33], [34], [35], [36]

[318] FAO and UNEP (2020)
[319] Henders et al. (2015)
[323] IDH (2020)
[324] Goldman, et al. (2020)
[325] Hylander et al. (2013)
[326] VITO (2013)
[327] Ahrends A, Hollingsworth PM, Ziegler AD, Fox JM, Chen H, Su Y, Xu J. 2015. Current trends of rubber plantation expansion may threaten biodiversity and livelihoods. Global Environmental Change 34:48–58 DOI 10.1016/j.gloenvcha.2015.06.002
[328] Warren-Thomas E, Dolman PM, Edwards DP. 2015. Increasing demand for natural rubber necessitates a robust sustainability initiative to mitigate impacts on tropical biodiversity. Conservation Letters 8(4):230–241 DOI 10.1111/conl.12170
[329] Estrada et al. (2019)
[330] Ahrends et al. (2015)
[331] Warren-Thomas et al. (2015)
[332] VITO (2013)
[333] Ahrends A, Hollingsworth PM, Ziegler AD, Fox JM, Chen H, Su Y, Xu J. 2015. Current trends of rubber plantation expansion may threaten biodiversity and livelihoods. Global Environmental Change 34:48–58 DOI 10.1016/j.gloenvcha.2015.06.002
[342] VITO (2013)
[343] Ecofys, Milieu and COWI (2018) Final report on feasibility study on options to step up EU action against deforestation. http://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0418199enn_main_report .pdf.

Commodity	Contribution to deforestation (size and scale)	EU responsibility	Literature coverage
	• It is estimated that an **additional eight million** ha of rubber plantations will be required to meet world demand **by 2024**[334]. Global demand for natural rubber also has increased rapidly in the past decades, with 70% of global consumption used for tires[335, 336, 337]. • It is estimated that an **additional eight million** ha of rubber plantations will be required to meet world demand **by 2024**[338]. Global demand for natural rubber also has increased rapidly in the past decades, with 70% of global consumption used for tires[339, 340, 341].		
Sugar	• Sugar cane contributed **5% of global direct and indirect deforestation (3.3 Mha)** in the period between **1990-2008**[344]	• Global sugar consumption is expected to increase by 27% by 2030 compared to 2017, however, changing consumer preferences in the EU may result in declining sugar consumption by 5% between 2017 and 2030.[345]	Low: • 3 primary research [3], [16], [37]
Cereals	**Maize** Current scientific research indicates a considerable consensus around maize in causing the highest impact on global deforestation, among other goods[346].	**Maize** • The EU was responsible for **30% of the global demand** of maize in **2014**. Maize accounts for the	Low • 2 primary research [3], [16] • 1 secondary research [8]

[334] Warren-Thomas E, Dolman PM, Edwards DP. 2015. Increasing demand for natural rubber necessitates a robust sustainability initiative to mitigate impacts on tropical biodiversity. Conservation Letters 8(4):230–241 DOI 10.1111/conl.12170
[335] Estrada et al. (2019)
[336] Ahrends et al. (2015)
[337] Warren-Thomas et al. (2015)
[338] Warren-Thomas E, Dolman PM, Edwards DP. 2015. Increasing demand for natural rubber necessitates a robust sustainability initiative to mitigate impacts on tropical biodiversity. Conservation Letters 8(4):230–241 DOI 10.1111/conl.12170
[339] Estrada et al. (2019)
[340] Ahrends et al. (2015)
[341] Warren-Thomas et al. (2015)
[344] VITO (2013)
[345] EC (2017), EU Agricultural Outlook 2017-2030, https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2017-30_en.pdf
[346] Partiti (2020)

Commodity	Contribution to deforestation (size and scale)	EU responsibility	Literature coverage
	• The expansion of cultivated land for maize production contributed **11% of direct and indirect global deforestation (7.5 Mha)** spread across more than 70 countries[347]. • The expansion of cultivated land for maize production contributed **11% of direct and indirect global deforestation (7.5 Mha)** spread across more than 70 countries[348]. **Rice** • Rice contributed to **6% of direct and indirect global deforestation (4.3 Mha)** in more than 20 countries period **1990-2008**[349].	greatest share of globally traded coarse-grains[350]. •	
Nuts		• The estimated surface of deforestation embodied in **EU27** associated with **net imports** of nuts, over the period between **1990-2008 is 0.3** •	Low: • 1 primary research [3]

Note: [1] Goldman et al (2020), [2] Pendrill et al. (2019), [3] VITO (2013), [4] Estrada et al (2017), [5] Henders et al (2015), [6] FAO and UNEP (2020), [7] Earthsight (2020), [8] Partiti (2020), [9] Estrada et al. (2019), [10] COWI (2018), [11] Embassy of Brazil in London (2009), [12] Brack et al. (2016), [13] Bowman et al (2012), [14] Barreto, P. and Silva, D. (2009), [15] IDH (2020), [16] Ordway et al (2017), [17] Austin et al. (2019), [18] Hylander et al. (2013), [19] Pirker et al. (2016), [20] Strona et al (2018), [21] Ecofys, Milieu and COWI (2018), [22] FAOSTAT (2015), [23] Lawson (2013), [24] CBI (2019), [25] Conservation International (2016), [26] Beckman et al. (2017), [27] Gibbs et al. (2015), [28] Zalles et al. (2019), [29] Henders et al (2015), [30] Nepstad, D.C, et al. (2006), [31] Morton, D.C, et al. (2006), [32] Barona, E., et al. (2010), [33] Ahrends et al., (2015), [34] Li et al., (2018), [35] Warren-Thomas, Dolman & Edwards, (2015), [36] Mann, C. (2016), [37] EC (2017), [37] GAR (2021)[351]

[347] Ecofys, Milieu and COWI (2018) Final report on feasibility study on options to step up EU action against deforestation. http://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0418199enn_main_report .pdf.

[348] Ecofys, Milieu and COWI (2018) Final report on feasibility study on options to step up EU action against deforestation. http://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0418199enn_main_report .pdf.

[349] VITO (2013)

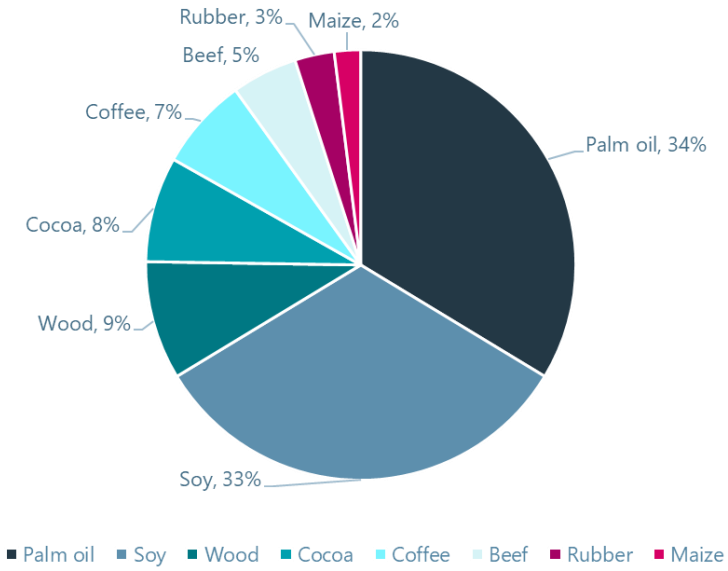
[350] VITO (2013)

[351] GAR (2021). Palm Oil Driven Deforestation Rates – Updated Data

The above literature provides substantial evidence on the following commodities: palm oil, soy, wood, cocoa, coffee, beef, rubber. However, the information available to cover cereals, nuts and sugar was not considered sufficient at the moment of analysis. Therefore, further analysis based on new data and evidence should be carried out to assess the relevance of the commodity. Further research could support its inclusion under the scope in the future. Sugar specifically does not appear as a priority commodity based on the above literature, which may be due to the fact that sugar is often processed as ethanol fuel and traded as an intermediate good. Therefore, further analysis based on new data and evidence should be carried out to assess the relevance of the commodity.

The information found in the literature review confirms the findings from the recent model developed by Pendrill et al., (2020). Data from the above-mentioned report is shown in Chapter 4. It is further summarised in the chart below, which presents the average contribution of each considered commodities as a share (%) of the total contribution of EU consumption in terms of risk of embodied deforestation, between 2008 and 2017.

Figure 7.2 Average contribution of each considered commodities as a share (%) of the total contribution of EU consumption in terms of risk of embodied deforestation, between 2008 and 2017



It appears that both cereals such as maize and rubber account for a smallest fraction of embedded deforestation among the commodities analysed, while their trade volumes are very large (around EUR 2.8 billion per year for maize and 17.6 billion for rubber). It is thought that including these two commodities in the scope would require a very large effort, with little return in terms of curbing deforestation driven by EU consumption, which is likely to negatively affect the efficiency of the measures to be implemented.

The analysis therefore resulted in the identification of the following (bulk) commodities for the initial scope of the legislative instrument: palm oil, soy, wood, beef, cocoa, and coffee.

7.1.4 Derived products associated with deforestation and forest degradation

In addition to the above prioritised bulk commodities, the following products should be under scope:

- **Products that contain the commodity as an ingredient**, e.g., a biscuit containing cocoa, a toothpaste containing palm oil, etc.
- **Products that require the commodity to be produced**, e.g., poultry, eggs or pork that were fed with soy. This is to avoid the risk of leakage caused by the placing on the EU market of

animal products (other than cattle), such as producers of poultry, eggs or pork, which will have included the use of soybean meal in their value chain. In addition, this would contribute to ensuring a level playing field in the EU livestock sector.

Both the literature and the feedback from the consultation corroborate that products derived from commodities associated with deforestation and forest degradation should be included in the scope.

- **Literature**: several studies indicate that intermediate and final products of the covered commodities should be included in the scope. Partiti et al, (2019) explains further the rationale behind this scope, that "the EU demand for covered commodities is not transferred back to the farmers exclusively through the supply chains of raw or post-processed commodities, but also through supply chains for products containing, or derived from, the covered commodities"[352]. In addition, the same report states that including derived products in the scope of measures and policy options contributes to not incentivising the demand for those products instead of commodities to avoid any potential obligations under the measures[353].

- **Feedback from the consultation**: all stakeholders interviewed (from industry, NGOs, third countries and academia) were in favour of covering at least some products derived from the considered commodities. Such an approach was also noted as being in line with the current approach taken in the EUTR on timber and timber products. One third country noted that the approach should be pragmatic, potentially targeting a reduced number of products that would have the bigger impacts on addressing deforestation and/or forest degradation.

7.1.5 Applying the scope to the measures

Measures will apply to a selection of bulk commodities (commodities in raw form) that are causing deforestation and/or forest degradation, and also to the derived products from these commodities (i.e., products that include the commodity as an ingredient and products requiring the commodity to be produced). The following three scenarios can be used to further scope the commodities and derived products:

Table 7.3 Possible scope for commodities and derived products

Scenario	Pros	Cons
Scope limited to main commodities and derived products Only certain main commodities and derived products are covered in the legislative instrument, based on 1) their high contribution to deforestation and forest degradation and 2) the share of EU imports (intra and extra EU imports) on total imports.	• Ease of implementation and enforcement	• Low flexibility • Not capturing changes in consumption, technology nor knowledge • Risk of leakage and rebound effect
Progressive scope Certain commodities and their derived products are covered in the legislative instrument, based on 1) their high contribution to deforestation and forest degradation and 2) the share of EU imports (intra and extra EU imports) on total imports. However, regular updates to	• High flexibility • Ease of implementation and enforcement • Capturing changes in consumption, technology nor knowledge • No risk of leakage nor rebound effect	• Requires capacity and resources from all stakeholders for continuous monitoring • Requires investment in processes for adaptation.

[352] Partiti, E. (2020). A proposal for an EU Regulation on forest and ecosystem risk commodities.
[353] Ibid

Scenario	Pros	Cons
the scope are carried out by the Commission or the legislator with the possibility to add or remove commodities and derived products from the scope.		
Expanded scope of commodities and derived products All commodities and their derived products are covered in the legislative instrument.	• No risk of leakage or rebound effect	• Low flexibility • Complexity of implementation and enforcement

The progressive scope scenario is recommended. The scope of options will need to be dynamic to address issues such as the risk of leakage of rebound. It is suggested that an adaptive approach is adopted, in order to accommodate changes in consumption patterns in the EU, new knowledge or technological development. Initially, the scope should cover the above identified commodities and their derived products, which can be further updated regularly (added or withdrawn), based on new evidence.

Covering bulk commodities

Bulk commodities should be covered by the measures in a straightforward manner, e.g., in an annex as for the EUTR, based on a limited list of CN or HS codes covering any of the considered commodities in a raw form. The measures should cover commodities that contribute to deforestation and/or forest degradation worldwide, according to the available literature and data, and that are placed on the EU market. The above analysis suggests that the following commodities should be under scope: cattle, cocoa, coffee, palm oil, rubber, soy and wood. A list of HS codes covering the bulk commodities under scope can be found in Appendix C.

Covering derived products

A key challenge is to define a list of derived products that should be covered by the measures: CN or HS codes cannot be used in a *straightforward manner*, as some of the product groups will contain both derived products (from the considered commodities) and non-derived products.

It is recommended that a mechanism is put in place where operators are responsible for identifying whether their products **from a mapped list of CN or HS codes** include or require the commodity under the scope for its production (e.g., biscuits containing cocoa or poultry fed with soy). An approach targeting all likely products derived from or containing the commodities in their ingredients would ensure that all the considered commodities are covered, with a progressive scope allowing the update of CN or HS codes to address any gaps in the future. The recommended scenario is thus, to use lists of ingredients to identify derived products under scope, including a list of alternative names existing for each commodity (e.g., palm oil appearing under vegetable oils and fats).

It was noted that for some commodities, the list of derived products could constitute the majority of consumer goods. According to estimates provided in one interview, palm oil may be present in about half of consumer products. Several sources corroborate that palm oil can be found in more than 50% of packaged supermarket products[354, 355, 356]. Similarly, rubber may be present in 'tens of thousands of different products', including in transport, household appliances, industrial applications (such as construction, mining, agriculture, farming, machinery), energy/offshore, food contact (drinking water, baby care, medical devices)

[354] https://www.ran.org/palm_oil_fact_sheet/
[355] https://www.ed.ac.uk/files/atoms/files/palm_oil_briefing.pdf
[356] https://www.ethicalconsumer.org/palm-oil

and leisure and sport equipment[357]. In this context, a systematic review of all CN codes was not feasible in the context of this study. The latest version now available as Commission Implementing Regulation (EU) 2020/1577 in EU Official Journal L 361 of 30 October 2020 applies from 1 January 2021 is 1,067 pages long. Therefore, while it is relatively straightforward to extract CN or HS codes for the bulk commodities, preparing a similar list of derived products with the same level of detail, granularity and accuracy is not possible in the scope of this study. It is also noted that certain derived products will be categorised in a CN or HS group that contains other non-derived products. There are thus intrinsic limits to the use of CN or HS codes for tracing products under the scope of a possible EU intervention, in particular for products containing commodities. This limitation was also raised by Partiti et al[358].

Nevertheless, a tentative list of derived products was prepared, at the level of 4 digit in CN or HS codes (unlike commodities which are identified at the level 8, for the reasons described above), following the steps below:

- Requested trade associations and some companies to provide list of HS/CN codes covered by their respective sectors. Some provided us with the main derived products covered by their respective sector, to which we have associated a CN/HS code. This should be a good starting point as such organisations have particular expertise on the main products placed on the EU market. The information provided by trade association is presented at the end of Appendix D presenting the list of derived products codes that could be considered for the progressive scope.
- Reviewed the literature to identify key product categories which are likely to contain the commodities considered.
- We tried to match product categories provided by industry with those from the literature. Such comparison has to be taken with caution as products might be defined differently by stakeholders and in the literature, for example some resources might be more detailed than others. As a result, there were lots of discrepancies between the findings from the literature and from the stakeholders.
- Provided a list of CN/HS codes (at 4-digit level) that serves as an overview of key derived products for each commodity. Note that this is not an exhaustive list of CN/HS codes that can contain the above commodities.

The table below provides an overview of key product categories which are likely to contain the commodities considered. **Based on this analysis, a list of derived products likely to include the considered commodities or use them in their production, and which should be under the scope of an intervention, was prepared and can be found in Appendix D**. The list focuses on the level 4-digit to ensure it can act as a wide enough net to cover the products under scope. An overview of the stakeholders consulted and of the literature sources reviewed to prepare such list can be found at the end of Appendix D.

Table 7.4 Overview of key product categories

Bulk commodity	Brief overview of derived products
Palm oil	Palm oil is the most widely used vegetable oil. Palm oil or its derivative can be found in approximately half of supermarket products[359], sometimes under different names on labels, such as vegetable oil or palm

[357] https://www.etrma.org/wp-content/uploads/2019/10/GRG-Facts-and-Figures-final.pdf
[358] Partiti, E. (2020). A proposal for an EU Regulation on forest and ecosystem risk commodities.
[359] https://www.wwf.org.uk/updates/8-things-know-about-palm-oil#:~:text=Palm%20oil%20is%20in%20nearly,%2C%20shampoo%2C%20toothpaste%20and%20lipstick.

Bulk commodity	Brief overview of derived products
	kernel[360]. Such labelling makes it more difficult for consumers to identify products containing palm oil, that sometimes could be unpredictable. The wide range of products containing palm oil includes, but is not limited to, bread, biscuits, chocolate, ice cream, preparation for animals feed, beauty and make-up products, soap and detergents, and waxes. It is further used as a substitute for animal fat in packed food and as a basis for biodiesel[361]. In 2018, EU used palm oil for biodiesel (53% of EU consumption of palm oil) and for heating and electricity (12%). The remaining was used for food, animal feed and other consumer uses such as cosmetics and soap, which decreased if compared to the previous year[362]. A list of derived products potentially containing palm oil with associated HS codes can be found in Annex C.
Soy	Soy can be found in different product categories like feed, food and biofuels, in the form of soybeans, soymeal, or soybean oil. Food consumption includes soy meal, biscuits, bread, plant-based drinks, cooking oil. It can be used as preparation for animal feed, in particular for the production of poultry, pork, beef, eggs and dairy. Other commonly used products containing soy are cosmetics and beauty products, soap and cleansers, ink in pen and on toys (like puzzles), waxes, and as a basis for biodiesel[363]. Similarly to palm oil, soy can be indicated using different names on products label, like hydrolyzed soy protein or textured vegetable protein. Of the 34.4 MMT of soy used in the EU in 2017, 90% was used as animal feed, 4% as food products, almost 2% as biodiesel, the remaining 4% is other uses[364]. A list of derived products containing soy with associated HS codes can be found in Annex C.
Bovine	Bovine is mainly used as live animals, livestock for meat, dairy products, consumer goods and leather. A lot of by-products result from the processing of the animals, once the main part is used for the production of meat. Besides, the usual cut of meats, like steaks and filet, the meat can be used to produce fillings, burgers, cheese, and animal food. From the skin, fat, and bones consumer goods can be produced, like candles, waxes, and beauty products. Leather is used for the production of clothes, shoes, bags, and accessories. A list of derived products containing cattle with associated HS codes can be found in Annex C.
Coffee	Coffee is mainly consumed as green coffee (i.e., unroasted raw coffee beans) in coffee-related products, followed by roasted coffee and coffee extracts[365]. The main products containing coffee include milk and beverages, comprising alcoholic beverages, sugar confectionary like candies, pastry, cakes, biscuits, yogurt and ice cream. A list of derived products containing coffee with associated HS codes can be found in Annex C.
Cocoa	Derived products containing cocoa include milk and beverages, comprising alcoholic beverages, fine bakery wares, chocolate, yogurt, and sugar confectionary. In addition, beauty products and soap can contain cocoa. In particular, chocolate confectionaries are the main products derived from the cocoa powder, while cocoa butter is mainly used in beauty and cleaning products. Confectionary products represented the highest share among cocoa products in 2019 and this predominance is expected to remain stable in the following years mainly because of demand for packaged food and confectioneries. Confectionary products are followed by other food and beverages, and cosmetic products by importance[366]. The consumption of cocoa-based beauty products is going to increase because of the more recognised health benefits provided by the cocoa powder. A list of derived products containing cocoa with associated HS codes can be found in Annex C.
Wood	Wood can be found in a large variety of products, which include furniture or parts of it, frames, board and boxes, various tools or parts of them, all types of paper and products made from it, pens and pencils, shoes platforms, seats, prefabricated buildings, toys, floorings, sport equipment like table tennis rackets.

360 https://www.worldwildlife.org/pages/which-everyday-products-contain-palm-oil
361 https://www.europarl.europa.eu/RegData/etudes/ATAG/2018/614706/EPRS_ATA(2018)614706_EN.pdf
362 https://www.transportenvironment.org/sites/te/files/publications/final%20palm%20briefing%202019.pdf
363 https://www.idhsustainabletrade.com/uploaded/2019/04/European-Soy-Monitor.pdf
364 https://www.idhsustainabletrade.com/uploaded/2019/04/European-Soy-Monitor.pdf
365 https://www.ecf-coffee.org/wp-content/uploads/2020/09/European-Coffee-Report-2018-2019.pdf
366 https://www.alliedmarketresearch.com/cocoa-products-market

Bulk commodity	Brief overview of derived products
	The biggest share of products consumed in the EU is given by furniture and other wood products[367]. As a matter of facts, the EU Timber and Woodworking industries rank as fourth largest manufacturing industry by number of enterprises (170.000), followed by furniture (120.00). The production value of furniture in 2016 represented 45.5% among the other subsectors, followed by the manufacture of products of wood, cork, straw and plaiting materials (39%) and sawmilling and planing of wood (15.5%)[368]. With respect to pulp and paper case materials, mainly used for transport packaging and corrugated boxes, represented the highest share (36.9%) in 2019 among the production of paper and board, followed by packaging papers (16.3%), uncoated papers (13.4%), coated papers (9.7%), sanitary and households (9.3%), wrapping (4.9%), newsprint (4.9%), and other paper and board (4.6%)[369]. A list of derived products containing wood with associated HS codes can be found in Annex C.

Challenges of the approach

An approach based on a pre-defined list of products comes with challenges as companies can change the composition of their products over time, based on the availability of raw materials, changes in consumer preferences, etc., which could bring new products under scope. Therefore, such a pre-defined list of products would have to be regularly revised, this could, in turn, lead to uncertainty and unpredictability for the business sector (and customs, in charge of checks). In addition, maintaining a dynamic list of derived products would risk lagging behind market developments, allowing products derived from commodities contributing to deforestation and/or forest degradation to be traded on the market until they are identified, which could, in turn, result in market distortions, loopholes and uncertainty. To update the list, this is likely to be coupled with some levels of administrative burden.

An alternative mechanism would be that operators are responsible for identifying whether their products are derived from a commodity under the scope, based on the list of ingredients. Although such an approach would ensure that all considered commodities are covered, it would result in greater amount of administrative burden for all companies placing any goods on the EU market, with information obligations for all products placed on the market. Substantially higher burden would be incurred by customs authorities having to carry out inspections on any good placed on the EU market. An approach based on minimum amount of content of the commodity in the derived product was explored in the report Partiti et al which notes that defining a minimum amount of content of the commodity in the derived product to determine whether a product falls under the scope of a measure would not maximise the effectiveness of such a measure. The report elaborates that repeated large transactions involving large quantities of products including a limited FRC [understand 'commodity'] content may nonetheless contribute substantially to deforestation … secondly, providing for a minimum amount of FRC [understand 'commodity'] would discriminate against economic operators marketing raw commodities (which would always be subject to the obligation) vis-à-vis economic operators marketing exempted derived products with low FRC content, but which, in large amount, may have comparable risks and detrimental impacts on forests[370]".

7.1.6 Further context information on the considered commodities

This section further explored the extent to which certain (bulk) commodities linked to deforestation and/or forest degradation were placed on the EU market. As shown in previous sections, EU consumption is responsible for a share of worldwide deforestation associated with the production of goods and services, and by the EU which places many of the above-mentioned bulk commodities on the EU market. Therefore, the aim of the measures and options will also be to consider those commodities (linked to deforestation or forest degradation) which are effectively consumed by the EU, and the larger the share of intra/extra EU imports (and thereby, the larger the consumption), the larger the leverage that the EU can expect to have through a

[367] https://ec.europa.eu/eurostat/statistics-explained/pdfscache/52477.pdf
[368] CEI Bois (2020) Wood Sector, Environmental Sustainability and Social Dialogue
[369] https://www.cepi.org/wp-content/uploads/2021/02/Preliminary-Draft2020.pdf
[370] Partiti, E. (2020). A proposal for an EU Regulation on forest and ecosystem risk commodities.

legislative instrument in both addressing deforestation and forest degradation directly attributable to EU behaviour, as well as encouraging third countries to do the same. Note that this analysis was no used to prioritise the list of bulk commodities, but rather they provide additional context into the above selection.

Commodities placed on the EU market

This section explores the extent to which certain (bulk) commodities linked to deforestation and/or forest degradation were placed on the EU market, based on a series of indicators:

- Historical trends of EU consumption. Proxy indicators used cover the annual imports to the EU from non-EU countries (in value and quantity) as well as the annual production (in value and quantity) of EU countries. Thereby, commodities placed on the EU market from EU and non-EU countries are treated equally in the analysis. Note that some insights on projected trends can be consulted in the baseline.
- The share of EU consumption (proxy indicator: EU imports from EU and non-EU countries in volume as a share of worldwide imports).
- In addition, a brief discussion on geographical considerations, to explore whether certain geographical areas are more or less affected by the production and consumption of certain commodities.

The tables below provide an overview of the commodities placed on the EU market by both EU and non-EU countries. The first table shows the EU imports of commodities associated with deforestation and forest degradation (as described above) from non-EU countries during the period 2009-2019[371]. The second table includes the cumulated volumes of commodities produced by EU countries. All EU statistics refer to EU27. EU consumption is reflected in the volume of commodities and products either produced in the EU or imported into the EU (originating from source countries all over the world). Note that volumes (in tonnes) are most important when considering the environmental pressure on forests and are later used in the baseline analysis. However, data on the economic value of these commodities is provided to add context on their economic relevance. The table below shows that, on average, all commodities have seen an increase in volumes imported into the EU since 2009. This reflects an increase in demand for these commodities within the EU.

The following tables include data extracted from Comext, focusing only on non-EU countries over the period 2009-2019 (the UK being considered a non-EU country). The HS codes that the tables are based on are presented in Annex C, as well as the following HS codes: 4104, 4107, 1802, 1806, 151329, and 230660.

Table 7.5 Total EU27 import volumes from non-EU countries, in million tonnes, 2009-2019, in million tonnes

Extra-EU27 Import Volume [Mtonne per year]	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average annual change 2009-2019
Sugar cane	-	-	-	2.4	2.6	2.2	1.9	1.9	1.6	0.8	1.6	**1%**

[371] Since data was incomplete for the year 2020 at the time of the analysis, the overview of 'historical' data stops at the year 2019.

Sugar beet	0.2	0.4	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	**7%**
Soybeans	20.1	20.7	20.4	30.0	29.2	30.1	32.2	31.4	31.0	31.3	31.9	**6%**
Coffee	2.6	2.7	2.7	2.7	2.7	2.8	2.7	2.9	2.8	2.9	3.0	**1%**
Cereals	3.6	4.7	8.1	17.1	16.5	21.5	21.1	22.3	24.1	30.1	31.7	**28%**
Cocoa	2.0	1.9	2.2	2.1	2.1	2.2	2.3	2.5	2.7	2.8	2.9	**4%**
Rubber	0.9	1.2	1.2	1.1	1.1	1.1	1.1	1.2	1.3	1.2	1.2	**4%**
Cattle meat	0.7	0.9	0.9	0.8	0.9	0.9	0.8	0.9	0.9	0.9	0.8	**2%**
Palm oil	7.5	7.6	6.8	7.7	8.9	9.1	9.6	9.4	9.3	9.0	9.6	**3%**
Wood products	3.7	3.8	3.8	6.7	6.8	7.1	6.9	7.8	8.1	10.1	11.4	**14%**
Total	**41.3**	**43.8**	**46.4**	**70.7**	**71.0**	**77.0**	**78.8**	**80.5**	**81.8**	**89.3**	**94.1**	**9%**

Source: Project team analysis based on COMEXT data.
Note: Import volumes for a number of commodities (e.g., cereals, soybeans, wood products) see a jump between 2011 and 2012. This can be explained by the fact that certain commodities were only included in the COMEXT dataset after 2011.

Table 7.6 Total EU27 import values from non-EU countries, in billion euro, 2009-2019

Extra-EU27 Import Value [Billion Euro per year]	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Average annual change 2009-2019**
Sugar cane	-	-	-	1.3	1.3	0.9	0.7	0.7	0.7	0.3	0.6	**-5%**
Sugar beet	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	**8%**
Soybeans	6.1	6.4	6.7	12.3	12.4	12.3	12.2	11.2	10.7	10.9	10.7	**8%**
Coffee	5.1	6.4	9.2	8.8	7.3	7.7	8.6	8.2	8.5	7.6	7.5	**5%**
Cereals	1.2	1.3	2.3	4.6	4.4	5.0	5.1	4.8	5.1	6.1	6.7	**22%**
Cocoa	5.2	6.0	6.8	5.9	5.8	5.9	7.3	8.1	7.3	7.0	7.5	**4%**
Rubber	1.1	2.7	4.3	2.9	2.3	1.8	1.6	1.5	2.2	1.7	1.7	**13%**
Cattle meat	2.5	3.5	4.2	4.0	4.4	4.8	4.8	4.5	4.5	4.1	3.7	**5%**

Extra-EU27 Import Value [Billion Euro per year]	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average annual change 2009-2019
Palm oil	3.1	3.7	4.6	5.2	4.9	5.1	5.1	4.9	5.6	4.8	4.4	**4%**
Wood products	1.4	1.5	1.5	1.8	1.6	1.7	1.8	1.8	1.7	2.0	2.1	**5%**
Total	**25.9**	**31.7**	**39.7**	**46.9**	**44.7**	**45.2**	**47.2**	**45.9**	**46.5**	**44.6**	**45.0**	**6%**

Source: Project team analysis based on COMEXT data.
Note: Import values for a number of commodities (e.g., cereals, soybeans, wood products) see a jump between 2011 and 2012. This can be explained by the fact that certain commodities were only included in the COMEXT dataset after 2011.

As shown in the previous two tables, the EU27 imports a wide range of commodities from non-EU countries. However, some commodities are also produced in EU27 countries, namely sugar (cane and beet), soybeans, cereals, cattle, and wood products. The table below shows EU27 production in the latter commodities in the period 2005-2017, as reported on FAOSTAT. Sugar beet and wood products stand out as important commodities produced in the EU. On average, their production is approximately 110 and 179 million tonnes per year in the EU27. This exceeds the yearly import volumes calculated in the tables above. Please note that some differences exist between the commodity categories in FAOSTAT and those in COMEXT.

Some insight into the impact of European production on forest loss and associated emissions can be found in Table 7.8 below. According to the Global Forest Watch (GFW), some of the EU's top producers (in terms of cumulated production across all commodities in Table 7.7) experience some (temporary) forest loss due to small- or medium-scale agriculture and forestry. However, no permanent forest loss due to commercial agriculture was recorded in the period 2005-2017 in the GFW dataset.

Table 7.7 Cumulated production of key commodities in the EU27, in tonnes, 2005-2017

	Sugar cane	Sugar beet	Soybeans	Cereals	Cattle meat	Wood products
Austria	0.0	41.2	1.3	0.6	2.9	119.2
Belgium	0.0	66.7	0.0	0.0	3.5	34.1
Bulgaria	0.0	0.1	0.1	0.0	0.3	17.5
Croatia	0.0	16.0	1.9	0.0	0.5	34.2
Cyprus	0.0	0.0	0.0	0.0	0.1	0.1
Czechia	0.0	46.4	0.2	0.1	1.0	109.1
Denmark	0.0	30.8	0.0	0.0	1.7	10.5
Estonia	0.0	0.0	0.0	0.0	0.2	40.0

	Sugar cane	Sugar beet	Soybeans	Cereals	Cattle meat	Wood products
Finland	0.0	7.8	0.0	0.0	1.1	247.5
France	10.6	448.5	2.3	1.7	19.3	217.3
Germany	0.0	337.0	0.2	0.0	15.1	430.4
Greece	0.0	11.6	0.0	0.2	0.8	5.4
Hungary	0.0	16.7	1.3	0.1	0.4	17.3
Ireland	0.0	2.3	0.0	0.0	7.2	18.1
Italy	0.0	52.6	8.6	1.0	12.3	16.8
Latvia	0.0	1.3	0.0	0.0	0.3	87.0
Lithuania	0.0	10.4	0.0	0.0	0.6	43.1
Luxembourg	0.0	0.0	0.0	0.0	0.1	1.5
Malta	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	0.0	75.6	0.0	0.0	5.1	4.7
Poland	0.0	152.8	0.0	0.1	5.4	183.2
Portugal	0.1	1.4	0.0	0.0	1.2	26.2
Romania	0.0	12.0	2.6	0.1	1.8	108.4
Slovakia	0.0	15.2	0.6	0.0	0.2	61.1
Slovenia	0.0	0.5	0.0	0.0	0.5	22.7
Spain	0.1	53.5	0.0	0.6	8.1	53.0
Sweden	0.0	27.2	0.0	0.0	1.7	415.9
EU27 TOTAL	**10.8**	**1,427.6**	**19.3**	**4.5**	**91.3**	**2,324.2**

Source: Project team analysis based on FAOSTAT data.
Note: The category 'cereals' is likely to exclude production by certain EU countries. 'Wood products' refer to coniferous and non-coniferous saw- and veneer logs. EU27 refers to the EU without the UK.

Table 7.8 Forest loss and associated CO2 emissions from main drivers of forest loss372 in top five EU27 producers[373], 2005-2017, cumulated over the time period

	Shifting agriculture	Forestry

[372] As considered relevant to the present study.
[373] Based on the total volume produced

	Tree cover loss (ha)	CO_2 emissions (Mg)	Tree cover loss (ha)	CO_2 emissions (Mg)
Germany	2,044	839,335	497,895	180,213,224
France	66,410	18,359,017	724,084	233,280,442
Sweden	17,805	3,298,043	3,159,380	492,532,578
Poland	10,198	2,247,014	752,999	183,960,802
Finland	17,639	2,958,639	2,492,029	354,098,120

Source: Global Forest Watch (GFW) from the dataset 'Tree Cover Loss by Dominant Driver'[374].
Note: GFW distinguishes between commodity-driven deforestation (i.e., large-scale deforestation linked primarily to commercial agricultural expansion), shifting agriculture (i.e., temporary loss or permanent deforestation due to small- and medium-scale agriculture), and forestry (i.e., temporary loss from plantation and natural forest harvesting, with some deforestation of primary forests). In Germany, France, Sweden, Poland, and Finland tree cover loss due to commodity-driven deforestation was inexistent in 2005-2017, according GFW. Other drivers of deforestation cited by GFW were urbanisation and forest fires, but they were not considered relevant to this analysis.

The table below provides an overview of the EU consumption of those (bulk) commodities during the period 2015 to 2019 as a share of total imports between the same period. The larger the EU consumption the larger the leverage that the EU can expect to have through a legislative instrument. It covers:

[374] https://data.globalforestwatch.org/datasets/5268b425d711413285b1e923de20c420

Table 7.9 Overview of EU share of imports on total imports

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cattle	3%	3%	3%	3%	0%	3%	3%	3%	3%	2%	2%	2%
Cereal	4%	4%	7%	6%	5%	7%	6%	5%	6%	8%	9%	12%
Cocoa	38%	36%	36%	37%	36%	35%	37%	39%	34%	39%	39%	54%
Coffee	41%	41%	38%	39%	39%	41%	38%	37%	35%	36%	37%	47%
Palm	19%	16%	15%	16%	17%	21%	17%	19%	18%	11%	6%	25%
Rubber	14%	16%	16%	14%	13%	13%	13%	4%*	14%	14%	14%	21%
Soy	33%	33%	30%	21%	18%	18%	17%	8%	6%	7%	<1%*	10%
Sugar	8%	18%	12%	12%	10%	10%	7%	8%	6%	4%	6%	5%
Wood	13%	14%	12%	18%	19%	19%	20%	20%	21%	18%	14%	24%

Note: own elaboration using COMTRADE
* These low values are occurring because in these years, the EU import quantity from the world was far less than in other years.

Further geographical considerations

The literature reviewed acknowledges that the drivers of deforestation and the related commodities that are associated with deforestation vary according to the region considered (as elaborated in section 3.3). Therefore, this section provides a commentary on whether certain geographical areas are more likely to be affected by the production and consumption of certain commodities in the EU, based on the share of EU imports coming from these areas.

The table below provides an overview of the top exporters to the EU27 between 2009 and 2019 for each (bulk commodity). This shows whether the EU imports of certain commodities are likely to emanate from few key countries or are spread out broadly across several countries.

An interview carried out with the Joint Research Centre indicated that, while of interest for the topic, gathering data at the subnational and regional level requires contact with the ministries of trade and agriculture from each considered country. While this does not seem feasible within the scope and resources of this study, secondary data could be consulted further by the Commission to further explore geographical considerations in scoping commodities and products.

Table 7.10 Top non-EU exporters placing key commodities on the EU market, 2009-2019

Commodity group	Top 5 countries placing key commodities and products on the EU market in 2009-2019
Sugar cane & Sugar beet	Brazil (20%), Cuba (12%), Kingdom of Eswatini (11%), Mozambique (8%), Zimbabwe (6%), Sudan (5%), Fiji (3%), Zambia (3%), Malawi (3%), Mauritius (2%) Serbia (50%), China (4%), USA (2%), Japan (2%), Thailand (1%), South Africa (1%), Switzerland (0.3%), Canada (0.2%), Bosnia and Herzegovina (0.2%), Ukraine (0.1%)
Soy	Brazil (42%), Argentina (28%), USA (15%), Paraguay (5%), Canada (3%), Ukraine (2%), India (1%), Uruguay (1%), Norway (1%), Russian Federation (1%)
Coffee	Brazil (30%), Vietnam (22%), Honduras (6%), Colombia (5%), India (5%), Uganda (5%), Peru (5%), Indonesia (4%), Ethiopia (3%), Switzerland (2%)
Cereals	Ukraine (41%), Brazil (11%), Canada (8%), USA (6%), Russian Federation (6%), Serbia (5%), Republic of Moldova (2%), Argentina (2%), Thailand (1%), India (1%)
Cocoa	Ivory Coast (44%), Ghana (20%), Nigeria (10%), Cameroon (9%), Ecuador (3%), Indonesia (2%), Dominican Republic (2%), Togo (2%), Peru (1%), Sierra Leone (1%)
Rubber	Indonesia (31%), Thailand (19%), Malaysia (16%), Ivory Coast (15%), Vietnam (7%), Cameroon (3%), Nigeria (2%), Liberia (1%), Gabon (1%), Guinea (1%)
Cattle meat	Brazil (13%), Argentina (10%), Uruguay (8%), USA (7%), Switzerland (4%), Bosnia and Herzegovina (4%), Australia (4%), New Zealand (3%), Serbia (2%), Norway (2%)
Palm oil	Indonesia (51%), Malaysia (28%), Papua New Guinea (7%), Colombia (4%), Honduras (3%), Guatemala (3%), Thailand (1%), Ivory Coast (1%), Brazil (1%), Ecuador (0.4%)

Commodity group	Top 5 countries placing key commodities and products on the EU market in 2009-2019
Wood	Russian Federation (29%), Belarus (17%), USA (13%), Ukraine (8%), Norway (5%), Canada (4%), Bosnia and Herzegovina (3%), Brazil (2%), Nigeria (2%), Indonesia (2%)

Source: project team analysis based on COMEXT data.

Further insights into the supply chains from the prioritised commodities

In section 7.1.3, the following commodities were prioritised: palm oil, cattle, coffee, cocoa, soy and wood. The table below provides an overview of the characteristics of their respective supply chain. Note that section 8 assesses the impacts of the several options in a rather "generic" way, as it was not possible to make the entire analysis specific to each commodity and its supply chain.

Table 7.11 Insights on the supply chain characteristics for the prioritised commodities

	Sectoral concentration	Typical size of manufacturers	Key markets (diversity of end/downstream products)	EU reliance on certain countries for sourcing	Availability of substitutes or alternatives	Overall complexity of the supply chain
Palm oil	Overall, the market is highly concentrated, with a small number of large producers and large buyers that then place the final products on the market. As an example, the production of biodiesel from palm oil in Europe is concentrated within 3 countries: Italy has 6 plants with production capacity of 2.7 million tonnes per year; Spain has 10 plants with production capacity of 2 million tonnes per year; Netherlands has 2 plants with production capacity of 1.4 million tonnes per year [1].	The typical size of manufacturers in this sector range from medium to large. For example, edible oil refineries in the port of Rotterdam that is a main entry point for palm oil, have number of employees ranging from 19 to 230 [2].	Globally, the most important use of palm oil is in food products (68%) [3]. As a matter of facts, palm oil can be found in about half of all packaged food [4]. Industrial applications for cosmetics, detergents, cleaning products cover about 27% of palm oil use, followed by its use as bioenergy source for fuel production, heating, and electricity (5%) [3]. As a result, there is a high number of end markets and lots of diversity of products containing palm oil.	In 2016, 99% of all palm oil exports were produced in Indonesia and Malaysia. At the time, the European Union accounted for 15% or 5.5 million tonnes of palm oil imports, becoming the third largest importer after India (22%) and China (19%) [3]. 51% of total EU imports come from Indonesia, 28% from Malaysia, 7% from Papua New Guinea, 4% from Colombia, 3% from Honduras, %, 3% from Guatemala, 1% from Thailand, 1% from Ivory Coast, 1% from Brazil, and 0.4% from Ecuador [5]. • The share of domestic production exported to the EU from Indonesia is 13%, and from Colombia is 3% [6].	In the food and feedstock sectors soy oil, rapeseed oil, sunflower oil, and coconut oil could meet the technical properties of palm oil. In the industrial sector has less alternatives to substitute palm oil. Considering its fatty acid profile, coconut oil is the main for the production of soaps, detergents, conditioners and cleaning products, personal hygiene products and cosmetics. Waste vegetable oils (used deep frying fats or other technical oils) can replace hydrogenated palm oil used for biofuels. However, waste fats is not a sustainable source, which is already being exploited by the chemical industry. Similarly, completely shifting from palm oil to the most readily available tropical plant oils (coconut or soya) would not reduce its environmental impact. The problem would only be moved to the other commodities, and on a bigger scale. [3]	During the different stages of the production cycle, palm oil supplies from different sources are mixed together. This makes it difficult to trace palm oil through the supply chain." [7] Therefore, palm oil is characterised by a complex supply chain with a lot of sectors using or importing the commodity.

	Sectoral concentration	Typical size of manufacturers	Key markets (diversity of end/downstream products)	EU reliance on certain countries for sourcing	Availability of substitutes or alternatives	Overall complexity of the supply chain
Coffee	The coffee industry (roasters) and trading companies are concentrated. The top ten trading companies account for about 50 % of globally traded coffee [8]. Coffee is produced on approximately 12.5 million coffee farms. A total of 62.5 million bags of green coffee, i.e., half of the total green coffee export production in 2019, is in the hands of only five companies globally. [9] Larger traders are vertically integrated with own sourcing and exporting operations from producing countries [8].	Coffee farms have different structure and size depending on the production country. The great majority (almost 95%) of these farms is smaller than 5 ha, and 84% is smaller than 2 ha. Coffee farming is usually a family-owned business, passed on from one generation to the next. As a result, the plot size tends to decrease over time as farms are divided into smaller parcels through inheritance. 73% of all coffee is estimated to be produced by smallholder farms. Large coffee estates produce the remaining 27%. [9]	Coffee is mainly consumed as green coffee (i.e., unroasted raw coffee beans) in coffee-related products, followed by roasted coffee and coffee extracts [10]. The main products containing coffee include milk and beverages, comprising alcoholic beverages, sugar confectionary like candies, pastry, cakes, biscuits, yogurt and ice cream. Between 65 and 80% of world's coffee consumption takes place at home. Such consumption includes low value roasted brands, high quality packaged coffees, instant coffees and single serve presentations (pods or capsules), as well as Ready to Drinks. [9] With respect to coffee-related products imported into the EU28 area, more than 95% of the total volume of coffee is represented by green coffee. A substantial increase of green decaffeinated coffee and roasted regular and decaffeinated coffee imports has been observed in recent years. After decreasing in 2018, soluble coffee (instant coffee) imports stayed on a downward trend. [10]	Only a few companies import to the EU. Being a mature sector, current importers are well-established, and it is thus hard to find new first-time importers (especially in terms of imported volumes) [8]. 30% of total EU imports come from Brazil, 22% from Vietnam, 6% from Honduras, 5% from Colombia, 5% from India, 5% from Uganda, 5% from Peru, 4% from Indonesia, 3% from Ethiopia, and 2% from Switzerland [5]. The share of domestic production exported to the EU from Brazil to EU is 53% [6], and from Colombia is 28% [11]. Switzerland is the largest green coffee trading country. 35 to 45 companies of all sizes account for 60% of globally traded green coffee [8].	Rising temperature are making certain producing areas less or not suitable for coffee growing. Therefore, it is necessary to identify alternative crops and foresee a production shift [12]. Although some sustainable alternatives to coffee and coffee beverages are already available in the market, these cannot be considered substitutes in terms of flavour and strength. There are mainly indirect substitutes to coffee: examples of alternative crops are American Beech, Chicory, Cleavers, Sunflower, and Twig Tea. Other indirect substitute beverages include energising drinks such as teas, juice shots, etc.	Coffee is characterised by a complex supply chain, consisting of a lot of buyers purchasing from a lot of small producers.

	Sectoral concentration	Typical size of manufacturers	Key markets (diversity of end/downstream products)	EU reliance on certain countries for sourcing	Availability of substitutes or alternatives	Overall complexity of the supply chain
Soy	During the planting time, soybean growers make forward-sales to companies in exchange of seeds, fertilisers, and chemicals. This guarantees companies control over land and production, without further environmental costs. It also reduces the risks for small growers, which become part of the global supply chain. Then, a small number of international traders buy most of the soy from producers to export it. However, a few producers are organising themselves in groups to directly export the soy.	The size of soy growers largely varies from smallholders to some of the world's largest agribusinesses. More competitive large farming have become more common, following the rapid growth of the soy business. Few examples from main producing countries are: • Argentina: almost all soy is grown by large- and medium-sized producers with at least 150 ha. • Bolivia: farm sizes vary, from large corporate farms of 500-5,000 ha to smallholdings of around 40-100 ha. • Brazil: in the Cerrado, most soy farms are medium (300-2,000 ha) or large (2,000-30,000 ha). • Paraguay: 44% of farms are more than 1,000 ha, 43% are between 100 and 1,000 ha, and 13% are less than 100 ha. • China: Around 40	The great majority of soy (75% worldwide) is nowadays used for the production of high-protein soymeal, the world's number-one animal feed. Soy oil is used for cooking, in margarines, and in other consumer goods, such as cosmetics and soaps. 6% soybeans is directly consumed. For example, whole beans may be eaten as a vegetable, or crushed and incorporated into tofu, tempeh, soy milk or soy sauce. 2% of the meal is further processed into soy flours and protein additives. Soy is present in many baked and fried products. Lecithin derived from soy is one of the most common additives in processed foods, found in anything from chocolate bars to smoothies. Finally, 2% of soy oil is increasingly used as a biofuel [14].	42% of total EU imports come from Brazil, 28% from Argentina, 15% from the USA, 5% from Paraguay, 3% from Canada, 2% from Ukraine, 1% from India, 1% from Uruguay, 1% from Norway, and 1% from the Russian Federation [5]. The share of domestic production exported to the EU from Brazil is 11%, from Argentina is 23%, and from Paraguay is 17% [6].	Some product substitutes are available, particularly for animal feed. The feed could be substituted by waste products or other plants grown sustainably. Alternative protein sources include rapeseed meal, sunflower meal, and regionally adapted legumes crops such as lupins, peas and beans. In the future, duckweed, insect proteins, could become important alternatives. [16]	Soy is characterised by a complex supply, with many end-markets. A small group of large companies control large volumes of production at key points in the supply chain. [15]

	Sectoral concentration	Typical size of manufacturers	Key markets (diversity of end/downstream products)	EU reliance on certain countries for sourcing	Availability of substitutes or alternatives	Overall complexity of the supply chain
	Large volumes of the soy value chain is controlled by a relatively small number of big companies. Such crushers and traders, meat and dairy companies, and retail and catering businesses have important influence on producers. Soy crushing and trading is controlled by a small group of multinationals. [13]	million smallholders grow soy, usually on less than half a hectare, but organized into collectives. • India: Some 5 million smallholders grow soy on 1 or 2 ha each. [14] Animal feed processors, animal feed purchasers, and packaged food manufacturers are typically of large size. [15]				
Wood	Timber and woodworking companies are highly diverse and not concentrated. Given the number of enterprises in the EU, timber and woodworking industries rank as the EU's fourth largest	The woodworking industries alone employ over 1 million people and contribute €133 billion to EU GDP. When including the furniture sector, the workforce rises to nearly 2 million (6% of EU total manufacturing employment) and annual turnover to €243 billion." [17]	Wood has multiple construction applications. The building renovation and maintenance sector in Europe is more valuable than the new build sector. Timber products and wood-based structural systems for extensions, conservatories, and loft conversion, have a range of advantages over alternatives. Wood is also extensively used in infrastructure construction, platforms, raised decks, noise barriers and other outdoor applications. The main manufactured wood products include wood-based panels	32% of total EU imports come from the Russian Federation, 16% from Belarus, 12% from Norway, 8% from the USA, 8% from Ukraine, 4% from the UK, 3% from Bosnia and Herzegovina, 2% from Switzerland, 2% from Canada, and 2% from Brazil [5]. Thus, the EU largely depend on a number of countries for wood acquisition.	Alternative construction materials to wood are often as not sustainable as wood. The latter provides an extended service life to products and service and offers superior environmental characteristics, for example in terms of carbon savings. [17] The production of wood or paper products generate waste. Such by-products (like sawdust, wood shavings or shreds of paper) can be	Wood is characterised by a complex supply, as it goes from wood to mill. It involves many actors and a series of production processes that transform the natural resource into final products and services.

	Sectoral concentration	Typical size of manufacturers	Key markets (diversity of end/downstream products)	EU reliance on certain countries for sourcing	Availability of substitutes or alternatives	Overall complexity of the supply chain
	manufacturing industry by number of enterprises. They are focused on the production of a wide range of different products and on different stages of timber processing along the supply chain. Companies include sawmillers, plating operations, preservative and fire-retardant treatment specialists, flooring manufacturers, plywood and other wood-based panel producers, makers of veneer, joinery, carpentry, construction products, pallets, packaging, and more. [17]		(key material for the furniture sector, used in flooring, throughout construction, in packaging, vehicle bodies, billboards and building site hoarding), flooring, builders' carpentry and joinery (doors, windows, roof trusses), pallets and packaging. [17] Finally, pulp and paper case materials are mainly used for transport packaging and corrugated boxes. This is followed by other uses such as packaging papers, uncoated and coated papers, sanitary and households, wrapping, and newsprint. [18]		reused to make particleboard or fibreboard. [19] Bamboo can be considered a valuable alternative to wood in tropical forests as it helps reducing over-dependence on timber and other species. Bamboo is a more fast-growing regenerative plant. Therefore, there are less sustainability issues related to its use. [20]	

	Sectoral concentration	Typical size of manufacturers	Key markets (diversity of end/downstream products)	EU reliance on certain countries for sourcing	Availability of substitutes or alternatives	Overall complexity of the supply chain
Cocoa	The cocoa industry is largely concentrated at global and local levels. A limited number of well-integrated transnational corporations are major players in the industry. Concentration in cocoa trading occurred between 1980 and early 2000 and has accelerated over the past years, thanks to several mergers and acquisitions, mainly because of trade liberalisation reforms. In addition, the boom in commodity prices has resulted in a high market concentration of the cocoa processing segment. Originally,	The chocolate manufacturing segment is capital-intensive, which requires large investments by new entrants. Large companies able to make such investments, enjoy significant market shares. [21] Almost half of global chocolate consumption in 2013 was supplied by the four largest chocolate manufacturers (Mars, Mondelez, Nestlé and Ferrero). [23]	Cocoa beans after processing are mainly used to make chocolate, cocoa powder, and cosmetics. [23] The greatest part of the cocoa mass is processed into cocoa butter and cocoa powder. [24] In 2018, confectionery accounted for more than 35% of the global share. [25]	44% of total EU imports come from the Ivory Coast, 20% from Ghana, 10% from Nigeria, 9% from Cameroon, 3% from Ecuador, 2% from Indonesia, 2% from the UK, 2% from the Dominican Republic, 2% from Togo, and 1% from Peru [5]. The share of domestic production exported to the EU from the Ivory Coast is 66%, and from Ghana is 59% [26].	There is scarce availability of cocoa substitutes. Scientific studies are investigating alternative sources that can imitate cocoa's aroma and flavour. An example is jackfruit, a large tropical fruit found in South America, Asia, Africa, and Australia. [27]	Cocoa is characterised by a complex supply chain, with an inbuilt imbalance of power. A big number of small-scale cocoa growers sell their products through several layers of local intermediaries (each taking a cut) to a comparatively small number of largescale international traders, cocoa processors and chocolate companies. [23] Cocoa thus passes through many hands before making it into products sold on supermarket shelves. It is thus difficult to trace cocoa back to the individual farm level, where most of the supply chain risks originate. [22]

	Sectoral concentration	Typical size of manufacturers	Key markets (diversity of end/downstream products)	EU reliance on certain countries for sourcing	Availability of substitutes or alternatives	Overall complexity of the supply chain
	chocolate companies were mostly family-owned business, oriented towards the domestic market. The global industry has then gone through vertical integration, as companies started expanding their activities from sourcing beans to producing chocolate products. In many cocoa producing or chocolate consuming countries, a small number of companies own large market shares. Global brand recognition and commercial marketing strategies lead to increased concentration in the national markets of					

	Sectoral concentration	Typical size of manufacturers	Key markets (diversity of end/downstream products)	EU reliance on certain countries for sourcing	Availability of substitutes or alternatives	Overall complexity of the supply chain
	consuming countries. [21] According to a different source however the market is less concentrated. A large number of smallholder cocoa farmers operate roughly 6 million cocoa farms around the world. [22]					
Beef/cattle	Meat companies are differentiated in the chain of slaughterhouses /cutting plants/meat preparation plants, producers and selling. In northern countries meat processing is concentrated in large-scale companies. While, in Europe there are many national companies , with a tendency	The size of manufacturers is typically large considering its main players (Tyson Foods, Danish Crown, National Beef Company, Cargill Meat Solutions, Marfrig Global Foods S.A., Nipponham Group, JBS) [28]	The beef/cattle market is characterised by a diversity of downstream products, which include the different types of meat products for human consumption and the animal feed. Beef products are typically sold as wholesale or packaged cuts, depending on the destination. Beef by-products, including leather and fat, are used for many non-food items, including candles, crayons, paint and shoes. [29]	33% of total EU imports come from the UK, 13% from Brazil, 10% from Argentina, 8% from Uruguay, 7% from the USA, 4% from Switzerland, 4% from Bosnia and Herzegovina, 4% from Australia, 3% from New Zealand, and 2% from Serbia [5]. The share of domestic production exported to the EU from Brazil is 8% [30].	There is big availability of direct substitutes to beef, which are all the other types of meat. Other alternatives are also available for the final meat consumer, including vegetable or legume-based alternatives. In the future, different substitutes could become available in the form of lab-cultivated meat.	Beef is characterised by a complex and fragmented supply chain, except from a relatively small number of large “meatpacking” companies playing an outsized role in the processing and distribution stages. [29] It is composed by thousands of traders and, involving numerous steps and types of operations.

	Sectoral concentration	Typical size of manufacturers	Key markets (diversity of end/downstream products)	EU reliance on certain countries for sourcing	Availability of substitutes or alternatives	Overall complexity of the supply chain
	to grow toward multinational companies. [13]					

Sources:
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[15] https://engagethechain.org/soybeans
[16] https://d2ouvy59p0dg6k.cloudfront.net/downloads/wwf_soy_report_final_feb_4_2014.pdf
[17] https://issuu.com/fedustriapub/docs/wood-building-the-bioeconomy-final-version-22.10.2
[18] https://www.cepi.org/wp-content/uploads/2021/02/Preliminary-Draft2020.pdf
[19] https://www.worldwildlife.org/stories/alternatives-to-wood
[20] https://www.researchgate.net/publication/327230922_-_Bamboo_an_alternative_wood_to_reducing_tropical_deforestation_in_Ghana
[21] https://unctad.org/system/files/official-document/suc2015d4_en.pdf
[22] https://engagethechain.org/cocoa
[23] https://www.fern.org/fileadmin/uploads/fern/Documents/Cocoa_briefing_paper_WEB.pdf
[24] https://www.eurococoa.com/en/cocoa-story/cocoa-story-the-western-europe-cocoa-market/
[25] https://www.grandviewresearch.com/industry-analysis/cocoa-beans-market
[26] Trase data 2019
[27] https://www.acs.org/content/acs/en/pressroom/presspacs/2017/acs-presspac-march-1-2017/jackfruit-seeds-could-help-ease-looming-cocoa-bean-shortage.html#:~:text=New%20research%20suggests%20that%20jackfruit,abundant%20substitute%20for%20cocoa%20beans .
[28] https://www.industryresearch.biz/global-beef-market-14403699
[29] https://engagethechain.org/beef
[30] Trase data 2017
[31] https://www.fern.org/fileadmin/uploads/fern/Documents/Fern%20beef%20briefing%20paper.pdf

7.2 Proposed options

A total of 17 policy measures were considered in this assignment, based on the feedback provided by stakeholders to the Inception Impact Assessment as well as the literature. These included both regulatory and non-regulatory measures. All were assessed through a 'viability screening', covering a description; roles of stakeholders; type of instrument; legal, technical and political feasibility and proportionality; previous policy choices; coherence with other trade legislation, other EU policy objectives and other international policy; high-level review of effectiveness and efficiency; and main risks around implementation.

Some of these policy measures were further prioritised and combined into policy options, based on the following:

- The outcome of the viability screening, which can be found in Appendix B.
- Existing evidence from the literature.
- The outcome of the consultation, namely:
  - Binding measures had a high and similar level of support in the online public consultation (e.g., deforestation-free requirement, IUU-like approach, mandatory due diligence, mandatory public certification, etc.).
  - Voluntary measures were opposed, receiving the lowest rates in the online public consultation, e.g., voluntary due diligence, private certification, voluntary labelling.
- Key findings from the ongoing Fitness Check of the EUTR and FLEGT regulations (see box below).

The final policy options presented below show an increase in the level of ambition and are defined as possible combination of some of the measures assessed. The obligations will be targeted to Member States competent authorities, and private sector and civil society organisations with diverse responsibilities, capacities and levels of influence for placing on the EU market commodities and products associated with deforestation.

Table 7.12 Overview of policy options

#	Base element
0	Baseline scenario – do nothing extra
1	**Mandatory due diligence system**
2	**Benchmarking system** and a list of contravening operators (combined with a tiered mandatory due diligence system)
3	**Mandatory public certification** (combined with mandatory due diligence requirement)
4	**Mandatory labelling** (combined with mandatory due diligence requirement)
5	**Deforestation-free requirement** for placing on the EU market supported by benchmarking and country card systems

7.2.1 Lessons learnt from the Fitness Check on EUTR and FLEGT regulations

The table below presents an overview of issues identified and lessons learnt from the parallel evaluation of the EUTR and FLEGT regulations, and how these feed the elaboration and design of the policy options.

Table 7.13 Summary of recommendations from the Fitness Check (extract from Fitness Check)

Themes	Description	Addressed in / by
Design and application of due diligence systems and/or other demand-side measures (lessons learned from EUTR)		
DDS can be widely applied	The DDS requirement in the EUTR can be implemented regardless the size and activities carried out by the operator – from forest owners to international corporations.	**Option 1, 2, 3 and 4** Apply DDS to all operator regardless of size and activity.
Validation of information collected under DDS	Even where due diligence is well understood by all those who need to implement it, it may be virtually impossible to fully validate the information collected and ensure that it is robust and free from corruption.	**Option 1, 2, 3 and 4**
Central due diligence definitions	The term 'negligible risk' has proved somewhat subjective, which makes information gathering difficult for operators and can lead to differences in interpretation. Lack of clarity, ambiguity and lack of consistency in interpretation of definitions at the core of due diligence can pose critical issues for successful enforcement.	**Option 1, 2, 3 and 4** Development of a definition for 'deforestation-free' along with criteria to comply with.
Importance of customs authority role and data	As the issue concerns trade, customs have an integral role to play, as does the data and information they hold. Close corporation between MSs CAs and with custom authorities is necessary for an effective and efficient enforcement of the EUTR. Without a complete set of basic data on all operators and the import of products, a meaningful risk analysis and enforcement by CAs is not possible.	**Option 1, 2, 3, 4 and 5** Role of customs clearly defined in the legislation. Obligations for customs to share data with CAs on imports, inspections and operators.
DDS as a concept is less tested in civil law	Similar concepts have only recently emerged in civil law jurisdictions across Europe. This has led to challenges in (and hesitancy to) enforce implementation through the courts. However, due diligence as a concept is gaining wider recognition and use in EU policy making, and implementation may improve with experience and improved understanding throughout the EU judicial system of the due diligence obligation placed on operators	**Option 1, 2, 3 and 4** Electronic system to keep record of legal cases and outcomes.
Legal basis for centralised assessment	Country-overviews, country conclusions and other EC resources to guide operators and CAs are not linked to an Article in the Regulation. Hence although these materials may provide useful guidance, they may not necessarily hold up in court. Hence including these specifically in the legislation can help reduce administrative costs for operators whilst also better supporting enforcement by CAs.	**Option 1, 2, 3 and 4** Electronic system to keep record of legal cases and outcomes.
Design and application of VPAs and/or other supply-side measures (lessons learned from FLEGT Regulation)		
The system developed for the FLEGT-AP is not fit to work with a harmonised single definition of deforestation nor 'deforestation-free' as it is based on the concept of legality, according to the legislation of the producer country. An expanded version of VPAs could have been considered in combination with the proposed demand-side policy options, it is however worth noting the following recommendations from the Fitness Check: • **Lack of engagement in VPAs:** Several barriers have prevented key exporting countries to the EU (not deemed low risk) from engaging in VPAs. Perhaps the most important are feelings of 'sovereignty' over domestic resources and regulation, some feel they have the capacity to do things themselves and more recently the rise of China as an important player in the global timber market. These are likely to continue to prevent engagement in the future.		

Themes	Description	Addressed in / by
• **Length of VPA negotiation**: VPA negotiations are long and complex, leading to what some term as 'FLEGT-fatigue'. The processes required to make the VPA operational are themselves complex (even though they focus on the relatively 'simple' concept of legality and consider one group of commodities), and partner countries often suffer capacity and resources limitations, weak governance, lack of political will and corruption. Ultimately political will is a critical driver of progress, and legality of timber may suffer from its profile relative to other key topics such as climate change and its importance economically. • **Challenges arise during VPA negotiations:** Whilst in negotiation or implementation, the status of exports from these countries is not always clear and CAs/operators report it can be harder to obtain necessary information for due diligence from VPA countries verses non-VPA countries. Hence it has been challenging for EU importers to exercise DD on timber and timber products derived from VPA partner countries that have not reached FLEGT licensing yet, due to insufficient knowledge and available information regarding their VPA level of implementation. Implementation and enforcement of EUTR can be perceived as jeopardising or counter-productive to FLEGT negotiations.		
Other design/implementation issues lessons learned		
Data availability	At implementation, it is important to define a set of measurable indicators which can be used to transparently assess the effectiveness of the policy and/or where data is unavailable, to set out a data improvement plan to explore what improvements in data can be made.	**Option 1, 2, 3 and 4** A definition for deforestation-free to be established, along with criteria to measure performance against the definition. In particular, **option 2 and 5** establishes a benchmarking of EU and non-EU producing countries, collecting data necessary to assess the performance on those criteria.
Implementation systems can have an important bearing on costs	A range of issues and opportunities have been identified through the implementation of the Regulations which can be learned from for future policy making. Clearly identifying a range of defined products and associated product codes (to avoid mismatches), the use of electronic (rather than paper-based systems) and linking electronic systems (e.g., SILK and EU FLEGIT) could lead to large administrative savings (as well as reducing fraudulent practices).	**Options 1, 2, 3, 4 and 5** Delegated act that requires the legislator to review and revise the scope of commodities, products, and product codes under scope, to adjust to developments. Centralised electronic system.
Selection of product scope is critical to effectiveness (and efficiency)	Where the issue at hand is driven by trade in a range of commodities, there is a balance to be struck in terms of coverage: greater coverage of products may achieve a greater impact, but also higher complexity (i.e., where products with more complex supply chains are included) and costs. It is also important to consider products at different stages of the lifecycle, to avoid simple changes in point of export to evade obligations (product scope of the EUTR seems to have achieved this somewhat as no significant switching between products has been observed).	**Options 1, 2, 3 and 4** Delegated act that requires the legislator to review and revise the scope of commodities, products, and product codes under scope, to adjust to developments. Both bulk commodities and derived products are under scope.
Need for alignment between demand and supply-side actions	Product scope (and in some cases the definition of legality) varies between the EUTR and the VPAs, creating complexity around the requirements applying to different imports and from different sources. These could be better aligned to improve ease of implementation.	Having one standard at the EU level renders this issue irrelevant.
Flexibility to adapt to challenges, in particular changes in trade flows	The rise of China as a global player in the timber market, and the changes in trade flows as a result, have been an important context for both Regulations. This underlines the importance of the ability and flexibility to adapt to changes in trade flows of commodities, especially in a context where the resources both within the EU and for working with partner countries are limited and have to be put to the best use.	**Options 1, 2, 3, 4 and 5** Delegated act that requires the legislator to review and revise the scope of commodities, products, and product codes under scope, to adjust to developments. In particular, **option 2 and 5** establishes a benchmarking of EU and

Themes	Description	Addressed in / by
		non-EU producing countries, collecting data necessary to assess the performance of countries over time and adjust the level of requirements on this basis.
Flexibility to adopt to technological advances	Equally technological advances continue to be made that could help improve the effectiveness of policy in this space – e.g., apps that identify species, use of satellite data to track deforestation, isotope-tracing and other advances in timber identification, etc. It is also important that Regulations are flexible to also be able to take advantage of such developments (where appropriate) to continually improve implementation.	**Options 1, 2, 3, 4 ad 5** should include provisions for their adaptation to technological development.
Links to broader EU policy developments	EUTR and FLEGT Regulation interact with a range of other EU polices but are broadly seen as coherent. It is important to keep a close watch on new developments, in particular around the Green Deal. In the context where focus on legality is not sufficient, crucial elements of the EUTR seem to be better placed to be adapted, while administratively heavy and expensive VPAs do not seem to be well placed.	Any option to combat deforestation and forest degradation should be designed to cover sustainability. Heavy and costly administrative bilateral agreements with very limited flexibility for adaptations should be avoided.

7.2.2 Improved due diligence

The improved due diligence has been developed to address some of the shortcomings observed in the current due diligence system applied under the EUTR and described in the section above. The due diligence system that is considered as part of our options (Option 1 – Option 4) is described in further details below.

- General aspects:
  - The requirements apply **to all operators** (including traders, handlers, transporters).
  - The requirements apply **to relevant products and commodities** that are placed on the internal market for the first time, this includes recycled or reused commodities (except where already placed on the market in previous life cycle) as such the requirement applies throughout the entire value chain.
  - The scope of the legislation is established **through delegated acts** which enable to revise and update the commodities and products covered by the requirements of due diligence.
- Obligation of the operators and traders:
  - The main requirements are to **identify the operators** or traders that supplied the commodities or products, **identify the traders** to which they supplied the commodities or products and ensure the **traceability** of the commodity or products to be able to identify their origin when they are placed on the Internal Market.
  - Through the due diligence, **operators and traders have to determine whether the commodities and products comply with the deforestation free definition**, taking into account information on the provenance and origin of the goods. Some of the policy options consider additional elements to assist operators with this activity (e.g., benchmarking, country carding, mandatory public certification).
  - Operators and traders are required to **prevent risks** and where this is not possible to **mitigate risks** to a negligible level.

- Risk mitigation measures should **be adequate and proportional measures** that effectively and demonstrably reduce to a negligible level all identified risks, this includes for example amending contracts with suppliers, providing support to suppliers to change their practices, changing purchasing and investment practices. If risk cannot be mitigating, then operations should be ceased.
- The application of the requirements is **risk-based**, the nature and extent of due diligence related requirements corresponds to the type and level of risk of adverse impacts. To that end some of the policy options considered include elements that support this weighted approach (e.g., benchmarking, list of contravening operators, country carding).
- The application of the improved due diligence requirements differentiate new and existing operations. **New operations** (including new business partner) require a thorough review of the actors involved and their policies, practices and their harvesting, production, extraction and processing sites.
- Operators and traders have to **make available information** on precise origin of the products or commodities (i.e. through systematic declaration of GPS coordinates), the legal status of land from which the commodity originates, the elements of the supply chain relevant for the commodity or product including likelihood of contamination risk with products of unknown origin or originating from deforested areas, and information on where, by whom and under which conditions the commodities have been harvested, transformed or processed. Operators need to present to the authorities a self-declaration of conformity before placing relevant commodities or products on the EU market.
- Where operators and traders have a **large number of suppliers**, more scrutiny should be applied.
- The due diligence allows the use of third-party certification to support its implementation. In this case, only products with 100% certified content could be used to support due diligence systems. The use of third-party certification system does not impair the principle of the operators' liability.
- Operators and traders are required to report annually to the competent authority on their due diligence and consultation processes, the risks identified, their procedures for risk analysis, risk mitigation and remediation and their implementation and outcomes. Reduced reporting requirements are applicable for SMEs. Failure to report will lead to the suspension of authorisation to place products on the Internal Market.
- Operators and traders are required to maintain a written record of all due diligence actions and present it to the competent authorities upon request.

- Role of the European Commission:
  - Maintain a list of commodities reflecting the state of knowledge on environmental risks of deforestation in relevant sectors.
  - Adopts minimum criteria and guidance for operators to assess the credibility and robustness of third-party certification schemes. Minimum criteria should ensure independence from the industry, inclusion of social and environmental interests, independent third-party auditing, public disclosure of auditing reports, transparency at all stages and openness.
  - Supports competent authorities by providing further guidance on how to conduct compliance checks, including checks to better analyse and evaluate the risk level of products and sufficient documentation of due diligence systems in use.

- Develops criteria to help specify when an operator or trader should be given a notice of remedial action.
- Requires competent authorities to report publicly about control and enforcement activities, infringements detected and respond to concerns.

- Role of the competent authorities:
  - Due diligence systems are being checked by the competent authorities. As such competent authorities monitor that operators and traders effectively fulfil the obligations of the legislation by carrying out official checks, in accordance with a plan as appropriate, and which may include checks on the premises of operators and field audits.
  - In the case of commodities and products imported into the EU, custom authorities receive the self-declaration. Custom authorities also need to share information with other relevant authorities in the member states directly in charge of enforcing the regulation.
  - Member States are expected to conduct inspections covering a relevant share of the commodities and products placed on the EU market.
  - Member States need to ensure proportionate, effective and dissuasive penalties and sanctions are available in case of non-compliance. This should include seizing of commodities and products that are non-compliant, immediate suspension of authorisation to place products on the Internal Market, exclusion from public procurement processes and penalties to individuals / legal entities.

- Role of wider society:
  - Any individual or group directly or indirectly affected is entitled to challenge non-compliance observed before the judicial or administrative authorities of the member State.

Based on the improvement proposed to the design and the implementation of the due diligence system it is expected that the effectiveness of such option would be greater than the effectiveness observed for the due diligence under the EUTR.

7.3 Option 0 - Baseline 'do nothing (extra)'

The baseline provides a critical **reference point** against which to assess changes and impacts of the formulated policy options. The baseline serves as the counterfactual for examining how the situation is expected to change with the policy options considered. The baseline provides an overview of the current situation, considering economic, social, and environmental aspects, and describes expected future trends based on the current situation and extrapolation of known trends (in the absence of policy options). As such, the baseline represents a "business as usual" scenario, which describes the option of "changing nothing".[375]

This baseline includes a qualitative assessment based on existing measures that are considered to continue over the duration of the analysis period (to 2030), and a quantitative assessment combining deforestation and production data associated with key commodities and import data of those commodities into the EU. The quantification of the baseline is subject to limitations, as described below, and does not aim to inform the relevance or importance of the subject at hand. Previous sections have described the problems of deforestation and forest degradation, and the commodities that are often associated with these problems, in detail and based on extensive literature reviews and stakeholder input. The baseline only aims to establish a reference point against which marginal changes can be quantified.

[375] European Commission (n.d.), Better Regulation Toolbox, https://ec.europa.eu/info/sites/info/files/better-regulation-toolbox.pdf.

7.3.1 Qualitative assessment - existing measures already in place

It is important to acknowledge that a range of **existing measures** aimed at targeting deforestation and forest degradation exist at international level, EU level, at Member State level, and in non-EU countries that place commodities on the EU market, as well as private initiatives. This range of measures and initiatives can be expected to exist in a baseline to 2030, regardless of further intervention on the part of the EU. Section 3 provides a detailed description of these, which we summarise below.

Measures at international level

Key measures include the Convention on Biologic Diversity (CBD), Reducing Emissions from Deforestation and Forest Degradation (REDD+), the UN Forum on Forests, the UN Sustainable Development Goals, the Paris Agreement treaty on climate change, the New York Declaration on Forest (NYDF) and the Amsterdam Declaration on Deforestation and the Amsterdam Declaration on Sustainable Palm Oil, among other initiatives.

Measures by the EU and Member States

There are currently **no EU regulatory measures to tackle deforestation as a whole**. Existing regulatory measures address illegal logging (i.e., through the , FLEGT Action Plan, the FLEGT Regulation, and EU Timber Regulation) and biofuels and bioenergy sourcing (i.e., through the Renewable Energy Directive (RED) and supporting Commission Delegated Regulation). The EU also acts through other policies to protect the world's forests (e.g., trade agreements, development assistance, support to REDD+). However, the existing EU regulatory and policy framework aimed at halting global deforestation is incomplete and has not achieved its desired goals.[376]

European forests are also covered by a number of horizontal policies and strategies, including the EU Forest Strategy[377], the EU Biodiversity Strategy and the EU Bioeconomy Strategy. Furthermore, The Birds and Habitats Directives (BHDs) provide an important legal framework to protect forest habitats and species in the EU and aim to ensure they are maintained or restored to a favourable conservation status[378]. In addition, a variety of EU direct funds are relevant for the promotion of sustainable forest management and resource use (e.g., the Regional Development Fund, the LIFE programme). Revisions of the EU Forest Strategy[379] and the EU Biodiversity Strategy[380] are expected in the near future, along with updated Land-Use, Land-Use Change and Forestry (LULUCF) rules[381], and a new Soil Strategy[382]. These policies will, inter alia, guide commitments in support of healthier and more resilient forest ecosystems. However, their impact is not yet known.

[376] European Parliament (2020), An EU legal framework to halt and reverse EU-driven global deforestation, https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf.
[377] Please note that the new EU Forest Strategy to 2030 was published in July 2021 (https://ec.europa.eu/environment/strategy/forest-strategy_en) but was not available at the time of the baseline analysis. The strategy has been developed with a view to support the EU's biodiversity and climate objectives and recognises the multifunctional and central role of forests in achieving a sustainable and climate neutral economy by 2050. Its vision is to improve the quantity and quality of EU forests and strengthen their protection, restoration, and resilience.
[378] The BHDs require that MS establish a strict protection regime for certain endangered species and designate core sites for the protection of species and habitat types listed in Annex I and II of the Habitats Directive and Annex I of the Birds Directive. An estimated 20% of EU forest area is covered under HD Annex I.
[379] https://ec.europa.eu/environment/news/commission-consults-new-eu-forest-strategy-2021-01-29_en
[380] https://ec.europa.eu/environment/strategy/biodiversity-strategy-2030_en
[381] https://ec.europa.eu/clima/policies/forests/lulucf_en
[382] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12634-Healthy-soils-new-EU-soil-strategy_en

Although more and more European countries are considering action on deforestation and forest degradation, policy measures remain limited and are rarely set in a regulatory framework. [383] Some EU governments have developed national-level approaches to diminishing and eliminating the risk of deforestation embodied in imports. Examples include multi-stakeholder dialogues (e.g., Belgium's Beyond Chocolate partnership platform[384]), development policy, and national level capacity-building (e.g., Denmark helps its companies source sustainably[385]). Examples of legislative measures addressing demand-driven deforestation exist in a few EU MS: since 2016, the Netherlands has stopped using biofuels based on palm oil for domestic consumption[386]; and the French government ended tax benefits for palm oil-based diesel[387], and introduced mandatory reporting requirements obliging large multinationals to establish mechanisms aimed at preventing human rights violations and negative environmental impacts throughout their production chains[388]. In addition to these measures, France published a strategy to fight against imported deforestation, focusing on some key commodities: soy, palm oil, beef, cocoa and rubber (as highlighted in Chapter 3).[389] Germany also adopted guidelines on the promotion of deforestation-free supply chains of agricultural commodities.[390].

Measures in partner countries

Section 7.1.3 lists the top export origin countries exporting key commodities associated with deforestation onto the EU market in 2019. Key policies relevant to deforestation of some of these key exporting countries include:

- **Brazil**: responsible for significant beef, coffee and soy exports to the EU (among other commodities), key legislation in Brazil includes the Terra Legal program (2009) which aims to limit deforestation on private land, and the Public Forest Management Law (2006) which aims to limit deforestation on public land.[391]

- **Indonesia**: the source of significant palm oil and rubber exports to the EU and estimated to be the largest global producer of illegal timber,[392] key legislation includes the Forestry Law (1999) which divides forests into three categories (conservation forests, protection forests and production forests), and empowers the Ministry of Forestry to determine and manage Indonesia's National Forest Estate. Under Government Regulation 32/2000, the Ministry of Forestry is reinforced as the primary body to administrate licensing, permitting and extraction of commercial timber operations. Law No. 18 of 2013 on the Prevention and Eradication of Forest Degradation defines penalties for those engaged in forest destruction, as well as defining banned activities.[393]

[383] European Parliament (2020), An EU legal framework to halt and reverse EU-driven global deforestation, https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf.
[384] Beyond Chocolate, https://diplomatie.belgium.be/en/newsroom/news/2018/beyond_chocolate.
[385] IDH (2020), The urgency of action to tackle tropical deforestation, https://www.idhsustainabletrade.com/uploaded/2020/02/IDH_The-UoA-to-Tackle-Tropical-Deforestation_2020-web.pdf.
[386] ADP (2018), The Netherlands, https://ad-partnership.org/signatory-countries/netherlands/.
[387] Assemblé Nationale (2020), Rapport d'information sur les agrocarburants, N°2609, 22 janvier 2020, https://www.assemblee-nationale.fr/dyn/15/rapports/cion-dvp/l15b2609_rapport-information.pdf.
[388] IDH (2020), The urgency of action to tackle tropical deforestation, https://www.idhsustainabletrade.com/uploaded/2020/02/IDH_The-UoA-to-Tackle-Tropical-Deforestation_2020-web.pdf.
[389] Ministère de la Transition Ecologique et Solidaire (2018), Stratégie nationale de lutte contre la déforestation importée 2018-2030, https://www.ecologie.gouv.fr/sites/default/files/2018.11.14_SNDI_0.pdf.
[390] Federal Ministry of Food and Agriculture (2020), German Federal Government's Guidelines on the Promotion of Deforestation-Free Supply Chains of Agricultural Commodities, https://www.bmel.de/SharedDocs/Downloads/DE/_Wald/leitlinien-entwaldungsfreie-lieferketten-engl-gez.pdf?__blob=publicationFile&v=2.
[391] Yale School of the Environment (no date). Global Forest Atlas, Forest Governance – Brazil. https://globalforestatlas.yale.edu/amazon/forest-governance/brazil
[392] Tacconi, L., Rodrigues, J., Maryudi, A. (2019), Law enforcement and deforestation: Lessons for Indonesia from Brazil, Forest Policy and Economics, Vol 108, Nov 2019, 101943
[393] https://forestlegality.org/risk-tool/country/indonesia

- **Ivory Coast**: responsible for an estimated 50% of cocoa exports to the EU, and 20% of rubber exports, the Ivory Coast released a new Forest Act (Law 2014/427) in 2014 which grants ownership of trees to landowners and created community forests. In 2018, a National Policy on Forest Preservation, Rehabilitation and Expansion was released, and Decree No. 2018-36 of 17 January 2018 provided the Ministry of Water and Forests with key responsibilities on forest preservation, rehabilitation and extension.[394] The policy document states that forests in Ivory Coast are the scene of major illicit activities and uncontrolled exploitation affecting forest cover, environment, and people. Action is thus needed to reclaim and increase the national forest area. One of the statements made in the policy document is that all trees, including agro-industrial plantations, contribute to carbon sequestration.

- **Argentina**: primarily associated with beef exports to the EU (25% in 2019), the Forest Law (officially Law No. 26.331 of Minimum Standards for the Environmental Protection of Native Forests) was established in 2007, providing minimum environmental protection standards for forests, and requires each province to zone forests as high, medium or low conservation value with different allowable practices.[395].

- **Malaysia**: with key commodity exports to the EU of palm oil (25% of EU imports) and rubber (12%), Malaysian laws on preventing deforestation and haze are mainly provided in the Environmental Quality Act 1974 and National Forestry Act 1984.[396] Under the Malaysian constitution, all 13 Malaysian states have jurisdiction over their lands, forests, fishery, agriculture, and water resources, including the power to decide on the administration, management, use and allocation of their forest resources.

As reported in a study by the European Parliament, **current national measures addressing deforestation have a minimal effect on reducing and eliminating deforestation embodied in EU imports**.[397] Such measures have struggled to change consumption patterns or stimulate demand for deforestation-free products and commodities. For example, it is reported that ADP signatories are still exposed to high levels of deforestation risk due to the sourcing partners of their main importing companies.[398,399] Furthermore, large disparities in sustainable sourcing exist between the main EU consumers and importers, and between different commodities. As a result, several MSs have suggested that EU-level action to address the problem of EU demand-driven deforestation would be desirable.[400]

Therefore, while baseline assessments should consider national and EU policies in place, there are a limited number of these in relation to commodities that may be associated with deforestation and forest degradation (and their impact remains limited). The baseline quantified hereafter reflects the deforestation impacts of EU consumption in the context of these existing measures and settings.

[394] Ministry of Water and Forests (2018). National Policy on Forest Preservation, Rehabilitation and Expansion. http://eauxetforets.gouv.ci/sites/default/files/communique/forest_preservation_rehabilitation_extension_national_policy.pdf
[395] Van Dam, J., Van Den Hombergh, H., Hilders, M. (2019). An analysis of existing laws on forest protection in the main soy producing countries in Latin America: https://www.iucn.nl/files/publicaties/an_analysis_of_existing_laws_on_forest_protection_la_final.pdf
[396] Kamaruddin, H., Khalid, R.M., Supaat, D.I., Shukor, S.A., Hashim, N (2016). 3rd International Conference on Business and Economics, 21-23 September 2016.
[397] European Parliament (2020), An EU legal framework to halt and reverse EU-driven global deforestation, https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf.
[398] European Parliament (2020), An EU legal framework to halt and reverse EU-driven global deforestation, https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf.
[399] Trase (2018), Trase Yearbook 2018, Sustainability in forest-risk supply chains: Spotlight on Brazilian soy, https://yearbook2018.trase.earth/.
[400] European Parliament (2020), An EU legal framework to halt and reverse EU-driven global deforestation, https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf.

7.3.2 Reminder of commodities in scope of the baseline

Deforestation and forest degradation are strongly linked to agricultural activities, amongst other drivers.[401,402] According to the FAO, the global rate of deforestation has gone down from around 16 million hectares per year in the 1990s to around 10 million hectares per year in 2015-2020.[403] However, agricultural expansion continues to be one of the main drivers of deforestation, with around 40% of tropical deforestation resulting from large-scale commercial agriculture in 2000-2010[404], and another 33% due to local subsistence agriculture.[405]

To assess the impact of potential EU action on deforestation and forest degradation, a **commodity-focused approach** is needed. The policy options in this study target both bulk commodities (i.e., commodities in raw form) and selected derived products, as described in Section 7.1. The literature review in Section 7 looked into the extent to which certain (bulk) commodities cause deforestation and/or forest degradation, and through which avenues. Each commodity described above has its own unique characteristics, supply chains, and impact on forests. Deforestation and forest degradation can, thus, be influenced by geographic location, structure of farming, and consumption trends. Based on the above analysis, the commodities that can be associated with deforestation and forest degradation and that are strongly linked to Europe's consumption footprint include **palm oil, cattle (beef), cocoa, coffee, soy, and wood products.** The evolution of imports of these commodities over the period 2009-2019 was shown in Section 7.1 above. As the figures below show, total imports into the EU grew in the period 2009-2019, and are expected to continue growing until 2030, but at a slower pace.

The baseline, which is broken down into these commodities, establishes the business-as-usual scenario. It provides a snapshot of the situation as we know it and uses historical data to estimate the evolution of EU imports and EU production. The baseline largely focuses on **raw (bulk) commodities** as opposed to derived products. As such, the baseline is not comparable with results obtained in previous scoping studies, in particular the 2013 study looking at quantifying the share of EU consumption responsible for deforestation (a comparison between the two studies is provided in the section below).

It is also important to note that the quantitative assessment of the baseline focuses solely on **deforestation and associated CO_2 emissions**. This is due to the fact that consistent data on forest degradation is more difficult to find. Forest degradation is harder to measure than changes in forest area, and there is no universally agreed definition[406]. For the Forest Resources Assessment (FRA) 2020, countries were asked whether and how they monitored forest degradation; various definitions and criteria were reported including consideration of forest disturbances, change in forest structure and loss of productivity, forest services, biomass or biological diversity[407].

7.3.3 Approach to building the quantitative baseline

The baseline builds on the qualitative and quantitative overview of the commodities placed on the EU market (including commodities grown in the EU) that present a risk to forests (as described above). The baseline is composed on an analysis that uses import data downloaded from Comext (see Annex C for a list of HS codes

[401] European Commission (2019), Communication on Stepping Up EU Action to Protect and Restore the World's Forests, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019DC0352.
[402] Trase (2020), Trase data can help tackle global extinction crisis, https://insights.trase.earth/insights/insight-trase-data-can-help-tackle-global-extincti.
[403] FAO and UNEP (2020). The State of the World's Forests 2020, http://www.fao.org/state-of-forests/en/#:~:text=Between%202015%20and%202020%2C%20the,80%20million%20hectares%20since%201990.
[404] Primarily as a result of cattle ranching, and cultivation of soy and palm oil.
[405] FAO and UNEP (2020). The State of the World's Forests 2020, http://www.fao.org/state-of-forests/en/#:~:text=Between%202015%20and%202020%2C%20the,80%20million%20hectares%20since%201990.
[406] FAO and UNEP (2020). The State of the World's Forests 2020. Forests, biodiversity and people, http://www.fao.org/publications/card/en/c/CA8642EN/.
[407] FAO (2020), Global Forest Resources Assessment 2020, http://www.fao.org/documents/card/en/c/ca9825en/.

considered in the analysis), as well as an analysis that considers the evolution of EU production using data from FAOSTAT. The methodology for these two approaches is described in this section.

The baseline relies on similar data (i.e. COMEXT) than the product scoping (see Section 7.1) with some differences. First, the geographic coverage of the datasets differs, in that the geographic scope of the baseline is broader, including data on EU Member States (for those commodities produced in the EU). Commodities produced in the EU were identified based on production data from FAOSTAT. While this means that there is a risk of double counting some imports this also means that commodities placed on the EU market by EU countries are accounted for. The latter was deemed more important by the team for the overall accuracy of our results. To further complement this analysis, a separate assessment of EU production and its impact on deforestation and associated emissions (in the EU) was added to the baseline. This allows a deeper reflection on how the situation would evolve without further legislative action and under different policy options, at a global level and at EU level. Second, while the volume of imports includes all HS/CN codes in Appendix C (same HS/CN codes used in the scoping section), a few HS/CN codes were excluded from the assessment of impacts (embodied deforestation, emissions) due to a lack of conversion factors for bulk commodities that differed significantly in weight from their weight as raw materials (e.g. frozen meat parts). This is explained in more detail in the "Limitations to the methodology" box.

Using import data as a **proxy for consumption**, the baseline attempts to depict future consumption (i.e., imports) in the absence of additional policy options, and to **estimate the impact of these trends on deforestation and CO_2 emissions**. The baseline, therefore, aims to illustrate the impact of EU consumption on deforestation and CO_2 emissions. It considers that unsustainable commodity production will remain the same in the absence of EU legal intervention. Future policy options (assessed below) aim to replace unsustainable consumption with sustainable consumption, by incentivising countries and companies to clean up their commodity production and supply chains.

The impact of imports on deforestation and emissions is assumed to remain the same until 2030 (i.e., the same average 'intensity factors' are applied on an annual basis between 2009 and 2030). The evolution of imports to 2030 was estimated based on **projected annual growth rates** found in literature (where possible) or otherwise based on historical trends. The annual growth rates (i.e., CAGR) for beef and soy were calculated using DG AGRI[408] or OECD-FAO[409] data. The annual growth rate (i.e., CAGR) for wood products was calculated based on the business-as-usual (BAU) scenario in Jonsson et al. (2021)[410], which takes into account a variety of wood products ranging from sawn wood to wood pellets, to newspaper. Historical data was used to calculate annual growth rates for the remaining commodities (using the 'GROWTH' function in Excel). DG AGRI and Jonsson et al. (2021) data was available until 2030, whereas OECD-FAO data was available until 2029. Since consumption projections in the OECD-FAO database were only available until 2029, the CAGR calculated over the period 2020-2029 was assumed to be valid for the year 2030 as well.

Table 7.14 Annual growth rate of consumption in Europe, 2020-2030, at commodity level

Commodity	Annual growth rate assumed	Source
Beef	-0.70%	DG AGRI[411]
Soy	0.56%	OECD-FAO[412]

[408] DG AGRI (2020), EU Agricultural Outlook, https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2020-report_en.pdf
[409] OECD-FAO (2020), Agricultural Outlook 2020-2029, https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019
[410] Jonsson et al. (2021), Boosting the EU forest-based bioeconomy: Market, climate, and employment impacts, https://www.sciencedirect.com/science/article/pii/S0040162520313044
[411] DG AGRI (2020), EU Agricultural Outlook, https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2020-report_en.pdf
[412] OECD-FAO (2020), Agricultural Outlook 2020-2029, https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019

Wood products	0.12%	Jonsson et al. (2021)[413]
Palm oil	1.42%	COMEXT (historical trend)
Cocoa	4.13%	COMEXT (historical trend)
Coffee	2.42%	COMEXT (historical trend)

Source: The growth rates were calculated based on the data sources indicated in the table above.
Note: The growth rates marked with a * were not directly used as input values in the analysis. They were calculated using a CAGR (exponential growth) formula following a 'GROWTH' analysis in Excel. They were included in the table above to illustrate the range of growth rates between different commodities.

To calculate the impact of these trends on global deforestation and CO_2 emissions, several steps were taken:

1. **Calculate average intensity factors (i.e., deforestation and emission ratios in ha/tonne and tCO_2/tonne, respectively).** Yearly data on deforestation risk (defined as deforestation embodied in the production of agricultural and forestry commodities) per producer country and per commodity, was collected from Pendrill et al. (2020)[414]. The data was complemented by Global Forest Watch (GFW)[415] data on tree cover loss and CO_2 emissions resulting from tree cover loss (driven by agriculture and forestry).[416,417] In addition, data on production (in tonnes) was downloaded from FAOSTAT[418] (for the same commodity groups in Pendrill et al. (2020) and of relevance to this study). The different datasets were combined to produce (average) intensity factors at commodity level. The average was calculated based on the period 2005-2017.

2. **Calculate total impacts at commodity level.** This was done by multiplying the factors in the previous step by the import volumes (historical and projected).

In comparison to other research on the topic, this method of calculating deforestation and emission impacts can be described as a simplified approach, which stems from time and budget constraints, as well as data limitations (explained below).

Limitations to the methodology:

- The majority of data used to calculate the intensity factors came from Pendrill et al. (2020) and FAOSTAT. To the extent possible, the commodity groups for which the intensity factors were calculated were aligned between the two datasets, as Pendrill et al. (2020) also used FAO production data in their calculations. However, in some cases (e.g., wood products), it is not certain that the commodity groups fully align. Moreover, Pendrill et al. (2020) data focuses only on tropical countries. In an attempt to fill some of the data gaps, GFW data was used (for the top 10 worldwide producers[419,420] that were missing from the Pendrill et al. dataset). GFW

[413] Jonsson et al. (2021), Boosting the EU forest-based bioeconomy: Market, climate, and employment impacts, https://www.sciencedirect.com/science/article/pii/S0040162520313044
[414] https://zenodo.org/record/4250532
[415] https://www.globalforestwatch.org/dashboards/global/
[416] This has currently been done for the US only.
[417] GFW provides data on forest loss and CO2 emissions associated with a number of drivers including commodity-driven deforestation (i.e., long-term, permanent conversion of forest and shrubland to a non-forest land use), shifting agriculture (i.e., small to medium-scale forest and shrubland conversion for agriculture), and forestry. The distinction is presented here: https://data.globalforestwatch.org/datasets/f2b7de1bdde04f7a9034ecb363d71f0e. To complement the Pendrill et al. (2020) data, which is specified at commodity level, an average intensity factor was calculated for wood products and one for other (agricultural) commodities, based on the different drivers of deforestation. The method to calculate the intensity factors, thus, differs slightly depending on the dataset used.
[418] http://www.fao.org/faostat/en/#data
[419] To identify the top 10 producers, FAO production data for all relevant commodities was aggregated at country level.
[420] USA, Russia, Canada, Germany, France, Sweden, Poland, Ukraine, Finland, and New Zealand – in order of importance.

provides data on forest loss and CO_2 emissions[421] associated with a number of drivers, including commodity-driven deforestation, shifting agriculture, and forestry.[422]

- In GFW, the definition of deforestation linked to different drivers differs. Commodity-driven deforestation considers large-scale deforestation linked to commercial agricultural expansion; shifting agriculture represents temporary loss or permanent deforestation due to small- and medium-scale agriculture; and forestry refers to temporary loss from plantation and natural forest harvesting (including some deforestation of primary forests). In Pendrill et al. (2020), deforestation (risk) is defined as forest loss due to the expansion of cropland, pasture or plantations (calculated annually as an average forest loss attributed to a certain commodity over an assumed amortisation period of five years).
- To complement the Pendrill et al. (2020) data, which is specified at commodity level, one (average) intensity factor was calculated for wood products and one (average) intensity factor was calculated for other (agricultural) commodities, based on the different drivers of deforestation in GFW (for the top 10 producers that were missing from the Pendrill et al. dataset). The method to calculate the intensity factors, thus, differs slightly depending on the dataset used. However, the GFW was only used to provide some average figures for non-tropical countries.
- The commodity- and country-specific intensity factors were multiplied by the volume of imports at country and commodity levels. However, this may not fully reflect the reality of impacts. Some countries placing commodities/products on the EU market may not be countries producing those same commodities/products, so the factors applied to the volumes may not be accurate. In cases where intensity factors are missing but products are placed on the EU market, regional averages are used to fill in gaps. This may not be reflective of the actual impact of those commodities, because the regional averages may diverge from country-specific averages. Furthermore, intra-EU trade of products that are not produced in specific EU countries has been excluded from the analysis of impacts (e.g., palm oil placed on the EU market by the Netherlands but not produced in the Netherlands). This also avoids double-counting impacts of quantities that are produced outside of the EU but traded between EU MS.
- The import volumes outlined above encompass a variety of commodities (in various forms, e.g., soyabeans vs oil cakes resulting from the extraction of soyabean oil[423]). However, since the intensity factors were, to a large extent, calculated based on raw commodities, it is not possible to apply them to some forms of these commodities (i.e., that differ significantly in weight) without specific conversion factors. In some cases, conversation factors were calculated based on data found in online literature.[424] In the absence of specific conversion factors, a one-to-one ratio was assumed or the products were excluded from the analysis of impacts[425]. The different commodities and products downloaded from COMEXT were categorised as 'commodities' (if they were considered to be close in aspect/substance to the

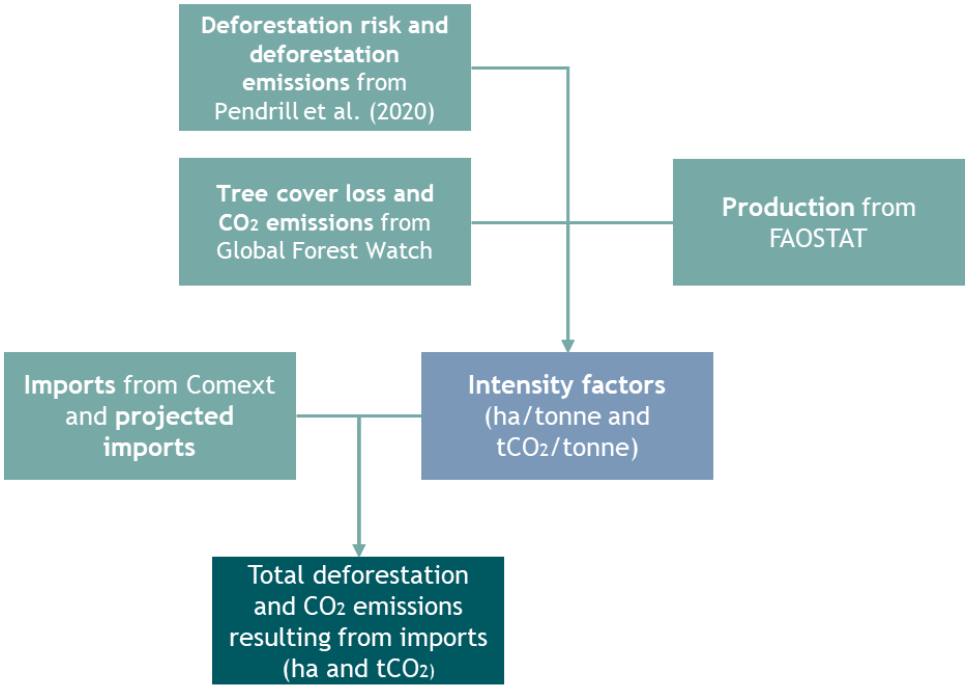
[421] Including peatland drainage.
[422] https://data.globalforestwatch.org/datasets/f2b7de1bdde04f7a9034ecb363d71f0e
[423] Soybeans correspond to HS code 12019000 and oilcakes correspond to HS code 23040000.
[424] For example, one article noted that out of 100kg of soybeans, 80kg of oil cakes could be derived (cf. https://www.oil-press-machine.com/edible-oil-making-solution/oil-cake-ultilization.html). This means oil cakes could represent 80% of soybeans, so a conversion factor in line with this data was calculated (i.e., 1/0.8=1.25). This approach is tailored to the way in which the data is processed in the corresponding Excel files.
[425] For example, in the 'beef' category, products such as frozen meat and certain meat sub-parts (like liver, intestines, etc.) were excluded due to a lack of data on their relative weight compared to a full animal; and, in the 'wood products' category, charcoal was excluded.

equivalent 'raw commodity') or 'modified commodities'[426] (if they were considered to diverge significantly from the equivalent 'raw commodity'). In some cases, conversion factors were used to ensure that data on different forms of the same commodity (otherwise referred to as 'modified commodities') could be included in the analysis.[427] These assumptions are an important limitation to the outcome of the analysis.

- Some wood products (as found in Chapter 44 of the Combined Nomenclature[428]) were excluded from the analysis due to a lack of reporting on those commodities prior to 2017 and some irregularities in the data. It was impossible for the team to verify the data and including those products would cause a steep surge in reported imports of wood products over the three-year period prior to 2020 that does not fully reflect the imports of those commodities prior to 2017 and would lead to a substantial skew in the forecast leading to an over-representation of wood products in the baseline. As a result these specific HS/CN codes for wood products were removed from the calculations.

The steps above are illustrated in the figure below. In light of the limitations described above, the impacts presented in the following section should be considered with **caution.**

Figure 7.3 Data collection and methodological approach



Source: Own development.

Section 7.3.1 above describes the baseline in relation to existing policy and legislative settings that influence deforestation and forest degradation associated with the consumption of goods placed on the EU market.

[426] Please note that in this context the term modified commodities differs from 'derived products' as described previously in the report. Derived products (e.g., shampoo containing palm oil) are not part of the baseline quantifications.
[427] For example, intensity factors were calculated for 'oil palm fruit'. The EU imports 'palm kernels', which were found to represent 22% of a palm fruit (http://www.fao.org/3/Y4355E/y4355e03.htm#TopOfPage).
[428] https://www.cbs.nl/en-gb/participants-survey/overzicht/businesses/onderzoek/international-trade-in-goods/idep-code-lists

Previous subsections within this chapter have summarised the literature on the key commodities associated with deforestation and forest degradation. In this section, we quantify various aspects of a baseline to 2030 drawing on data related to the production of key commodities associated with deforestation, the export of these commodities into the EU and their placement on the EU market, and key impacts such as embodied deforestation and greenhouse gas emissions. **It is important to note that the following sections likely provide a modest idea of impacts, as a result of the limitations and data gaps highlighted above.** In this baseline, annual embodied deforestation has been calculated at around 230,000 ha. Previous research has quantified Europe's forest footprint at around 10% of worldwide embodied deforestation[429], using LANDFLOW and GTAP-MRIO models.[430] LANDFLOW modelling tracks the trade of agricultural and forestry commodities and their embodied deforestation between countries; and GTAP-MRIO modelling simulates how all products derived from agricultural and forestry commodities are traded throughout the world and traces the embodied deforestation up to the final consumer sector in a country or region. This comprehensive modelling approach likely allows for a more accurate picture of environmental impacts. The analysis conducted in 2013 (i.e., by Cuypers et al., 2013) also looks at several additional commodities and products that were not included in the present analysis. Cuypers et al.'s (2013) research is compared to the present baseline in the table below. In addition to the data and methodological limitations listed above, differences in results between the present study and the Cuypers et al. (2013) study also stem from differences in geographic and commodity scope, time horizon, and methodological approach. As another means of comparison, a study for the European Parliament[431] estimated the impact of EU27 consumption (of maize, soy, rapeseed, other oil crops, sugar crops, and beef) to amount to at least 258,219 ha and 73.8 $MtCO_2$ in the baseline scenario (including a share of commodities being certified 'deforestation-free'). This study and several others mentioned earlier in the report are compared in the table below. Reflecting on these differences, the results calculated in this baseline are difficult to compare to previous results and are likely not to capture the full impact that the EU has on global deforestation and associated emissions.

Table 7.15 Baseline comparison with other relevant studies

Study	Geographic scope	Time horizon	Methodology	Commodity scope
Cuypers et al. (2013), The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation[432]	Focus on EU27 impacts, including UK (and excluding Croatia)	1990-2008 and projections to 2030	LANDFLOW and GTAP-MRIO modelling linking land use changes to observed deforestation data and linking embodied deforestation to trade flows and final consumption in the EU.	Various sectors are considered in the analysis: food (meat and non-meat), services, textiles (including leather), wood products (including pulp, paper, furniture, construction), manufacturing, and energy, chemicals, mining, and transport.
COWI (2018), Feasibility study on options to step up EU action against deforestation[433]	Focus on EU27 impacts, including UK (and excluding Croatia)	2015-2030	The study considers a supply-chain framework, covering supply, trade, and demand. To quantify embodied deforestation to 2030, the study makes some assumptions about how additional land use requirements are expected to translate into deforestation. The	Meat/beef, maize/corn, soy, cocoa, coffee, palm oil, rubber, timber, pulpwood, wood pellets, bio-ethanol feedstock, and bio-diesel feedstock.

[429] The study concluded that the EU27 is consuming 732 kha (2004) out of 7,290 kha global embodied deforestation consumption per year.
[430] https://ec.europa.eu/environment/forests/pdf/1.%20Report%20analysis%20of%20impact.pdf
[431] https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf
[432] https://ec.europa.eu/environment/forests/pdf/1.%20Report%20analysis%20of%20impact.pdf
[433] https://ec.europa.eu/environment/forests/pdf/feasibility_study_deforestation_kh0418199enn_main_report.pdf

Study	Geographic scope	Time horizon	Methodology	Commodity scope
			assumptions made related to land productivity, use of abandoned or fallow land for agriculture in the EU, and expected demand for certain commodities based on European population change. Additional land use requirements outside of the EU are assumed to lead to deforestation, to a large extent.	
EP (2020), An EU legal framework to halt and reverse EU-driven global deforestation[434]	Focus on EU27, excluding UK	E3ME's historical database covers the period 1970-2016 and for the scenarios in this report the model projects forward annually to 2030	The study uses the E3ME model to project demand for certain key commodities (i.e., based on expected demand for food and biofuels in the EU). The model's output is differentiated between certified and non-certified imports (for a sub-set of commodities) and is complemented with data on imports into the EU (by origin). This data is further linked with land use needs to derive impacts on deforestation and associated emissions.	Beef, soy, palm oil, maize, sugar, rapeseed.
IDH (2020), The urgency of action to tackle tropical deforestation[435]	Focus on 12 European countries, namely Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Switzerland, and the UK	2018-2025 and 2018-2030, with growth rates calculated based on historical data (5-year CAGRs)	The baseline calculations in this study aim to provide an estimation and indication of future deforestation rates and greenhouse gas emissions. A modelling approach is used to derive these estimations, focusing only on soy and palm oil due to limited data availability. Key assumptions made include the calculation of land requirements to meet European demand, country-specific yield improvements, and sustainable sourcing rates.	Focus on beef, palm oil, soy, tropical timber, cocoa, wood, wood pulp, rubber, and coffee in the report, but only soy and palm oil are considered in the baseline calculations.
Baseline results and methodology (present study)	Focus on EU27 impacts, excluding UK	2009-2019 and projections to 2030	Calculation of average intensity factors (i.e., deforestation ratios in ha/tonne of production and emission ratios in tCO_2/tonne of production), applied to import data.	Various commodity groups are considered in the analysis: wood products, palm oil, cattle meat, cocoa, coffee, and soy.

Source: Own development based on literature cited in the table.

Supplementary assessment on the impacts of EU production

Complementing the analysis described above, an **additional assessment focusing only on the EU27** has been made. The latter looks at EU production of key commodities (i.e., a subset of the commodities listed above) and embodied deforestation and emissions in the EU. Several of the commodities listed above are

[434] https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf
[435] https://www.idhsustainabletrade.com/uploaded/2020/02/IDH_The-UoA-to-Tackle-Tropical-Deforestation_2020-web.pdf

produced in the EU (in particular wood products), and any demand-side instrument applicable to non-EU countries would also be applicable to EU Member States. Nonetheless, **deforestation is less prevalent in the EU** relative to other regions in the world. According to Maes et al. (2020), forest area in the EU has increased in recent decades, but the **condition of EU forests is considered poor**[436]. Forest ecosystems are subject to a range of pressures from human activities and natural dynamics, with forest management being one of the most important sources of pressure in the EU[437]. Over the last centuries, most of Europe's natural forests have been replaced by managed forests, with the large majority of forests being semi-natural and available for wood supply[438]. The methodology used to assess embodied deforestations and associated emissions in the EU27 is as follows:

1. Annual production data covering the period 2009-2019 was downloaded from FAOSTAT[439]. To make projections on the volume of commodities produced until 2030, the same expected growth rates (i.e., CAGRs) assumed in the previous analysis were assumed here[440].

2. Data on deforestation rates in the EU was downloaded from the FAO Forest Resource Assessment database[441] (over the period 2009-2019). This data was used in combination with the production data to derive deforestation intensity factors at MS level, on an annual basis (in ha/tonne produced). For each country, the average intensity factor over the past five years was calculated. The last five years were used to calculate an average intensity factor because over the past five years, certain countries reported no deforestation (i.e., Italy, Portugal, Finland). Calculating an average based on a longer period may have led to over-estimations on projected deforestation rates to 2030. As such, if certain countries reported no deforestation over the past five years, it has been assumed that the trend would continue to 2030.

3. The average intensity factors calculated in the previous point were used to calculate projected deforestation in the period 2020-2030 based on projected production volume. Due to a lack of granularity in the FAO Forest Resource Assessment database, deforestation in the EU could not be linked to specific commodities. It is assumed that all deforestation is linked to the three commodities that are considered as part of the analysis (i.e., wood products, soy, cattle).

4. The Global Forest Watch (GFW) database[442] was used to derive country-specific deforestation/emissions factors. Data on tree cover loss (resulting from commodity-driven deforestation, shifting agriculture and forestry) over the period 2009-2019 was divided by emissions data related to deforestation (as a result of the same drivers). This gave an average deforestation/emissions factor at country level.

5. The country-specific factors were multiplied by the yearly deforestation rates calculated in previous points, in order to estimate (yearly) CO_2 emissions.

Both analyses described in this section are subject to assumptions and data limitations. As such, the below estimates should be read with caution. They serve the purpose of illustrating the (partial) impact of EU consumption on global (including EU) deforestation and associated emissions and can only be used as a reference point against which policy options can be compared. Furthermore, the aim of the present study is to assess policy options that can stimulate more sustainable supply chains. This entails a range of various

[436] Maes, J. et al. (2020), Mapping and Assessment of Ecosystems and their Services: An EU ecosystem assessment, https://publications.jrc.ec.europa.eu/repository/handle/JRC120383.
[437] EEA (2020), State of Nature in the EU 2020, https://www.eea.europa.eu/publications/state-of-nature-in-the-eu-2020.
[438] Forest Europe (2020), State of Europe's Forests 2020, https://foresteurope.org/state-europes-forests-2020/.
[439] Data available here: http://www.fao.org/faostat/en/#data.
[440] Please note that among the key commodities highlighted at the beginning of Section 7.3, commodities produced in the EU27 include soybeans, cattle, and wood products.
[441] Data available here: https://fra-data.fao.org/EU27/fra2020/home/.
[442] Data available here: https://data.globalforestwatch.org/.

impacts and considerations that go beyond the two main impacts presented in the baseline. They are further explored in Section 8.

7.3.4 Expected impacts under the baseline

Projected trends to 2030: deforestation and emission forecasts based on trends in imports to 2030

The results of the baseline calculations are presented in the table below. In light of the above-mentioned assumptions and limitations, annual embodied deforestation was estimated at 230kha, on average, in the past decade. This is expected to reach 250kha per year, on average, in the coming decade. Total (cumulated) embodied emissions associated with deforestation range between nearly 1,022 and 1,103 $MtCO_2$ in 2009-2019 and 2020-2030, respectively. These results are linked to EU imports of beef, soy, palm oil, wood products, cocoa, and coffee.

Table 7.16 Baseline prediction of total imports, embodied deforestation, and embodied emissions, cumulated (2009-2019 and 2020-2030)

	2009-2019	2020-2030
Cumulated total imports placed on the EU27 market (Mtonne)	810.5 *(514.9)*	1,042.3 *(659.6)*
Cumulated total embodied deforestation ('000 ha)	2,302.6 *(2,195.2)*	2,516.8 *(2,330.7)*
Cumulated total embodied emissions ($MtCO_2$)	1,021.8 *(999.2)*	1,103.0 *(1,063.8)*

Source: Analysis by project team base on COMEXT, DG AGRI[443], OECD-FAO[444], Jonsson et al. (2021)[445], Pendrill et al. (2020)[446], Global Forest Watch (GFW)[447], and FAOSTAT[448].
Note: Results in brackets represent *extra-EU trade only*.

The above results are disaggregated at commodity or country level in the sections below. The data is also presented in tables in Appendix E at the end of the document.

Total imported key commodities on the EU market

An important first step in developing a quantitative baseline for this study is measuring the total volumes of key commodities associated with deforestation and forest degradation that are imported into the EU and placed onto the EU market.

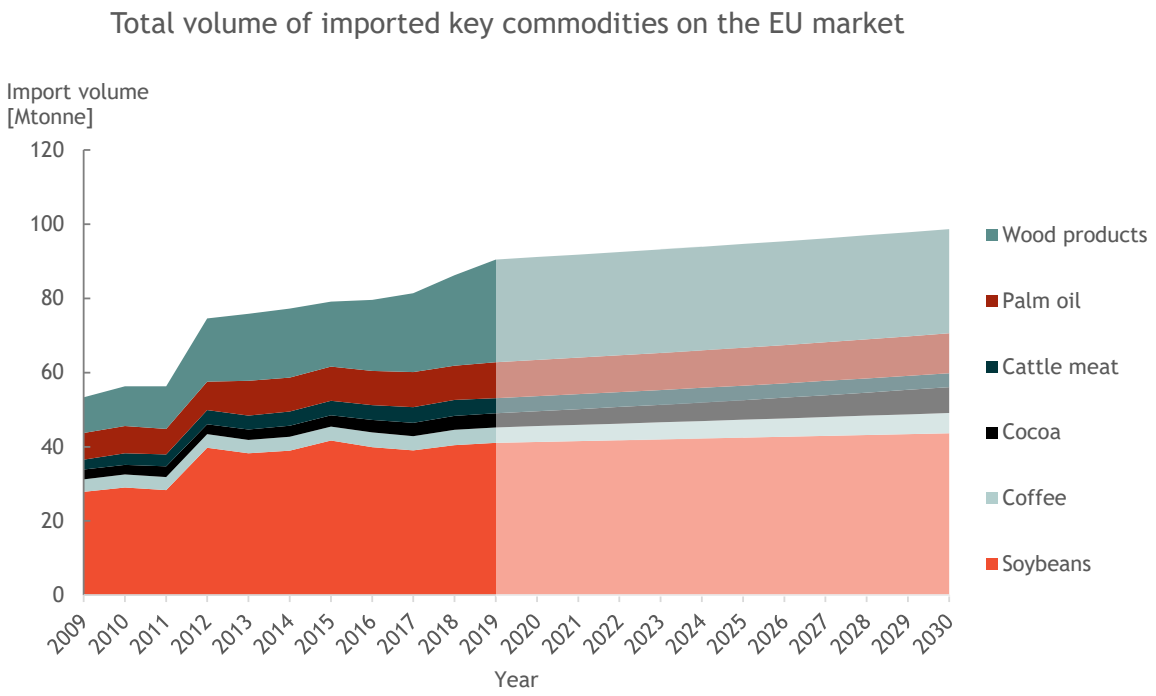
Drawing on COMEXT, DG AGRI[449], OECD-FAO[450], and Jonsson et al. (2021)[451] data, represents the total imports of the key commodities associated with deforestation (palm oil, beef, cocoa, coffee, soy, wood),

[443] DG AGRI (2020), EU Agricultural Outlook, https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2020-report_en.pdf
[444] OECD-FAO (2020), Agricultural Outlook 2020-2029, https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019
[445] Jonsson et al. (2021), Boosting the EU forest-based bioeconomy: Market, climate, and employment impacts, https://www.sciencedirect.com/science/article/pii/S0040162520313044
[446] https://zenodo.org/record/4250532
[447] https://www.globalforestwatch.org/dashboards/global/
[448] http://www.fao.org/faostat/en/#data
[449] DG AGRI (2020), EU Agricultural Outlook, https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2020-report_en.pdf
[450] OECD-FAO (2020), Agricultural Outlook 2020-2029, https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019
[451] Jonsson et al. (2021), Boosting the EU forest-based bioeconomy: Market, climate, and employment impacts, https://www.sciencedirect.com/science/article/pii/S0040162520313044

drawing on historical data of commodity production from COMEXT over the time period 2009-2019, and projection of this data to 2030 based on DG AGRI[452], OECD-FAO[453], and Jonsson et al. (2021)[454] data, and historical trends[455].

The chart shows that, by volume, soybeans and wood products make up an important share of imports.

Figure 7.4 Baseline prediction of total EU27 imports of key commodities, 2009-2030, in million tonnes



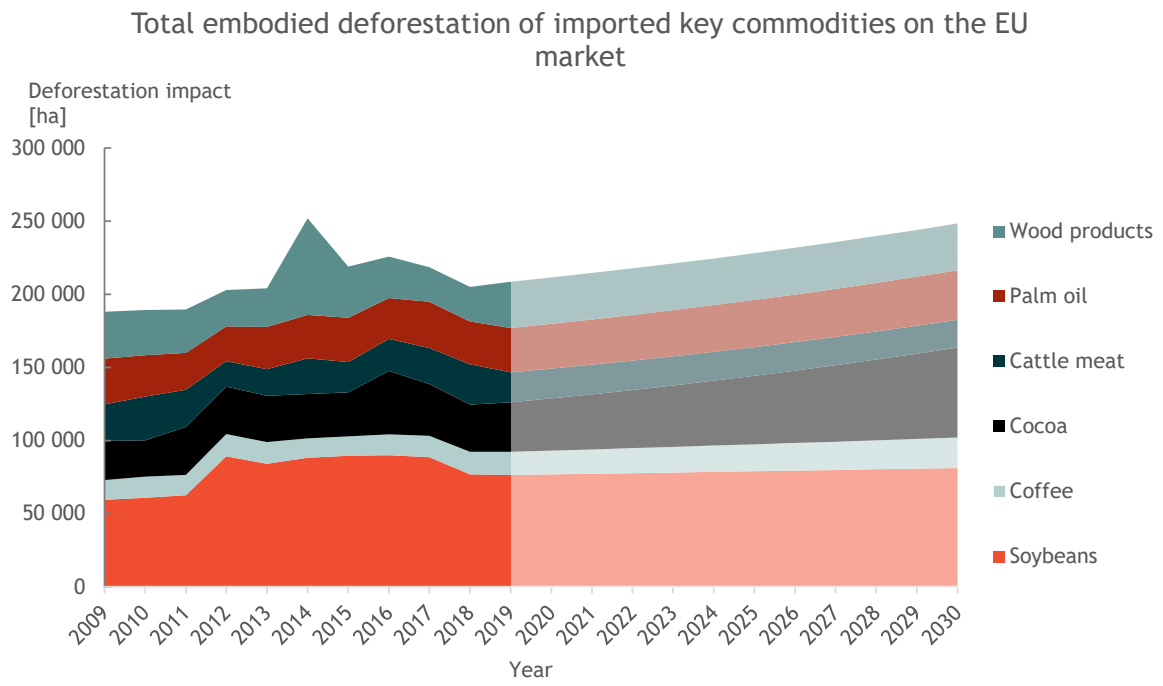
Source: Analysis by project team base on COMEXT, DG AGRI[456], OECD-FAO[457], and Jonsson et al. (2021)[458].

Total embodied deforestation

The figure below shows past and future trends in embodied deforestation of key commodities placed on the EU27 market. As described above, embodied deforestation was calculated based on average intensity factors and import data and represents a conservative estimate of the total impact of EU consumption on global deforestation. The figure below depicts soybeans as one of the key commodities that may be derived from supply chains linked to deforestation (in line with the relative volume of imports illustrated in the figure above). In general, embodied deforestation is expected to slightly increase in the upcoming decade. This is especially the case for cocoa, as estimated below.

[452] DG AGRI (2020), EU Agricultural Outlook, https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2020-report_en.pdf
[453] OECD-FAO (2020), Agricultural Outlook 2020-2029, https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019
[454] Jonsson et al. (2021), Boosting the EU forest-based bioeconomy: Market, climate, and employment impacts, https://www.sciencedirect.com/science/article/pii/S0040162520313044
[455] Using the Excel 'TREND' function.
[456] DG AGRI (2020), EU Agricultural Outlook, https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2020-report_en.pdf
[457] OECD-FAO (2020), Agricultural Outlook 2020-2029, https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019
[458] Jonsson et al. (2021), Boosting the EU forest-based bioeconomy: Market, climate, and employment impacts, https://www.sciencedirect.com/science/article/pii/S0040162520313044

Figure 7.5 Baseline prediction of total embodied deforestation of EU27 imports of key commodities, 2009-2030, in hectares



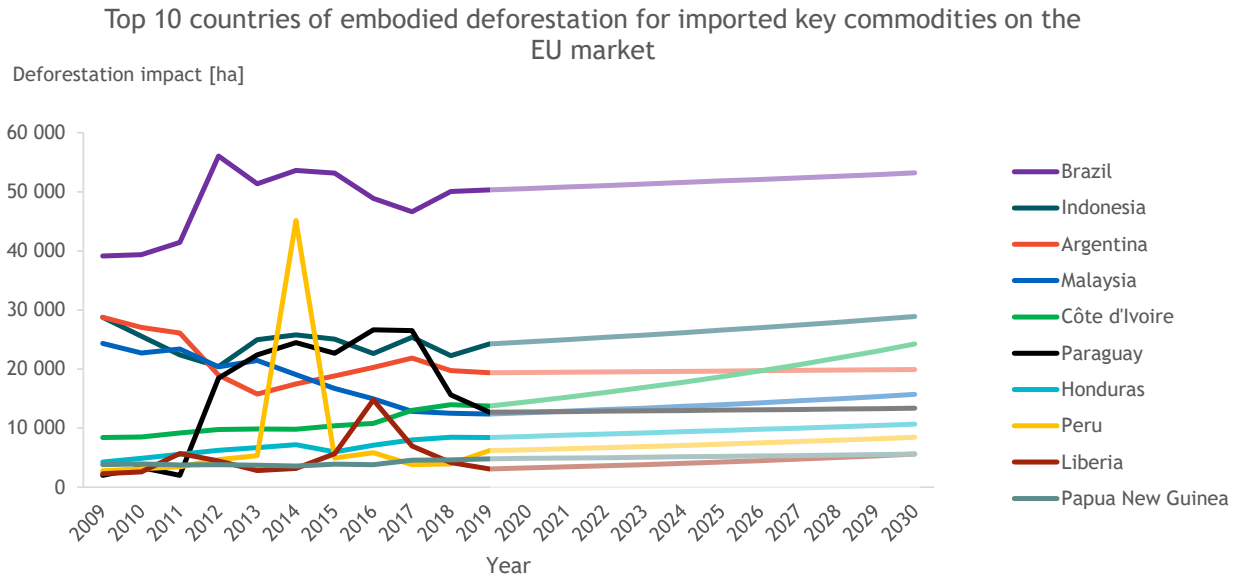
Source: Analysis by project team base on COMEXT, DG AGRI[459], OECD-FAO[460], Jonsson et al. (2021)[461], Pendrill et al. (2020)[462], Global Forest Watch (GFW)[463], and FAOSTAT[464].

Total embodied deforestation by country

The figure below shows past and future trends in embodied deforestation of key commodities placed on the EU27 market, by producing country. The figure illustrates Brazil as the country with the highest (relative) rate of deforestation embodied in EU imports in the future; this is related to Brazil's exports in soy (as well as coffee).

[459] DG AGRI (2020), EU Agricultural Outlook, https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2020-report_en.pdf
[460] OECD-FAO (2020), Agricultural Outlook 2020-2029, https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019
[461] Jonsson et al. (2021), Boosting the EU forest-based bioeconomy: Market, climate, and employment impacts, https://www.sciencedirect.com/science/article/pii/S0040162520313044
[462] https://zenodo.org/record/4250532
[463] https://www.globalforestwatch.org/dashboards/global/
[464] http://www.fao.org/faostat/en/#data

Figure 7.6 Baseline prediction of total embodied deforestation of EU27 imports of key commodities, 2009-2030, by country, in hectares



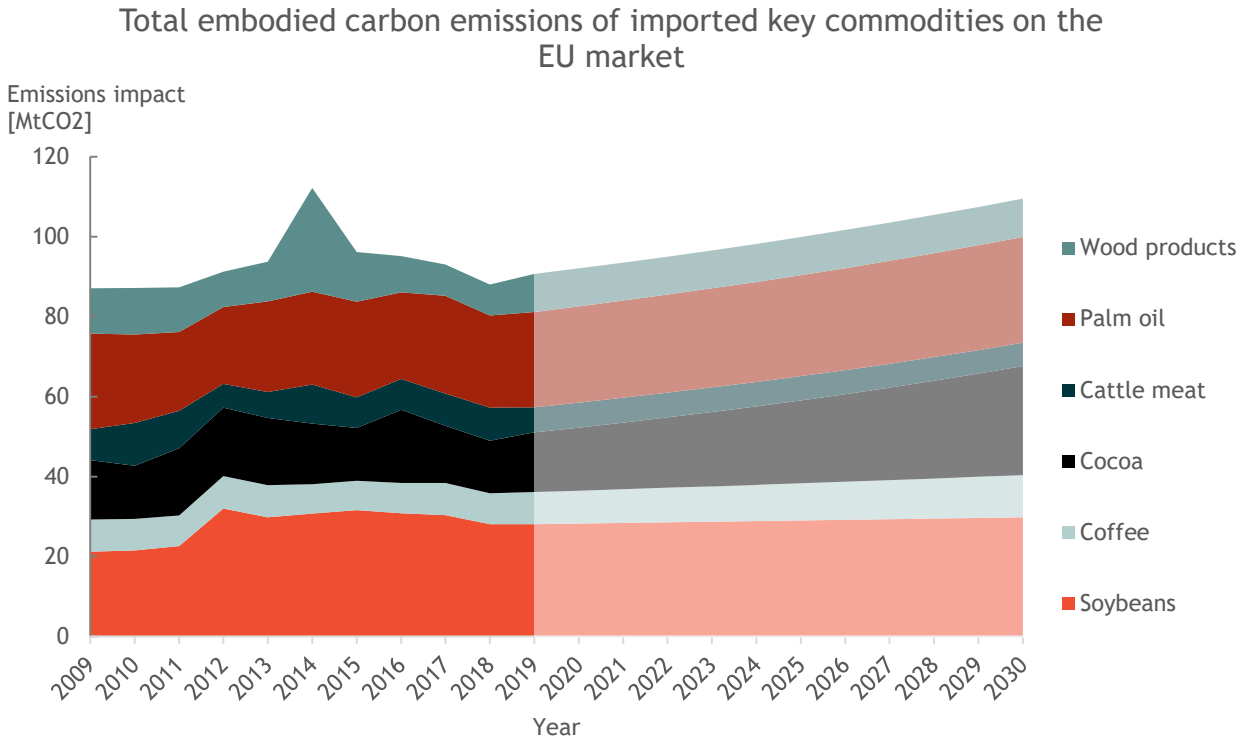
Source: Analysis by project team base on COMEXT, DG AGRI[465], OECD-FAO[466], Jonsson et al. (2021)[467], Pendrill et al. (2020)[468], Global Forest Watch (GFW)[469], and FAOSTAT[470].

Total embodied carbon emissions

The figure below shows past and future trends in embodied emissions of key commodities placed on the EU27 market. Although embodied emissions linked to imports of soy take up an important share of total emissions due to their relative importance in volume of imports, the figure shows that emissions from palm oil and cocoa may increase over the next decade.

[465] DG AGRI (2020), EU Agricultural Outlook, https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2020-report_en.pdf
[466] OECD-FAO (2020), Agricultural Outlook 2020-2029, https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019
[467] Jonsson et al. (2021), Boosting the EU forest-based bioeconomy: Market, climate, and employment impacts, https://www.sciencedirect.com/science/article/pii/S0040162520313044
[468] https://zenodo.org/record/4250532
[469] https://www.globalforestwatch.org/dashboards/global/
[470] http://www.fao.org/faostat/en/#data

Figure 7.7 Baseline prediction of total embodied carbon emissions of EU27 imports of key commodities, 2009-2030, in million tonnes of CO_2



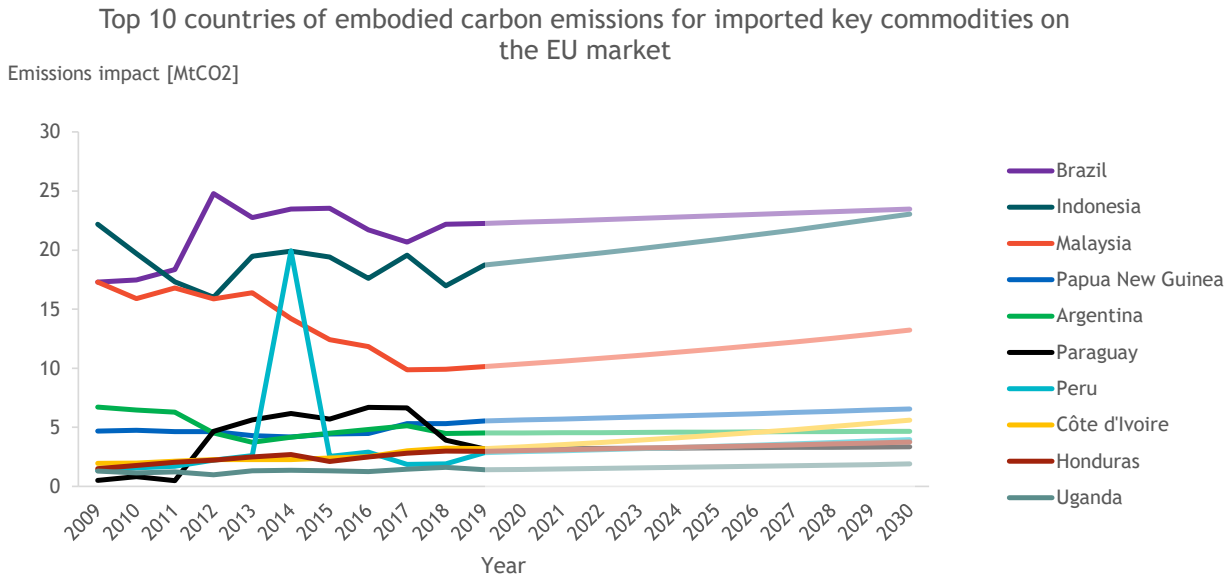
Source: Analysis by project team base on COMEXT, DG AGRI[471], OECD-FAO[472], Jonsson et al. (2021)[473], Pendrill et al. (2020)[474], Global Forest Watch (GFW)[475], and FAOSTAT[476].

Total embodied carbon emissions by country

The figure below shows past and future trends in embodied emissions of key commodities placed on the EU27 market, by producing country. The figure illustrates embodied emissions from Brazil to be the highest (due to its production of soybeans), closely followed by Indonesia as a result of its palm oil and cocoa production and resulting exports.

[471] DG AGRI (2020), EU Agricultural Outlook, https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2020-report_en.pdf
[472] OECD-FAO (2020), Agricultural Outlook 2020-2029, https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019
[473] Jonsson et al. (2021), Boosting the EU forest-based bioeconomy: Market, climate, and employment impacts, https://www.sciencedirect.com/science/article/pii/S0040162520313044
[474] https://zenodo.org/record/4250532
[475] https://www.globalforestwatch.org/dashboards/global/
[476] http://www.fao.org/faostat/en/#data

Figure 7.8 Baseline prediction of total embodied emissions of EU27 imports of key commodities, 2009-2030, by country, in million tonnes of CO_2



Source: Analysis by project team base on COMEXT, DG AGRI[477], OECD-FAO[478], Jonsson et al. (2021)[479], Pendrill et al. (2020)[480], Global Forest Watch (GFW)[481], and FAOSTAT[482].

7.3.5 Production of key commodities in the EU and impacts on deforestation and CO_2 emissions

This section aims to provide additional insights on deforestation and associated emissions linked to EU production of key commodities, namely wood, soybeans, and cattle. Note that different data sources and methodology were used for this additional analysis (more details in Section 7.3.3 above). In the period 2009-2019, the production of the latter commodities ranged from 134 million tonnes to 179 million tonnes (the large majority being sawn wood[483]), according to FAOSTAT.

Table 7.17 Volume of key commodities produced in EU27, in million tonnes

Cumulative volume produced	2009-2019	2020-2030
Soybeans	21	32
Cattle	76	74
Wood	1,608	1,877

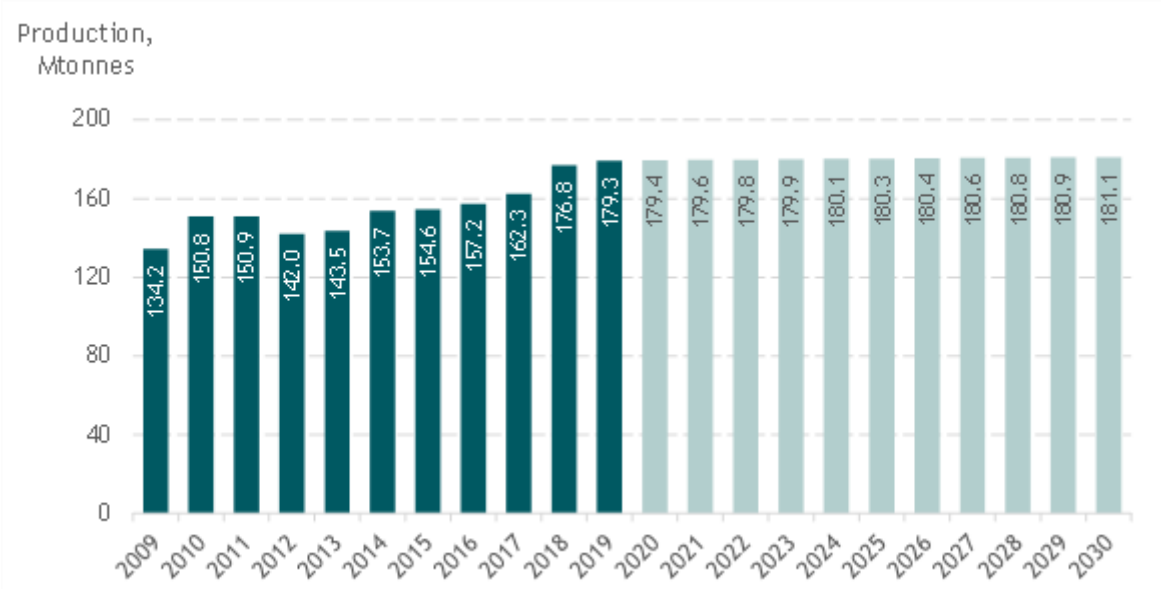
[477] DG AGRI (2020), EU Agricultural Outlook, https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2020-report_en.pdf
[478] OECD-FAO (2020), Agricultural Outlook 2020-2029, https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019
[479] Jonsson et al. (2021), Boosting the EU forest-based bioeconomy: Market, climate, and employment impacts, https://www.sciencedirect.com/science/article/pii/S0040162520313044
[480] https://zenodo.org/record/4250532
[481] https://www.globalforestwatch.org/dashboards/global/
[482] http://www.fao.org/faostat/en/#data
[483] Data was converted from m^3 to tonnes. The conversion factors used were: 0.885 t/m^3 for saw/veneer logs – coniferous and 1.146 t/m^3 for saw/veneer logs - non-coniferous (as per http://www.fao.org/3/ca7952en/CA7952EN.pdf).

Total (all commodities)	1,705	1,983

Source: Analysis by project team based on FAOSTAT[500], DG AGRI[501], OECD-FAO[502], and Jonsson et al. (2021)[503].
Note: 'Wood products' refer to coniferous and non-coniferous saw- and veneer logs. Their volume has been converted from m^3 to tonnes.

Amongst the selected commodities presented in the table above, EU production of wood represents the largest share.. Total production (including all selected commodities) is expected to reach over 181 million tonnes in 2030 (see figure below), wood maintaining the majority share. In the period 2020-2030, the main producers of soybeans are expected to be **Italy (37%), Romania (16%), and France (15%);** the main producers of cattle are expected to be **France (20%), Germany (16%), and Italy (11%);** and the main producers of wood products are expected to be **Germany (20%), Sweden (19%), and Finland (12%).** Annex E provides an overview of the volume produced across all Member States. The same producers are dominant in the period 2009-2019.

Figure 7.9 Volume of key commodities produced annually in EU27, in million tonnes



Source: Analysis by project team based on FAOSTAT[504], DG AGRI[505], OECD-FAO[506], and Jonsson et al. (2021)[507].

Based on this data, total deforestation rates and associated CO_2 emissions have been calculated. The results are presented in the table and the figure below. Data for Italy and Portugal was only available in the period 2010-2015, so the results below are presented with and without the data for Italy and Portugal in the period 2009-2019, to account for the lack of data[508].

Table 7.18 Total embodied deforestation and emissions in EU27, cumulated (in 2009-2019 and in 2020-2030)

Cumulative impacts	Deforestation (in kha)	CO_2 emissions (in $MtCO_2$)
2009-2019	877	524
2009-2019 (excluding Italy and Portugal)	*661*	*240*
2020-2030	314	209

Source: Analysis by project team based on FAOSTAT[509], DG AGRI[510], OECD-FAO[511], Jonsson et al. (2021)[512], FAO Forest Resource Assessment[513], and GFW[514].

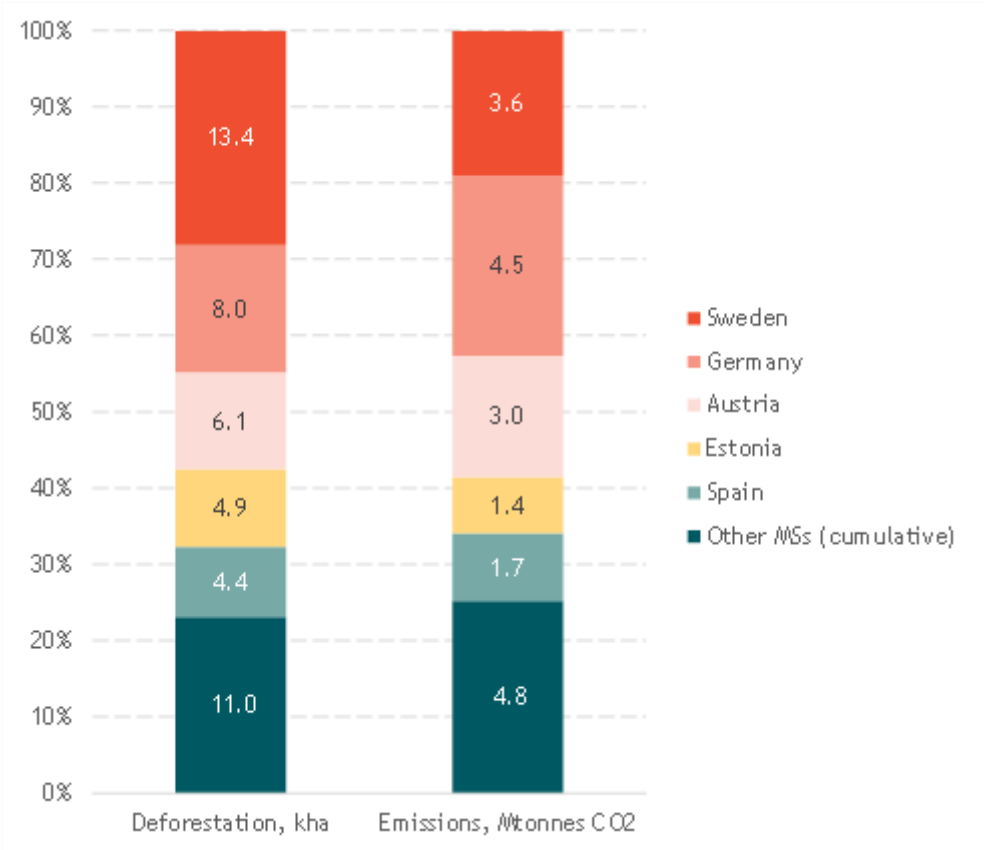
Section 7.3.3 described the approach to calculating embodied deforestation and emissions. Based on the average deforestation rates calculated over the past five years and expected production in the upcoming decade, embodied deforestation and emissions are not expected to rise significantly in comparison to recent years.

Figure 7.10 Total embodied deforestation and emissions in EU27, annual (2009-2030)

Source: Analysis by project team based on FAOSTAT[515], DG AGRI[516], OECD-FAO[517], Jonsson et al. (2021)[518], FAO Forest Resource Assessment[519], and GFW[520].

In 2030, embodied deforestation is expected to amount to nearly 48 kha, while embodied emissions are expected to reach 19 $MtCO_2$. The top five countries responsible for these impacts are shown in the figure below. Please note that these results should be interpreted with caution due to certain **data gaps and a lack of granularity on the drivers of deforestation** in the FAO Forest Resource Assessment database. In 2030, impacts, both in terms of deforestation and emissions, are largely driven by Sweden, Germany, Austria, Estonia, and Spain (representing 75%-77% of total EU27 impacts).

Figure 7.11 Embodied deforestation and emissions in 2030, top five Member States and rest of the EU27



Source: Analysis by project team based on FAOSTAT[521], DG AGRI[522], OECD-FAO[523], Jonsson et al. (2021)[524], FAO Forest Resource Assessment[525], and GFW[526].

7.4 Option 1 - Improved due diligence system based on a deforestation-free definition

Table 7.19 Description of option 1

Mandatory due diligence system, relying on a deforestation-free definition				
Description of instruments				
Option 1 consists of a mandatory due diligence approach to ensure that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation worldwide. Operators (i.e., those who place commodities under scope or derived products containing those commodities on the EU market for the first time) and traders in those products will exercise a Due Diligence System (DDS) to ascertain that such commodities and products are not coming from supply chains associated with deforestation and/or forest degradation. This DDS relies on the establishment of a definition for 'deforestation-free' and a set of underlying criteria to be covered in the Due Diligence System. **Operators would have to develop their own due diligence system for risk assessment,** The legislator will establish a legislative framework covering the main provisions of a Due Diligence System (DDS), including relevant provisions for monitoring and enforcement. This framework will also cover: • Universal definitions for the key concepts in the legislative framework, such as forest, deforestation, degradation of forests and underlying criteria for 'deforestation-free' to be considered in the DDS, etc. These definitions will be based on objective and scientific considerations, including clear, science-based definitions. • A scope of commodities and derived products to be covered under the DDS. This scope will be reviewed and revised by the legislator. Note that recycled and reused commodities should be included, except if they were already subject to a due diligence to be placed on the EU market in a previous life cycle. • Standards for minimum inspections levels, along with obligations for Member States to establish effective, proportionate and dissuasive penalties in case of infringement including permanent seizure of commodities/products concerned, immediate suspension of authorisation to place products on the EU market and exclusion from public procurement processes. This framework will apply to all operators and traders – irrespective of their legal form, size or complexity of their value chains. The obligations above will not be dependent on the operator's base or origin but will be a requirement for any actor seeking to place a commodity or derived product on the EU market. Unlike the EUTR, the framework will also apply to traders, i.e., any natural or legal person that in the course of a commercial activity, sells to or buys from operators on the Union internal market any commodity covered by the framework or a derived product that has been already placed on the EU market.				
INPUTS	**EU institutions**	**Member States**	**Industry**	**Third countries Other government**

Mandatory due diligence system, relying on a deforestation-free definition

	Commission: Human and financial resources Other: equipment such as IT systems/platforms	Customs / Competent authorities: Human and financial resources to cover monitoring, reporting, inspection checks and other support activities.	Operators and traders:. Human and financial resources to develop and comply with due diligence system. Traders: human and financial resources to comply with traceability obligations. Both EU and non-EU suppliers to the above operators: human and financial resources to provide information for due diligence.	Third country governments: Human and financial resources to cooperate with the European Commission.	
ACTIVITIES	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**
	The European Commission will review the scope of commodities and derived products every third year. The European Commission will maintain a database available to Competent Authorities with information on legal cases, inspections, their outcome, and best inspection practices, to allow for effective enforcement and mitigate the risk of rule-shopping by operators or traders. [484] The European Commission will prepare country overviews that hold information on source countries relevant for the implementation of this instrument. The European Commission will support CAs towards even and efficient enforcement across Member States, regardless of their respective capacity. To do so, it can support an expert group or network to discuss issues	Competent authority/ies Competent authorities (CAs) will be responsible for the implementation of the legislative act, including for carrying out inspection checks in line with the minimum standard of inspections set out in the legislation. They will also prepare checklists for custom authorities to consider when performing inspections. Competent authorities must also keep record of volumes checked, to inform the European Commission. Competent authorities will need to establish and deliver penalties where operators are found in case of infringement against the due duty to exercise due diligence. Competent authorities will be responsible for monitoring the DDS through reporting on implementation and enforcement actions on regular intervals. Competent authorities will report publicly about control and enforcement activities, infringements detected and responses	Operators placing the commodity/ product on the EU market for the first time and traders Operators and traders will be obliged to develop and set in place a Due Diligence System able to capture a wide variety of commodities and criteria for 'deforestation-free' supply chains. This will span to operators and traders dealing with various commodities depending on the chosen scope of applicable commodities. Operators and traders will undertake a risk management exercise so as to minimise the risk of placing commodities or products associated with deforestation or forest degradation to a negligible risk. The DDS will rely on the following three elements: • Information: the operator and trader must have access to information describing the commodity or derived	They will be encouraged to engage with the European Commission through platform/forum for exchange on a regular basis.	None.

[484] The European Commission should review the systems currently existing, for example whether DG TAXUD have a system to track Authorised Economic Operator, https://ec.europa.eu/taxation_customs/dds2/eos/aeo_home.jsp?Lang=en

Mandatory due diligence system, relying on a deforestation-free definition

of a transboundary nature and share best practice on implementation and enforcement. It will ensure representativeness of Member States. The network should involve those responsible for enforcement in competent authorities.

The European Commission will develop guidance to ensure clarity and common interpretation of the legislative text and allow for a universal understanding of the specific information requirements and functionalities a DDS is expected to perform.

The European Commission will maintain a platform/forum to exchange with third countries on a regular basis. This could be the multi-stakeholder platform for global cooperation to fight deforestation.

to substantial concerns through an IT system so it can be done right after a breach is notified.

Competent authorities participate in knowledge exchanges (e.g., both awareness raising and/or capacity building for duty holders and on best practices regarding enforcement of the regulation (e.g., risk-based inspections, disincentivising rule-shopping etc.).

Competent authorities may issue additional guidance to the operators in their country regarding meeting the DDS requirements. Competent authorities to establish dedicated support to SMEs, e.g., local language instructions on DDS requirements, criteria and guidance for selection of eligible certification schemes etc.

<u>Customs</u>

Customs authorities form a part of the overall grouping of competent authorities above with their main activities related to extra-EU trade (recognising that customs authorities have a limited role with regard to intra-EU movements). Customs authorities could verify if a self-declaration has been submitted by a declarant.

Inspections based on guidance prepared by competent authorities and will share data on inspection checks with competent authorities and the European Commission. In addition, customs will record data on the exporter and manufacturer of products imported by operators and will provide them to CA, if requested.

product, country of origin and specific area of production, quantity, details of the supplier, links between the commodity/product and deforestation/forest degradation.

- Risk assessment: the operator and trader should assess the risk of commodities and derived products linked with deforestation/ forest degradation in his supply chain, based on the information identified above, and taking into account criteria for 'deforestation-free' supply chains as set out in the regulation. Measurable and quantifiable indicators must be assigned to each criterion of the definition, to avoid the subjectivity of the risk assessment (based on the 'negligible risk concept').
- Risk mitigation: when the assessment shows that there is a non-negligible risk of deforestation or forest degradation in the supply chain, that risk can be mitigated by requiring additional information and verification from the supplier. Where risk cannot be mitigated to a negligible level, the operator and trader should not place a commodity or product on the EU market.

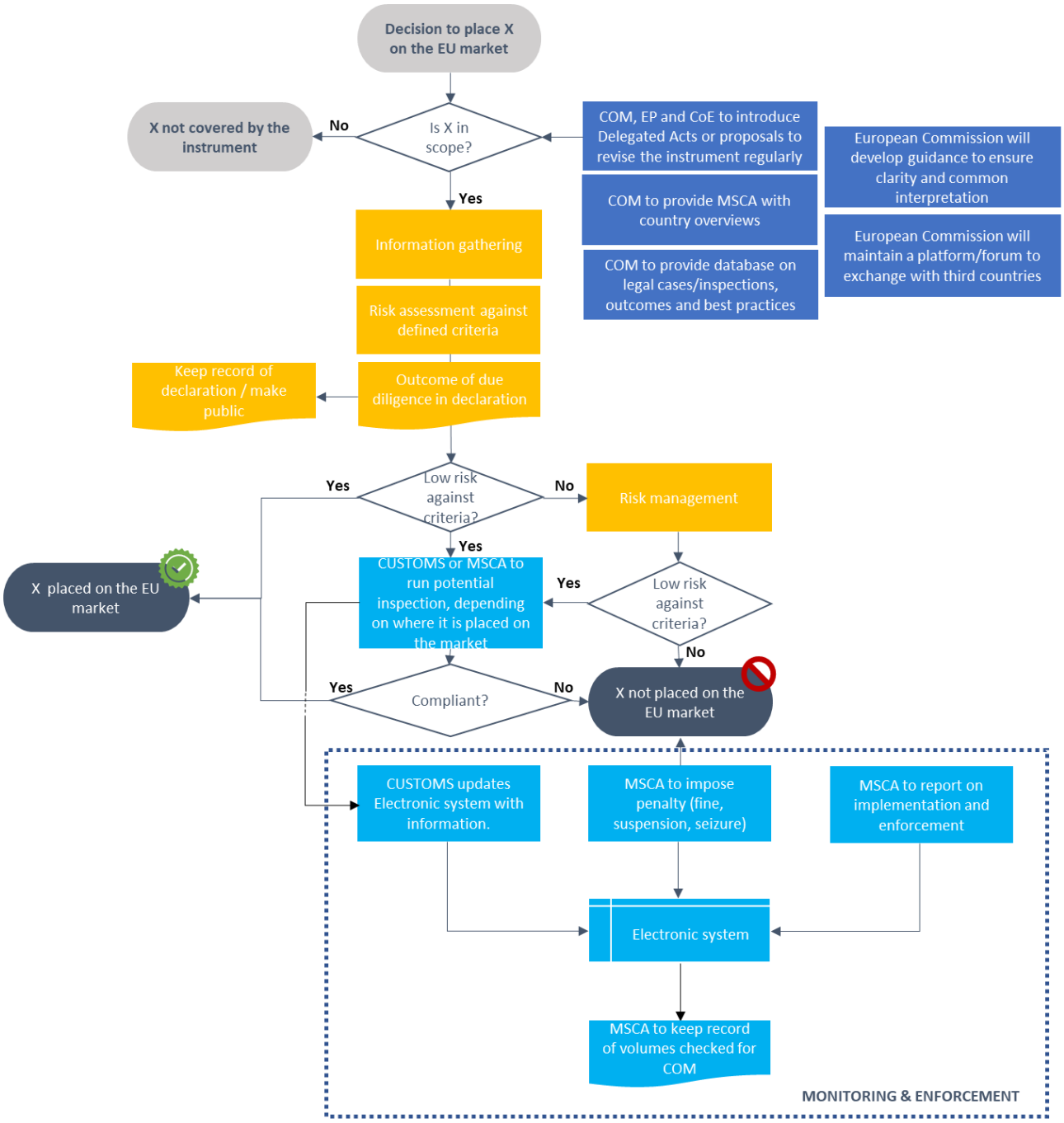
Operators and traders should maintain a written record of all due diligence actions and their results.

<u>Businesses other than operators or traders (e.g., handlers, transporters):</u>

Mandatory due diligence system, relying on a deforestation-free definition

			They will keep records of their suppliers and customers. <u>Suppliers from third countries</u> Suppliers from third countries trading with the EU are likely to be required to change their operations in order to ensure that exports comply with the deforestation-free definition and continue doing business with the EU. They might also need to ensure their suppliers comply with the requirements of the new initiative and to be able to provide the relevant information to operators in the EU.		
OUTPUTS	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**
	Updated list of commodities and derived products under scope. Database with information from Member States on legal cases, inspections, their outcome, and best practice etc. Country overviews Guidance documents Platform for cooperation with third countries.	Uniform implementation and enforcement of the regulation across countries. Regular reports on monitoring of implementation and enforcement. Data from inspections.	Sourcing of products changes, if necessary, to comply. Duty holders (operators, traders) effectively implement their obligations.	Participation in platform hosted by the European Commission.	

Figure 7.12 Flowchart of interactions under policy option 1



Source: own elaboration. (yellow = industry; dark blue = legislator; light blue = MSCA and customs)

7.5 Option 2 – Benchmarking and country carding systems (with DD)

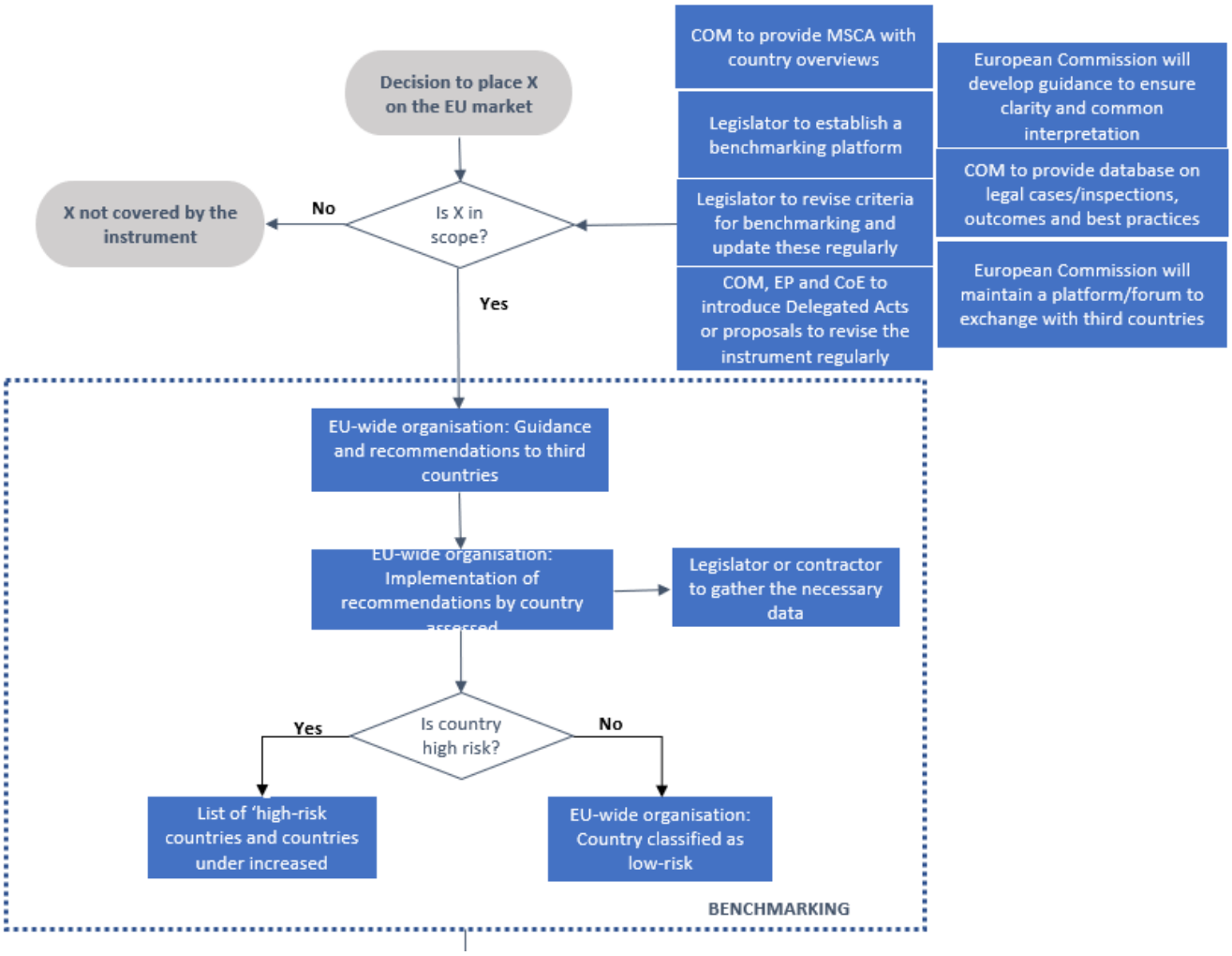
Table 7.20 Description of option 2

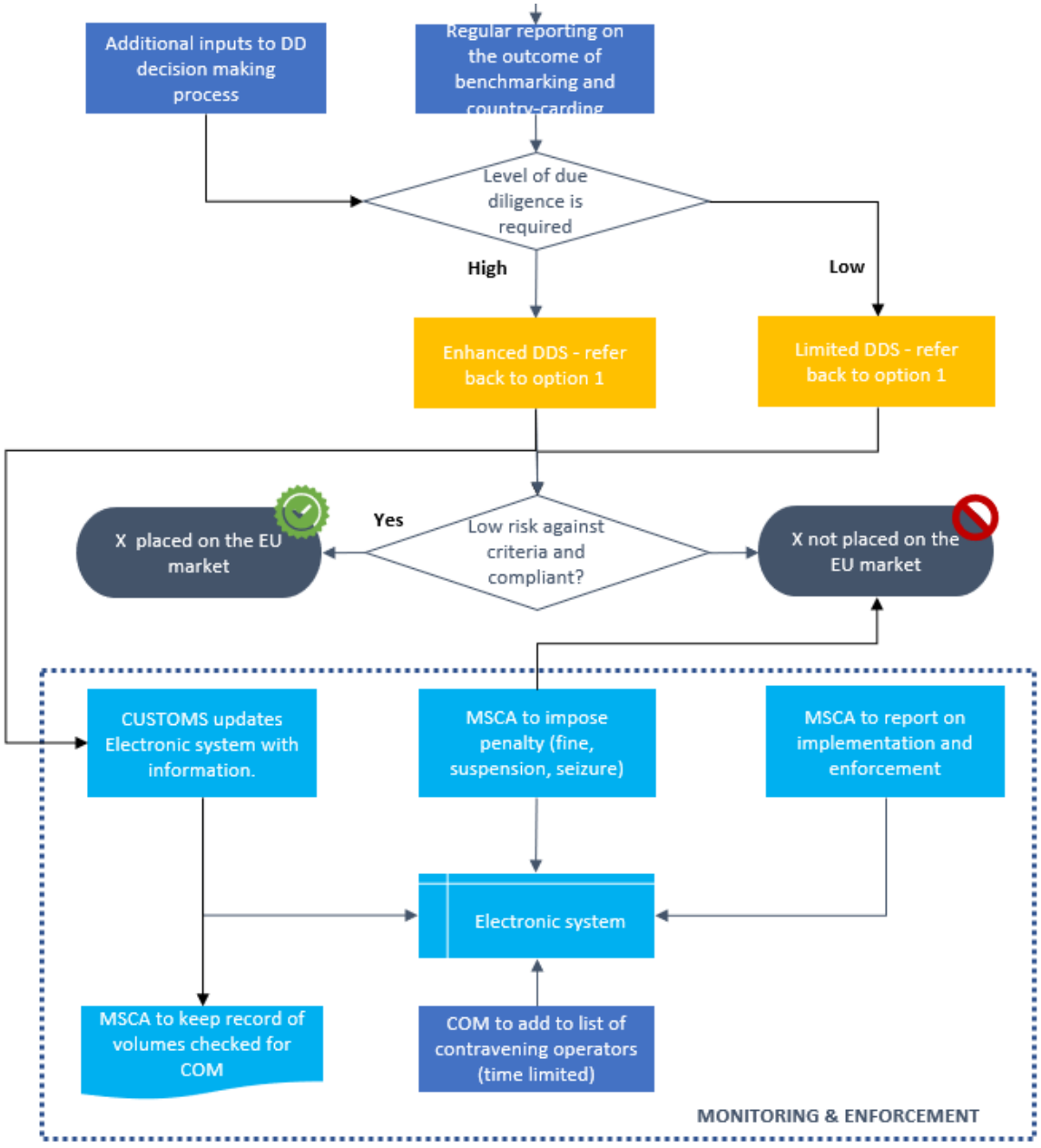
A benchmarking system and a list of contravening operators as a basis for a tiered improved mandatory due diligence system, relying on a deforestation free definition					
Description of instruments					
• Option 2 relies on two key features: a tiered due diligence system requirement for operators and traders and a benchmarking system to increase the effectiveness and efficiency of implementation and enforcement of the option. It also includes other elements such as listing contravening operators and some monitoring options building on the IUU and FATF examples. • **Due diligence system (DDS):** the DDS is described in length under option 1 and not repeated here for brevity, hence all obligations under option 1 apply to option 2. However, under this option the DDS will be a two-tier system with incremental requirements based on criteria (e.g., country of origin, commodity). The level of due diligence required will be informed by a country's benchmarked position – if the country is regarded as representing a low risk, the level of due diligence required when sourcing from that country is lower than if a country were considered to represent a high risk. T**he greater the risk according to the country benchmark the stricter the due diligence (two tiers only). The differences in the DDS between options 1 and 2 are elaborated below.** • **Benchmarking system**: the legislator will establish a Benchmarking Platform, where existing data will be gathered in order to assess the levels of deforestation and forest degradation for all countries in the world. The benchmarking is intended to be as far as possible limited to quantifiable indicators. If technically feasible, the data could be associated with commodities under the scope of the regulation and be based on the selected deforestation-free criteria. The legislator will set out thresholds to determine whether countries are either in a high risk or low risk of deforestation category. A country's position as high or low risk would then determine the level of due diligence required by operators and traders placing those commodities and derived products from that country on the EU market: More stringent for high-risk countries, less stringent for low-risk countries. Given that in some cases sufficient data may not be made available from third countries to inform the benchmarking, in the absence of sufficient data a country will be determined to by high-risk by default and commodities / products from those countries subject to the more stringent tier of Due Diligence. • **List of contravening operators:** EU and non-EU operators that are contravening the 'deforestation free' requirements would be listed once the infringement is confirmed by the country where the corresponding company is registered. Provision should indicate for how long the operator would be listed, and the process to be de-listed (e.g., actively demonstrating to the country's authority that the requirements are now met). It is assumed that such a list would 'name and shame' contravening operators and additional penalties could be attached to being on the list (e.g., prohibition of placing products on EU market without satisfying additional requirements).					
INPUTS	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**
	Similar to option 1 Further IT needs in relation to the benchmarking platform to assess at country level, the levels of deforestation and forest degradation associated with the production and trade of relevant commodities.	Similar to option 1	Similar to option 1	Similar to option 1	

A benchmarking system and a list of contravening operators as a basis for a tiered improved mandatory due diligence system, relying on a deforestation free definition

ACTIVITIES	EU institutions	Member States	Industry	Third countries government	Other
	<u>European Commission</u> Obligations under option 1 to set up a mandatory due diligence apply. The European Commission will maintain the benchmarking platform to monitor countries' performance against deforestation and forest degradation and publish results. The European Commission will revise criteria for benchmarking and update these regularly. The European Commission maintains a list of contravening operators.	<u>Competent authority</u> Obligations under option 1 to set up a mandatory due diligence apply. Additional consultation of the country benchmarking platform will be required. <u>Customs authority</u> Obligations under option 1 to set up a mandatory due diligence apply. Additional consultation of the country benchmarking platform will be required.	<u>Operators and traders</u> Obligations under option 1 to set up a mandatory due diligence apply. Depending on the benchmark of the country of origin, operators establish and carry out: • A **limited DDS** (for low-risk countries). This would entail making sure that the commodity has not been grown in a high risk country and reduces by a large margin any potential risk that the commodity or product has led to deforestation and/or forest degradation. • An **enhanced DDS** (for high-risk countries or countries under increased monitoring) . This would include strict traceability obligations, strict transparency obligations, civil liability and penalties, possibilities for NGOs to act as watchdogs, and strict due diligence obligations. In certain cases the limited DDS could be applicable for smallholder farmers in high-risk countries. Contravening operators will be issued fines by the Member States and reported at EU level to be placed on a list of contravening operators with the costs of returning goods to the point of origin falling on the operator.	<u>Public authorities in third countries</u> Obligations under option 1 to set up a mandatory due diligence apply. Public authorities in third countries contribute to the benchmarking platform by providing information. Contravening operators will be issued fines by the Member States and reported at EU level to be placed on a list of contravening operators with the costs of returning goods to the point of origin falling on the operator.	
OUTPUTS	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**
	Similar to option 1 Updated criteria for benchmarking	Similar to option 1	Similar to option 1	Similar to option 1	

Figure 7.13 Flowchart of interactions under policy option 2





Source: own elaboration. (yellow = industry; dark blue = legislator; light blue = MSCA and customs)

7.6 Option 3 – Mandatory public certification (with DD)

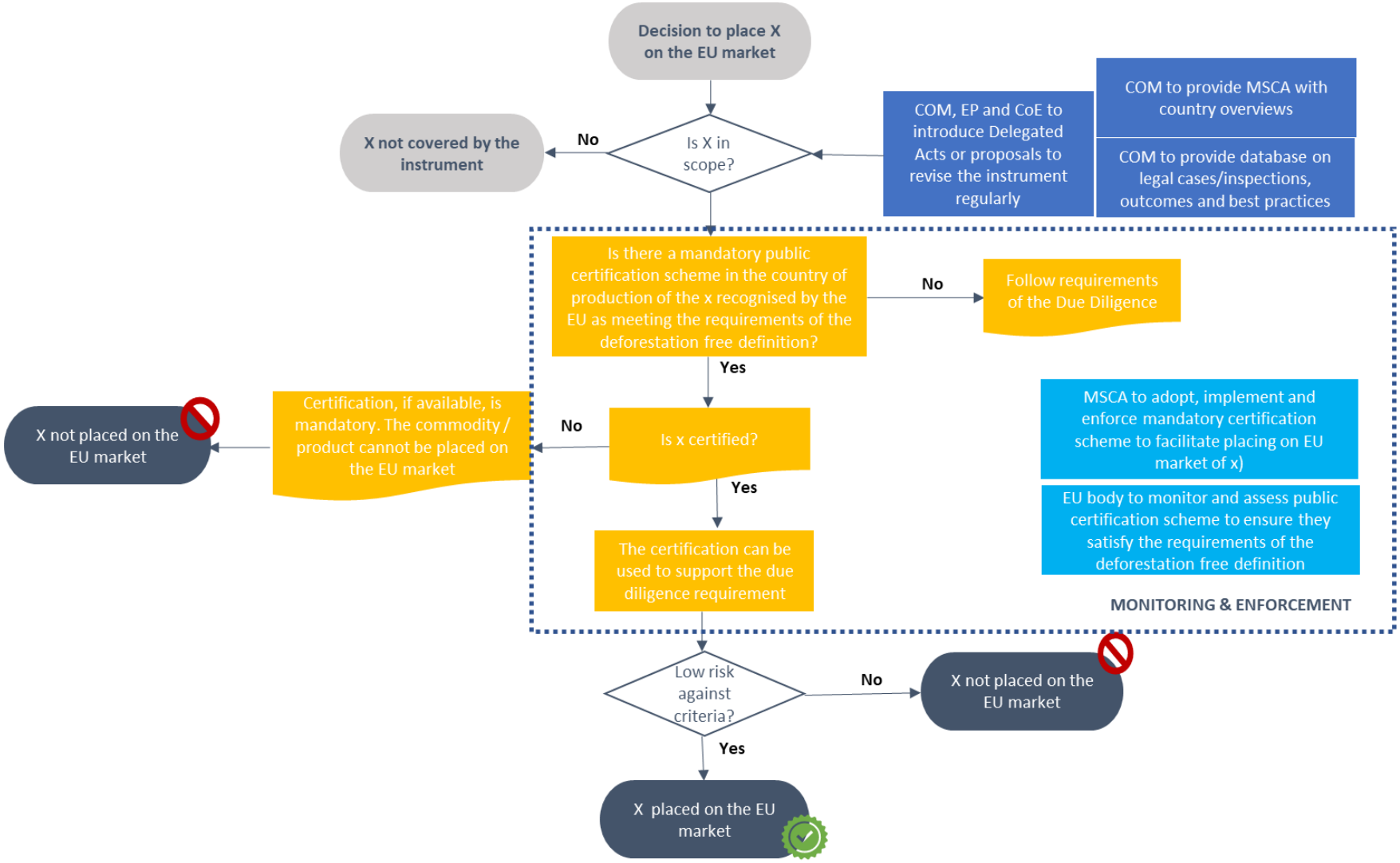
Table 7.21 Description of option 3

Mandatory public certification (combined with an improved due diligence system, relying on a deforestation free definition)					
Description of instruments					
• This option aims at operating the DDS regime under option 1 whilst adding a mandatory public certification system, thus providing 'double security'. • The DDS is described in length under option 1 and is not repeated here for brevity, hence all obligations under option 1 apply under option 3. • It is acknowledged under option 3 that public certification schemes can play a role in demonstrating that a commodity or product has not been produced in a way that contributes to deforestation or forest degradation. However, such schemes must meet certain minimum criteria to be credible. • To be recognised by the EU as providing evidence in relation to deforestation and/or forest degradation any public certification system developed by a country or group of countries would have to be mandatory. However, it is acknowledged that the EU cannot require third countries to adopt specific legislative requirements. • The certification schemes developed would be assessed at EU level. The competent entity would assess, approve the use of and monitor mandatory public certification systems created either by third countries or EU Member States ensuring that they are based on or conform with deforestation-free criteria that would be established by the EU either in the main legal instrument itself or via a delegated act at a later stage. These approved public certification systems would in turn certify products before these are placed on the EU market. • EU Member States and third countries: Would, should they wish to apply certification schemes that would qualify under this measure, be required to set up mandatory public certification systems to assess and certify products that are destined to be placed on the EU market. • Operators: could use those approved systems to assist in demonstrating their compliance with the requirements of the EU legislation in their own due diligence assessment. • Using certification is not an alternative to due diligence (i.e., not a green lane). However, it would constitute a risk mitigation tool that could be used to demonstrate due diligence, maintaining operators' liability in cases of non-compliance. • Certification: As an EU requirement to approve those certification systems (on top of transparency, reliability, etc.), they would need to be mandatory in the country of origin, similar to existing mandatory certification schemes for palm oil in Indonesia and Malaysia for example.					
INPUTS	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**
	Similar to option 1 Additional resources for an EU level enforcement. The body would be in charge of ensuring the public certification schemes established are in line with the requirements of the deforestation free definition.	Similar to option 1 If a certification scheme is chosen to be applied in a Member State additional resources to create a mandatory public certification scheme would be required. Additional resources for Competent Authorities to select, assess and appoint	Similar to option 1	Similar to option 1 Additional resources to create a mandatory public certification scheme (if opted for one) Additional resources for Competent Authorities to select, assess and appoint bodies to carry out the certification for products that are destined to be placed on	

Mandatory public certification (combined with an improved due diligence system, relying on a deforestation free definition)

		bodies to carry out the certification. Human and financial resources.		the EU market. (if a scheme has been put in place)	
ACTIVITIES	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**
	EU level oversees and approves public certification systems created by third countries and EU Member States and monitors their application. European Commission The European Commission collects and centralises information provided by Member States and third countries	Competent authority Competent authorities set up a mandatory certification system and notify the EU. Competent authorities report information from the process with other Member States, the EU body and the Commission. National certification body(ies) These national authorities would verify the documentation supporting the certification	Operators and traders Additional resources for certification of the commodities or products Operators and traders must keep a copy of the documentation supporting the certification for 10 years after the commodities or products have been placed on the market. The certification information can be used to demonstrate compliance with the DDS requirements. Operators may have to provide an official translation of the documentation supporting the certification into the languages or languages required by the Member States in which the commodity or product is sold.	Public authorities in third countries. Country sets up a mandatory certification system and request recognition from the EU.	
OUTPUTS	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**
	Electronic system collecting the information from all **Other outputs from option 1.**	List of accredited bodies. **Other outputs from option 1.**	Technical documentation demonstrating that the commodities and/or products being placed on the EU market conform to the applicable requirements of a 'deforestation-free' definition.	**Other outputs from option 1.**	

Figure 7.14 Flowchart of interactions under policy option 3



Source: own elaboration. (yellow = industry; dark blue = legislator; light blue = MSCA and customs)

7.7 Option 4 – Mandatory labelling (with DD)

The mandatory labelling requirements would result in labels signalling compliance of a given product with deforestation-free criteria. All obligations stemming from the DDS as described under Option 1 would apply also to this option. Based on the positive outcome of the due diligence process, a corresponding label would be given to the products being placed on the EU market.

Mandatory labelling would provide consumers with relevant information on whether the products they consume have undergone DD procedures to ensure they are not linked to deforestation and/or forest degradation through the supply chains they are derived from. Under this option, the mechanism and criteria for awarding the label to a product would need to be established.

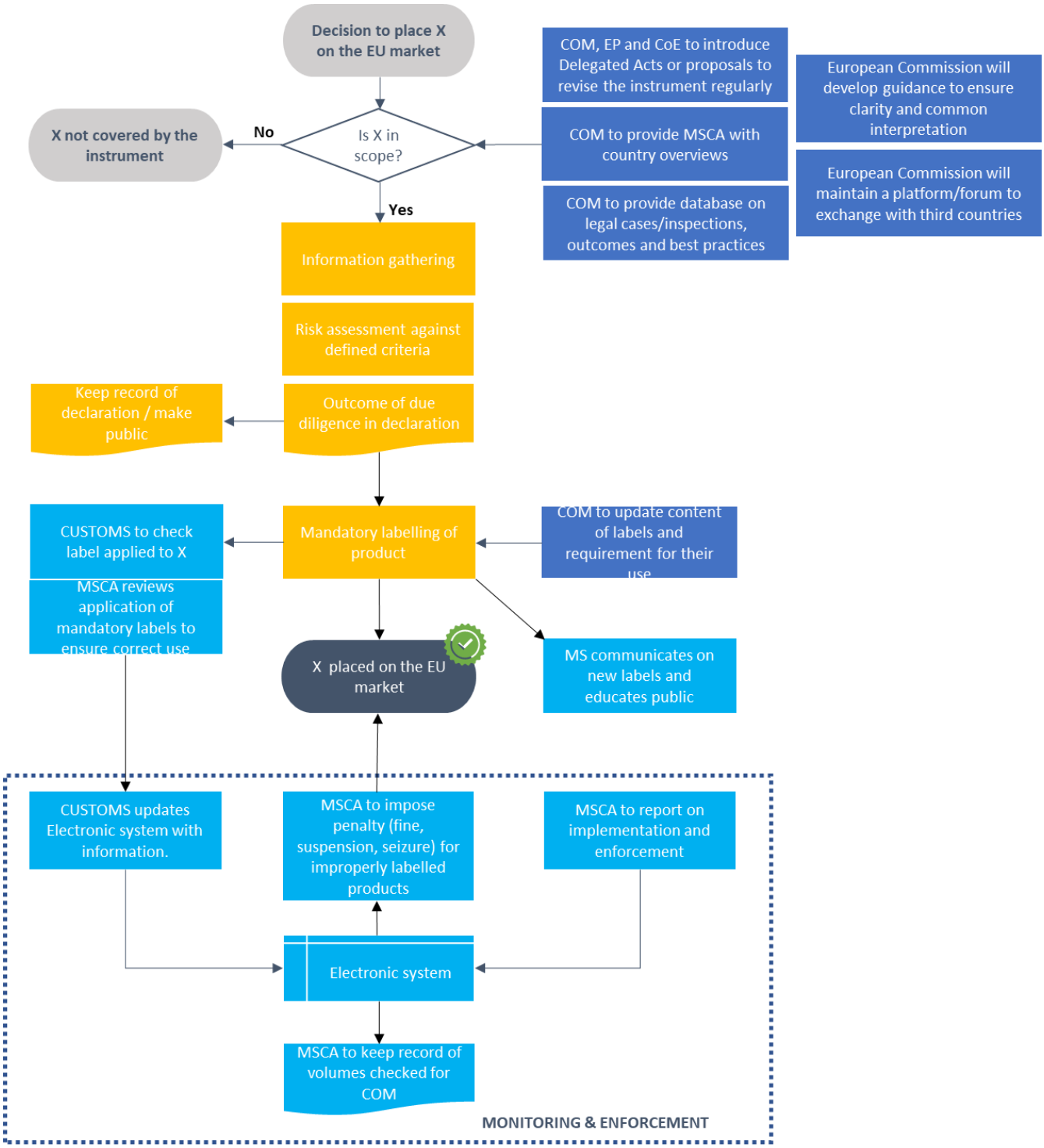
Table 7.22 Description of option 4

Mandatory labelling combined with an improved due diligence requirement, relying on a deforestation free definition					
Short description					
• Option 4 consists of mandatory labelling requirements based on an improved due diligence system which relies on a deforestation-free definition. The label would signal compliance of a given commodity or product with due diligence obligations and deforestation-free criteria, as set out in the regulation. • **Due diligence system (DDS):** the DDS is described in length under option 1 and not repeated here for brevity, hence all obligations under option 1 apply to option 4. However, based on the outcome of the due diligence process, a corresponding label will be given to the product being placed on the EU market. • **Mandatory labelling** would mean that products placed on the market are not linked to deforestation and/or forest degradation through their supply chains, and that consumers would be made aware of this. Similar to EU labelling requirements for allergens, the mandatory label would confirm compliance with DD obligations and deforestation-free criteria (e.g., "this product does not contain commodities associated with deforestation nor forest degradation").					
INPUTS	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**
	Similar to option 1 Human and financial resources, IT systems/platforms.	Similar to option 1 Competent Authorities provided with human and financial resources to monitor and enforce the due diligence system and the use of label.	Similar to option 1 Economic operators and traders: Human and financial resources to comply with due diligence and apply label on products.	Similar to option 1	Citizens: Engagement from citizens to interact with the label (i.e., be informed by the label).
ACTIVITIES	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**
	European Commission Obligations under option 1 to set up a mandatory due diligence apply.	Competent authority	Operators and traders	Public authorities in third countries	Monitoring organisations

Mandatory labelling combined with an improved due diligence requirement, relying on a deforestation free definition

	The European Commission will be in charge of defining the format and content of the mandatory label and requirements for its use (binding). In addition to the legislative basis for the due diligence and mandatory labelling requirements, the European Commission can issue EU-wide guidance on compliance with the requirements and use of the label to support implementation at MS level. This can also include harmonised pictograms to be used across the EU (non-binding).	Obligations under option 1 to set up an improved due diligence apply. Competent authorities can equally communicate on the new label to support education of the general public and increase awareness and effectiveness; as well as inspect compliance with the labelling requirement (non-binding).	Obligations under option 1 to set up an improved due diligence apply. Operators will be responsible for amending their packaging to include labelling requirements (binding). Traders will be responsible for amending their packaging to include labelling requirements (binding). <u>Economic operators in third countries</u> Obligations under option 1 to set up an improved due diligence apply.	Obligations under option 1 to set up an improved due diligence apply.	Obligations under option 1 to set up an improved due diligence apply. <u>Citizens</u> No binding obligations are foreseen for citizens (binding). It could be expected that the presence of label on some products would raise public awareness on potential impacts on deforestation and forest degradation of other products and commodities (non-binding).
OUTPUTS	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**
	Similar to option 1	Similar to option 1 Mandatory labels on products containing certain commodities/raw materials or coming from specific regions/countries.	Similar to option 1	Similar to option 1	

Figure 7.15 Flowchart of interactions under policy option 4



Source: own elaboration. (yellow = industry; dark blue = legislator; light blue = MSCA and customs)

7.8 Option 5 – Deforestation-free requirement supported by a benchmarking and country card systems

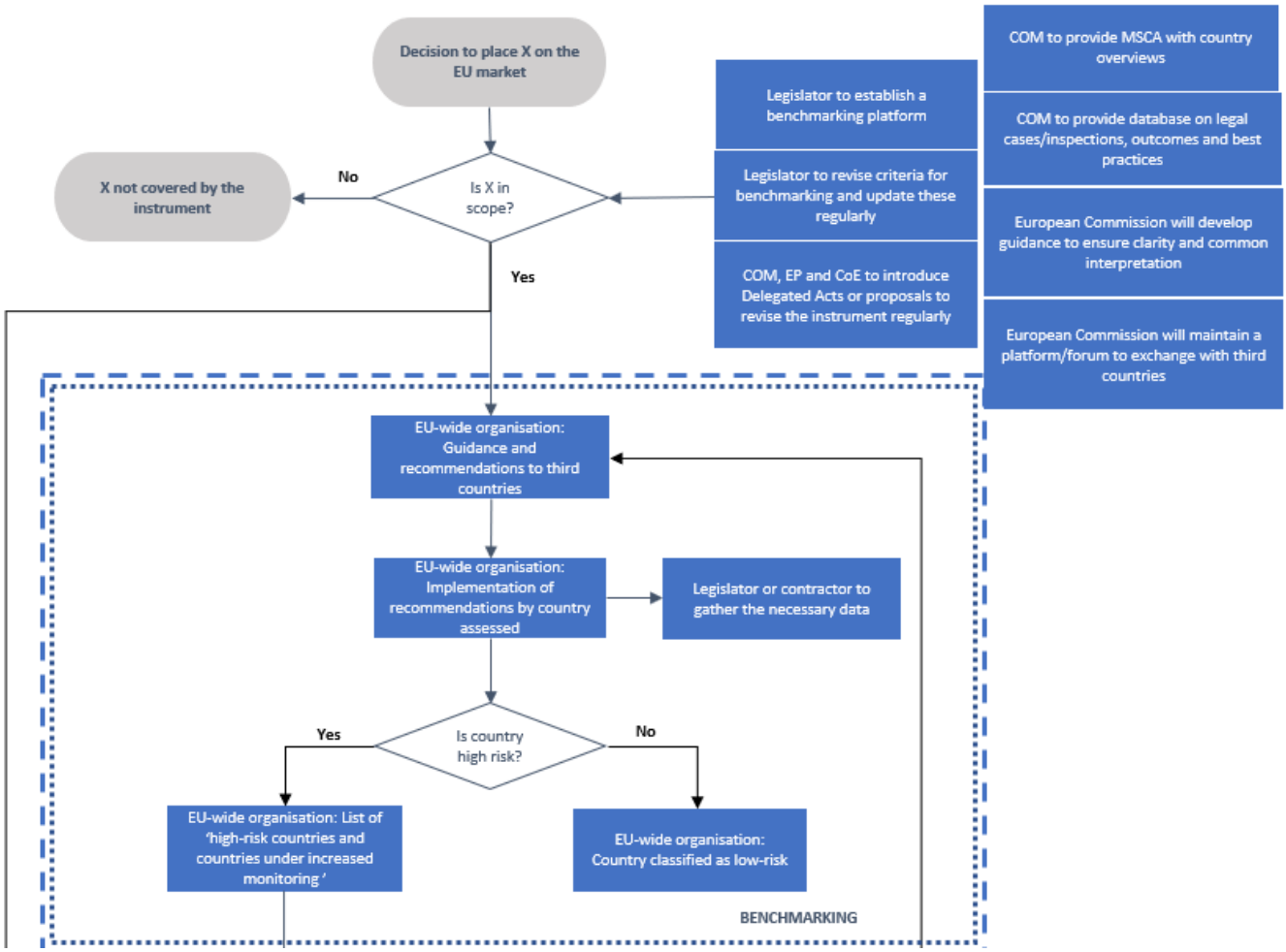
Table 7.23 Description of option 5

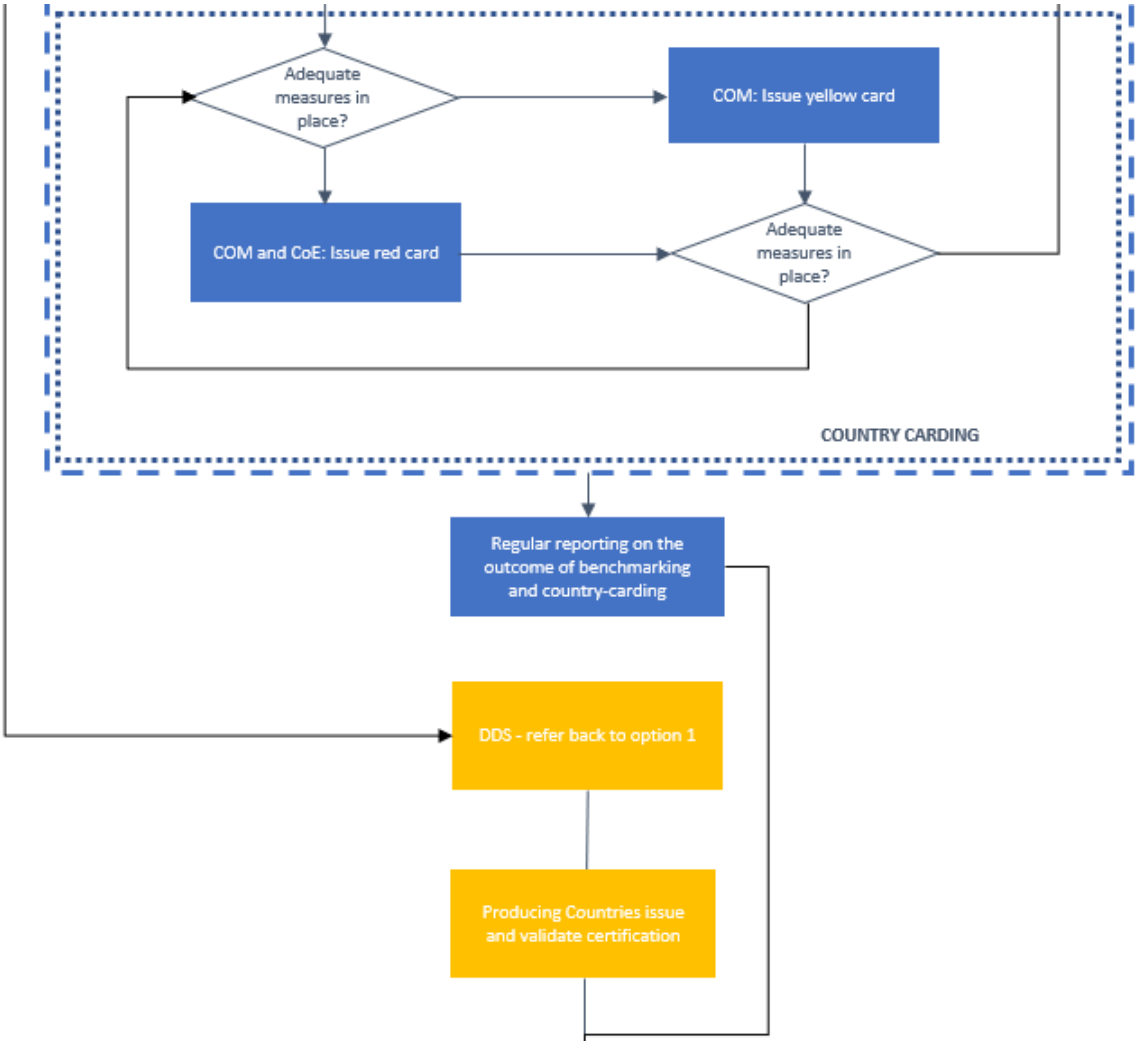
Deforestation-free requirement for placing on the EU market supported by benchmarking and country card systems						
Short description						
This measure would rely on several features to implement and enforce the deforestation free requirement: a benchmarking system to support the implementation and enforcement of the measure, penalties for EU operators not adhering to the laws, a list of contravening operators and a country carding system (note that unlike Options 1 to 4 a DDS would not be applied under this Option): • Benchmarking system for source countries. The system would be implemented at EU level. The benchmarking would be based on a range of criteria including the existence of certification systems, a review of the legal framework in place in the country of source, an analysis of the measures put in place to fight deforestation in that country, visits to assess practical implementation of those measures etc. The results of the benchmarking would be used to support the enforcement of the instrument. The benchmarking as a precursor of the country carding system would be more extensive and cover a lot more information and criteria than the 'simple' benchmarking described under Option 2. • Country carding system. Countries (EU and non-EU) identified as experiencing serious rates of deforestation and forest degradation, and as having inadequate measures in place to prevent and deter activities associated with deforestation and/or forest degradation may be issued with a formal warning (e.g., yellow card) to improve. If they fail to do so, they will face having their products banned from the EU market (red card). Yellow cards would be issued by the Commission: they would not have legal consequences but rather, trigger a dialogue process between the country and the Commission. Red cards would be proposed by the Commission, approved by the Council and would include further measures to incentivise compliance with deforestation and forest degradation recommendations. The criteria for determining when yellow and red cards should be applied would be laid down in the legislation itself to ensure consistency of approach to all countries and to limit political decisions interfering with the carding process. • List of contravening operators – EU and non-EU operators that are contravening the 'deforestation free' requirements would be listed once the infringement is confirmed by the country where the corresponding company is registered or the country where the infringement was confirmed. Provision should indicate for how long the operator would be listed, and the process to be de-listed (e.g., actively demonstrating to the country's authority that the requirements are now met). It is assumed that such a list would 'name and shame' contravening operators and additional penalties could be attached to being on the list (e.g., prohibition of placing products on EU market without satisfying additional requirements).						
INPUTS	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**	
	Similar to option 2 and 3	Similar to option 2 and 3	Similar to option 2 and 3			
ACTIVITIES	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**	

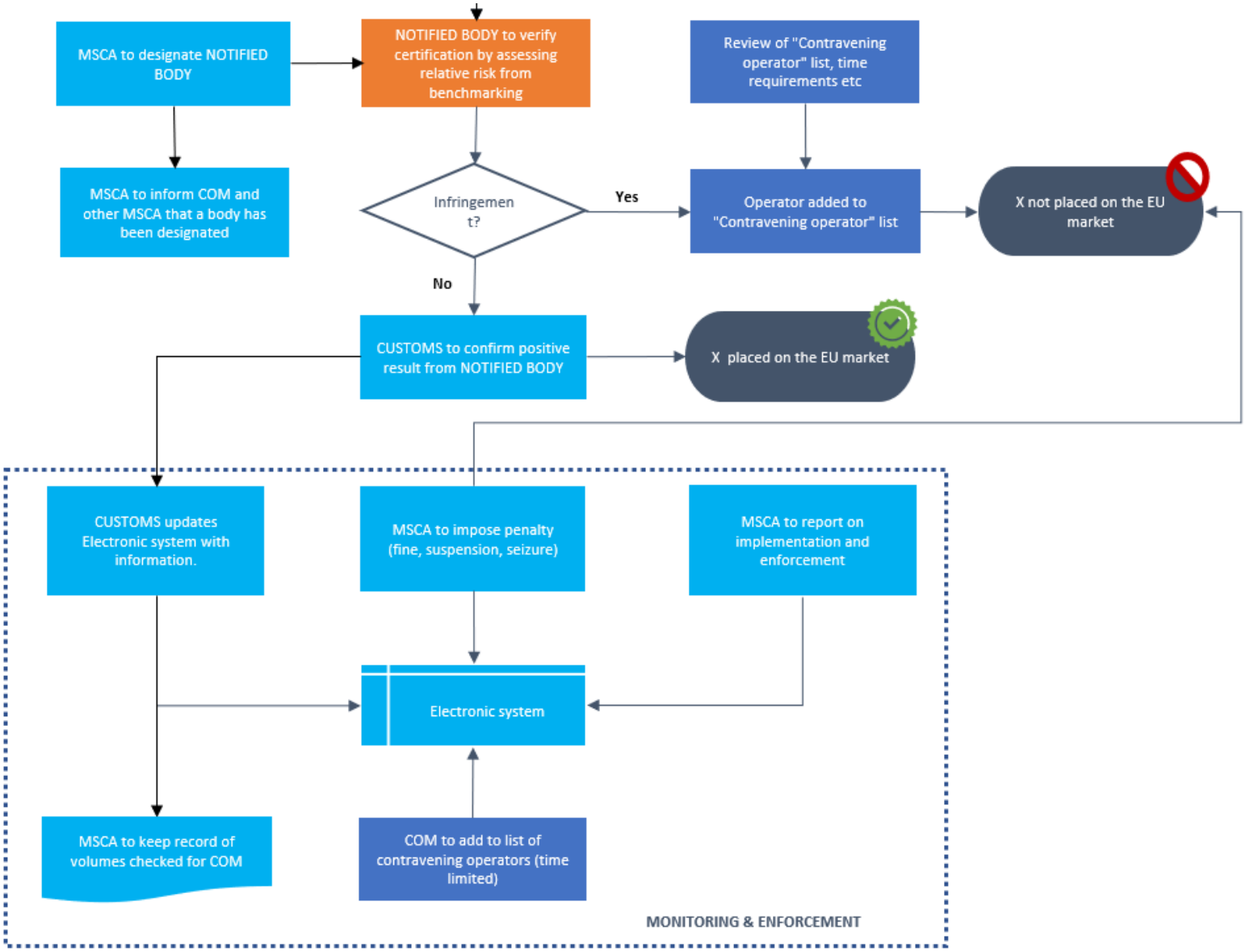
Deforestation-free requirement for placing on the EU market supported by benchmarking and country card systems

	European Commission Similar to options 2 and 3 The European Commission maintains a list of contravening operators. Support the development of recommendations for operators in the EU on deforestation free supply chains.	Member States are in charge of implementing/enforcing the requirement/ ban Competent authority Similar to options 2 and 3 Enforcement of the application of the deforestation free requirements through inspection, supported by the outcome of the benchmarking. Customs authority Similar to options 2 and 3 The most effective approach to enforcing the certification scheme would be at the first point of entry into the EU by the customs authorities in the receiving country. However, some products might not go through customs (e.g., intra-EU) and should also be captured This enforcement is likely to be risk based/intelligence led – predominantly focussing on shipments with a point of origin in a country known to be subject to deforestation / ports known to handle products involved in the transport of goods related to deforestation .	Operators and traders Similar to options 2 and 3 Contravening operators will be issued fines by the Member States and reported at EU level to be placed on a list of contravening operators with the costs of returning goods to the point of origin falling on the operator. Implement recommendations on deforestation free supply chains. Source products according to country carding status.	Public authorities in third countries. Similar to options 2 and 3 Contravening operators will be issued fines by the Member States and reported at EU level to be placed on a list of contravening operators with the costs of returning goods to the point of origin falling on the operator.	
OUTPUTS	**EU institutions**	**Member States**	**Industry**	**Third countries government**	**Other**
	Similar to option 1 Updated criteria for benchmarking	Similar to option 1	Similar to option 1	Similar to option 1	

Figure 7.16 Flowchart of interactions under policy option 5




Adequate measures in place?
COM: Issue yellow card
COM and CoE: Issue red card
Adequate measures in place?
COUNTRY CARDING
Regular reporting on the outcome of benchmarking and country-carding
DDS - refer back to option 1
Producing Countries issue and validate certification


MSCA to designate NOTIFIED BODY
NOTIFIED BODY to verify certification by assessing relative risk from benchmarking
Review of "Contravening operator" list, time requirements etc
MSCA to inform COM and other MSCA that a body has been designated
Infringement?
Yes
Operator added to "Contravening operator" list
X not placed on the EU market
No
CUSTOMS to confirm positive result from NOTIFIED BODY
X placed on the EU market
CUSTOMS updates Electronic system with information.
MSCA to impose penalty (fine, suspension, seizure)
MSCA to report on implementation and enforcement
Electronic system
MSCA to keep record of volumes checked for COM
COM to add to list of contravening operators (time limited)
MONITORING & ENFORCEMENT

8. What are the impacts of the different policy options and who will be affected?

8.1 Approach

The options considered in this impact assessment have the overall objective of addressing deforestation and forest degradation. The mechanisms themselves are explained in section 7.3 – 7.

The main impacts on the EU market of these options are considered as:

1. **Changing the source of commodities and derived products to sources that do not contribute to deforestation and forest degradation** – this is achieved by shifting the sourcing of materials from economic operators whose products are associated with deforestation and forest degradation to economic operators whose products meet deforestation free requirements[485] and are not linked to deforestation and forest degradation. An overview of the availability of sustainable commodities, per commodity group is presented in section 8.4.
2. **Substituting commodities and derived products** that contribute to deforestation and forest degradation with alternatives commodities and derived products. . An overview of the supply chains and availability of substitute is presented in section 7.1.6.
3. **Eliminating the use of commodities and derived products** that contribute to deforestation and forest degradation by changing consumption and production within the EU.

The precise route that the market will take along these three routes will vary depending on the commodity and/or derived product concerned and is hard to predict. Given the broad range of commodities and derived products considered in this impact assessment it is not possible to determine the scale of the routes that will be taken in each case. A similar challenge was observed in the UNEP WCMC analysis of the impact of EU decisions on trade patterns in relation to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) from 2015[486] . It concluded that assessing impact of measures, such as those considered in this report, will vary on a case-by-case basis, depending on factors such as demand and the capacity in the source countries to respond to concerns.

The identification and analysis of the other impacts is based on the methodology described in the Better Regulation guidelines (Tool #19).

8.1.1 Identification of the impacts

In the table below, we provide a list of impacts that were considered as relevant through the analysis of the chain of impacts. The chain of impacts starts with the identification of the stakeholders being affected by the impacts.

[485] Note by substitute we mean the share of the commodities and products considered that would meet a deforestation free definition requirements. This share is estimated by making use of data on existing sustainable production. This is used as a proxy acknowledging that deforestation free requirements and sustainability criteria are likely to be to some extent comparable. Another way to consider substitute would be through alternatives commodities and products that can replace those not meeting deforestation free requirements (e.g., another vegetal oil to replace palm oil). This is not considered in our assessment.

[486] https://ec.europa.eu/environment/cites/pdf/reports/SRG%2072-8%20Impact%20of%20EU%20Decisions.pdf

Table 8.1 Stakeholders impacts

Category of stakeholders	Expected impacts
Citizens	Changes will affect all citizens, by providing a better environment with reduced climate change and more sustained global biodiversity.
Consumers	Changes will affect consumers by providing more sustainable products options for the commodities and products within the scope of the EU intervention.
Businesses	Changes will affect business conduct by requiring additional scrutiny (through due diligence or other measures) into the supply chain and sourcing of commodities and products within the scope of the EU intervention. This might entail changes in supply chains, and in production methods in case of EU production of commodities that might be linked to deforestation or forest degradation. SMEs are likely to be more affected by additional administrative requirements when they do not have similar capacity to adapt to new requirements. This could be mitigated by special regimes for smaller businesses (e.g., longer deadline).
Public authorities	Changes will affect national public authorities in charge of implementing and enforcing the EU intervention, in particular through additional guidance to national businesses and additional inspections. Changes will affect EU public authorities in charge of the EU intervention, in particular through support mechanism to facilitate the implementation of the intervention (e.g., information sharing).
Third countries	Trading partners will be affected by the EU intervention which might require them to provide necessary documentation and more transparency into their supply chains, while providing market opportunities for countries that are willing to make the transition. Other countries, not trading with the EU, are likely to be less affected, however it is possible that the EU intervention set a global model that other countries will want to follow. In this case, other countries could be affected. Smallholders and farmers in third countries, who are involved in the production of globally traded commodities are likely to be affected by additional requirements, and potential changes to production practices to avoid deforestation and forest degradation. . Costs that may arise from these could be mitigated by increased support to and cooperation with countries where such structures exist.

A second step is to list the impacts that should be considered and how these can affect the stakeholders identified. As part of our analysis we have found that environmental and social impacts are mostly linked to the producing country in which deforestation is occurring as a consequence of the EU's consumption. Economic impact identified are likely to affect both EU and non-EU stakeholders. A mapping of the impacts is presented in the table below.

Table 8.2 List of impacts of relevant for the impact assessment

Impact	Description	Possible metrics (where available)
ENVIRONMENTAL		
CO_2 emissions	There are two ways in which deforestation leads to increased CO_2 emissions. One is through the removal and burning of the forest, which directly releases CO_2 into the atmosphere. Secondly, loss of forest cover directly leads to reduced capacity to sequester atmospheric carbon therefore reducing overall capacity for removal of CO_2. The reverse applies for increase in forested area.	Gt CO2 (gigatonnes of CO_2)
Forest cover	Change in terrestrial forest cover due to land-change and consequent replacement of forest to non-forest state (or the inverse for an increase). Change in forest cover is not the same as change in Tree Cover, as it specifically focuses on natural forests.	Mha (millions of hectares)

Impact	Description	Possible metrics (where available)
Biodiversity	Change in natural habitat threat to local species survival and their risk of extinction. This applies to both local, resident species as well as highly migratory species.	IUCN Red list Threatened Species Index (RLI)
Aboveground Biomass Carbon (AGB)	Forests act as terrestrial sinks that help offset CO_2. The AGB gives a baseline estimation of the gross changes in CO_2 from change in deforestation and degradation of land carbon sinks. Furthermore, it allows an estimate to be made of the capacity of disturbed forests to recover and recapture carbon lost during disturbances.	Pg C (picogram of carbon)
Soil erosion	Tree canopies and large root systems of forests prevent and protect from soil erosion due to severe or frequent rainfall. Rivers can carry eroded soils downstream, causing further significant problems for ecosystems and water resources.	Tonnes per hectare (tons/ha)
Water quality impact	Deforestation has been shown to increase the streamflow of water as a consequence of soil infiltration (and therefore soil erosion). In addition, Forests are fundamental to the hydrological cycle, through their control of evapotranspiration and precipitation. Deforestation can therefore not only affect the quality of water sources, but over long time periods affect rainfall as well as terrestrial water flow and water surface area. Increase in forested area will have the reverse effect.	Land area covered by water bodies (km^2); length of waterway (km^2); annual rainfall (mm/year)
SOCIAL		
Fundamental rights	Agricultural expansion and ensuing deforestation practices have been linked to a number of human rights abuses, which can be broken down into further components (see below). Human rights indicators are often difficult to determine and are complex in nature, but a number have been formulated and are being used to monitor progress of countries SDGs. As an overarching metric, enforced laws and government institutions can act as indicators.	Ratification of human rights treaties (no. of treaties); independent national human rights institutions (no. of institutions)
Working Conditions	Impacts of deforestation on working conditions links back to human rights, in that agricultural expansion and deforestation practices have been linked to forced, exploitative and debt-bonded labour. Often, conditions in illegal deforestation sites reflect modern-day slavery.	Average hourly earnings of female and male employees, by occupation, age and persons with disabilities Average income of small-scale food producers, by sex and indigenous status; victims of modern slavery; child labour
Community conflict	Deforestation can be met with community resistance to land grabs and forest clearing, frequently resulting in violence and attacks, harassment and criminalisation of community leaders and indigenous groups	Conflict-related deaths Killings and other attacks against human rights defenders, journalists and trade unions (yearly) Incidence and prevalence of physical abuse or crime (per 100,000 population per year)
Community displacement	Indigenous customary land rights must be recognized and enforced by governments in order to effectively protect the communities. Demand for large areas of commodity plantations often results in the deforestation of customary lands, resulting in displacement of communities but also small-hold local famers.	Number of internally displaced people (IDP)
ECONOMIC		

Impact	Description	Possible metrics (where available)
Administrative burden	Administrative burdens are those costs borne by businesses, citizens, civil society organizations and public authorities as a result of administrative activities performed to comply with information obligations included in legal rules.	EUR millions / FTE
Revenue	Companies involved in the global trade of commodities linked to deforestation also directly contribute to environmental and social impacts. These result in direct and supply chain exposures for suppliers and customers. Additionally, a growing number of investors are asking companies to disclose information regarding how they are managing deforestation.	EUR millions
Change in Trade	Economic operators and traders may change trade partners due to new economic trade agreements which include measures to combat deforestation, or countries where more certification schemes are established.	
Change in commodity pricing	Sustainably sourced commodities may lead to increased buying prices for EU producers and manufacturers, reflecting a price premium for these products due to an increased demand for products that can be more freely and widely traded. The change in market price of raw commodities may also affect downstream products pricing. The burden of increased cost may then fall on the consumer, and ultimately affect consumer behaviour.	
Competitiveness	Competitiveness relates to two factors. For one, whether a more sustainable product is competitive on the local EU market, or whether unsustainable products retain lower prices that outcompete others. On the other hand, competitiveness of EU production on the global market can be measured. If more stringent regulations and measures are enforced that drive up prices for commodity acquisition, it may affect the competitiveness of products manufactured in the EU on the global market.	
Employment	Impact of employment can also be assessed in the exporting country, as stricter regulations for more sustainable products can change the local market and have impacts on the employment opportunities. Impact can be both negative and positive as there might also be employment opportunities in sustainable production.	
Innovation and Research	Change in deforestation and forest degradation areas produces changes in habitats, flora and fauna, which in turn can affect research of natural ecosystems and ecological resources, such as biological compounds and genetic diversity. This will affect research input available for pharmaceutical, chemical and agricultural research industries.	
Tourism	Where tourism is linked to natural forests and habitats, changes in rates of deforestation can impact eco-tourism. Vice-versa, investment in eco-tourism can act as an instrument to protect forests.	

8.2 Key assumptions for the assessment

The assessment of costs and benefits for the several policy options relies on a number of assumptions and required the use of several datasets. This section describes the main sources of data employed and the calculation applied to those sources in reaching the results contained in this report.

Some general assumptions are applicable:

- We have assumed that the demand for the products and commodities remains constant, however this is a simplification and it can be expected that the market would react to new legislation by amending its demand for specific products and substitute cheaper alternatives.
- Our assessment has not quantified the precise impact of substitution; however it is likely that substitution between commodities and products will be occurring. In some instances, substitutes might not be available. In order to provide further insights into substitutes, an overview of the commodities' supply chain is provided in section 8.4.
- Our greenhouse gas estimate focuses on avoided emissions from avoided deforestation, we do not account for the changes in emissions due to changes in trade flows.

8.2.1 Determining the volume of commodities and derived products that would be addressed

This information is presented in section 7.3.3 and not repeated for brevity.

8.2.2 Projected trends to 2030: deforestation and emission forecasts based on trends in imports to 2030

This information is presented in section 7.3.4 and not repeated for brevity.

8.2.3 Determining the number of enterprises placing products for the first time on the EU market

A key assumption in the assessment of the policy options foreseeing the deployment of a Due Diligence System, relates to the number of enterprises that place products for the first time in the EU market. This section attempts an estimation of the total number enterprises placing products for the first time on the EU market. The aim is to develop this estimation on a commodity basis and include enterprises that place both domestically and internationally produced commodities on the EU market, differentiating per company size where possible. Since there is no identified single or multiple datasets consistently presenting the number of enterprises placing the commodities at scope for the first time in the EU market, and would thus be affected by the DDS obligations, we seek to establish an approach to approximate the number of relevant enterprises based on European-level statistics addressing broader domains.

We have identified two relevant datasets of European statistics that could be potentially used to deliver an estimation of the number of affected businesses. These are the international trade statistics of Eurostat[487], presenting information on the number of enterprises performing international trade of goods in the EU, and the Structural Business Statistics (SBS)[488] providing information on the number of enterprises by economic activity in the EU. An overview of the scope of both datasets is presented in Table 8.3.

[487] source table: ext_tec01

[488] source tables: sbs_sc_dt_r2 and sbs_sc_ind_r2

Table 8.3 Assessment of relevant statistical datasets

Statistical dataset	Scope of relevant information	Comment on suitability of the dataset
International trade statistics	Information on the number of enterprises performing international trade of goods in the EU. Disaggregated by: - enterprise size, - relevant economic activity code (NACE) and - enterprises importing commodities in the EU and those trading within the EU.	- Does not capture the full number of enterprises trading commodities domestically within the EU and placing products in the EU market for the first time as companies trading only within a single Member State are not included in the dataset. - Does not capture traders within the same Member State. - Link to specific commodities is possible only at the level of specific (two-digit) NACE codes which do not provide the level of granularity needed to identify enterprises linked to the specific commodities in scope.
Structural business statistics (SBS)	Information on the number of enterprises by economic activity in the EU. Disaggregated by: - enterprise size and - relevant economic activity code (NACE)	- More detailed NACE codes than the international trade statistics, but still not at the level of the commodities in scope - Does not cover enterprises classified under the agriculture, forestry and fishing economic activities. - Does not differentiate between importing and enterprises trading exclusively within the EU, or between enterprises first placing products in the EU market and traders.

As mentioned, when it comes to distinguishing the number of enterprises relevant to the commodities in scope of this study, the two datasets provide different levels of granularity regarding the relevant NACE codes that can be used. We have highlighted in the table below the economic activities (NACE-codes) included in each dataset and considered most relevant for this impact assessment and identify the commodities in scope of this initiative linked to each of these NACE activities. The codes highlighted in yellow are the ones used in the International Trade Statistics while the more detailed NACE categories marked in blue are only available and used for the estimation of the total number of relevant enterprises from the Structural Business Statistics for the specific commodities (which however are not limited to the ones first placing them in the EU market).

Table 8.4 Relevant NACE codes (Total and importing enterprises number and value of trade)

NACE code	NACE activities description	Total number of enterprises	Total trade value (in b€)	Number of importing enterprises	Import value (in b€)	Related commodities (in scope of this initiative)
A_F_H-U	All NACE activities (except industry; wholesale and retail trade; repair of motor vehicles and motorcycles)					
A	Agriculture, forestry and fishing	101,760	11.65	91,732	1.75	Wood, beef, cocoa, coffee, palm oil, soy (All commodities in scope)
B-E	Industry (except construction)					
B	Mining and quarrying					
C10	Manufacture of food products	53,239	129.93	12,691	34.05	Beef, cocoa, coffee, palm oil, soy
C101	Processing and preserving of meat and production of meat products	34,066				Beef
C104	Manufacture of vegetable and animal oils and fats	8,575				Palm oil
C106	Manufacture of grain mill products, starches and starch products	5,508				Soy
C108	Manufacture of other food products	28,154				Beef, cocoa, coffee, palm oil, soy

NACE code	NACE activities description	Total number of enterprises	Total trade value (in b€)	Number of importing enterprises	Import value (in b€)	Related commodities (in scope of this initiative)
C11	Manufacture of beverages	10,265	15.68	2,242	2.15	Cocoa, coffee
C110	Manufacture of beverages	29,000				Cocoa, coffee
C12	Manufacture of tobacco products					
C13	Manufacture of textiles					
C14	Manufacture of wearing apparel					
C15	Manufacture of leather and related products	11,265	12.89	4,054	5.83	Beef
C151	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery and harness; dressing and dyeing of fur	17,100				Beef
C152	Manufacture of footwear	19,700				Beed
C16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	31,186	17.17	6,489	2.94	Wood
C161	Sawmilling and planing of wood	33,000				Wood
C162	Manufacture of products of wood, cork, straw and plaiting materials	129,235				Wood
C17	Manufacture of paper and paper products	10,678	37.73	3,914	7.79	Wood
C171	Manufacture of pulp, paper and paperboard	1,795				Wood
C172	Manufacture of articles of paper and paperboard	16,544				Wood
C18	Printing and reproduction of recorded media					
C19	Manufacture of coke and refined petroleum products					
C20	Manufacture of chemicals and chemical products					
C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations					
C22	Manufacture of rubber and plastic products					
C23	Manufacture of other non-metallic mineral products					
C24	Manufacture of basic metals					
C25	Manufacture of fabricated metal products, except machinery and equipment					
C26	Manufacture of computer, electronic and optical products					
C27	Manufacture of electrical equipment					
C28	Manufacture of machinery and equipment n.e.c.					

NACE code	NACE activities description	Total number of enterprises	Total trade value (in b€)	Number of importing enterprises	Import value (in b€)	Related commodities (in scope of this initiative)
C29	Manufacture of motor vehicles, trailers and semi-trailers					
C30	Manufacture of other transport equipment					
C31	Manufacture of furniture	27,727	12.10	5,755	2.27	Wood
C310	Manufacture of furniture	120,000				Wood
C32	Other manufacturing					
C33	Repair and installation of machinery and equipment					
D	Electricity, gas, steam and air conditioning supply					
E	Water supply; sewerage, waste management and remediation activities					
F	Construction					
G	Wholesale and retail trade; repair of motor vehicles and motorcycles					
G45	Wholesale and retail trade and repair of motor vehicles and motorcycles					
G46	Wholesale trade, except of motor vehicles and motorcycles	677,526	1,195.62	234,690	365.28	Wood, beef, cocoa, coffee, palm oil, soy (All commodities in scope)
G462	Wholesale of agricultural raw materials and live animals	59,383				Wood, beef, cocoa, coffee, palm oil, soy (All commodities in scope)
G463	Wholesale of food, beverages and tobacco	203,571				Wood, beef, cocoa, coffee, palm oil, soy (All commodities in scope)
G47	Retail trade, except of motor vehicles and motorcycles	654,744	239.12	128,896	61.36	Wood, beef, cocoa, coffee, palm oil, soy (All commodities in scope)
G472	Retail sale of food, beverages and tobacco in specialised stores	431,845				Wood, beef, cocoa, coffee, palm oil, soy (All commodities in scope)
H	Transportation and storage					
J	Information and communication					
K	Financial and insurance activities					
L	Real estate activities					
M	Professional, scientific and technical activities					
N	Administrative and support service activities					
OTH	Other NACE activities					
UNK	Unknown NACE activity					

An estimation of the number of enterprises relevant for the commodities in scope based on both statistical datasets is provided in the following sections as well as a judgement on the suitability of the results to support this impact assessment.

Estimation of enterprises based on International Trade Statistics

From the overview above, it seems that the most appropriate source of data in terms of providing the desired level of granularity, is the International Trade Statistics (table: ext_tec01), that provide the number of enterprises that have been involved in international movements of goods as well as the total value of those goods for the period 2012-2018. From this database we can differentiate between enterprises importing commodities to the EU and placing them first in the EU market for the first time and enterprises trading domestically within the EU (although this dataset does not include the sub-segment of enterprises trading within a single Member State). The dataset additionally provides the possibility to distinguish between SMEs and large companies.

In order to estimate the total number of potentially relevant operators while limiting the selection of operators (as the selected NACE codes correspond to a broader product selection) to the ones relevant to the commodities in scope, the following steps are performed:

Derive the total number of enterprises and value of goods traded under the broader NACE codes as per the ext_tec01 dataset (specific code highlighted in yellow in the table above).

Link each commodity in scope with the relevant broader NACE codes (as in the table above). Multiple commodities can be linked to the same broader NACE codes.

- Estimate the contribution of each commodity in scope (as calculated from Comext for the baseline) to the total trade value classified under the broader NACE codes to which the said commodity is linked..
- Estimate the number of relevant enterprises relevant for each commodity, extrapolating the total number of enterprises identified for the broader NACE categories relevant to each commodity based on the estimated contribution of these commodities to the broader NACE codes trade value[489].

Applying these steps leads to an estimation of the total number of relevant enterprises for each commodity as presented in Table 8.5.

Table 8.5 Estimated number of relevant enterprises for each commodity based on international trade statistics

Commodity (including derived products)	EU importers (of large companies)	EU importers (SMEs)	EU domestic traders (large companies)	EU domestic traders (SMEs)
Beef	33	1,971	147	8,917
Coffee	118	6,235	67	3,579
Soy	151	8,951	39	2,383
Palm oil	62	3,695	17	1,021
Cocoa	88	4,628	46	2,493
Wood	81	8,911	255	28,203
Total	533	34,390	572	46,596

[489] In the case that multiple commodities are linked to the same NACE codes, the calculation of the number of enterprises is developed separately for each commodity leading to a separate estimation of the number of enterprises. However, some limited overlap of importers should be expected for specific commodity pairs.

The main advantage of this approach is that it anchors the estimation of the number of enterprises affected by the policy measures to official statistics. However, in this approach, the classification of economic activities selected (i.e., NACE codes identified in Table 8.4) remains broad. In this approach, a commodity-specific estimation can only be approximated and the peculiarities of the trade of each commodity cannot be captured. Such is, for example, the case for specific commodities e.g., cocoa, where market knowledge indicates that trade is highly concentrated in a few enterprises, while the approach described earlier to calculate the total number of relevant enterprises, would yield an estimated number of importers in the couple of thousand. Additionally, this estimation fails to capture the fact that some companies may be involved in trading multiple of the commodities in scope (e.g., cocoa and coffee) and would probably lead to a double-counting of relevant enterprises. Moreover, this approach does not seem compatible with the figures on the number of importing operators reported in the EUTR biennial reports. The number of operators derived from the EUTR implementation reporting (2019) leads to a total of about 143,000 operators for extra-EU imports and over 5 million for intra-EU trade[490]. In contrast the Eurostat data (ext_tec01) for the selected NACE codes (in yellow), e.g., all agriculture, forestry and fishing, manufacture of wood and of products of wood, manufacture of paper and paper products and for manufacture of furniture, represent a maximum number of importing enterprises of approximately 50,000. This is a stark inconsistency between the datasets, as the Eurostat data on international trade are not only covering a broader selection of commodities but also cover both operators and traders compared to only operators reported under the EUTR. There could be several reasons for the mismatch. Firstly, the EUTR data is from 2019, in comparison to the Eurostat data where the most recent year with available data is 2012. Furthermore, the definition of operators under the EUTR and traders in the Eurostat datasets may differ. For instance, the interpretation of the EUTR by some Member States has meant that all forest owners have been included in the estimates for domestic operators. Finally, it is unclear how the methodologies for estimating the numbers of operators reported under the EUTR and to Eurostat compare.

As a result of the above, this approach is not considered to yield a sufficiently robust estimation of the total number of operators (for all concerned commodities) either compared to the basic market understanding or even when comparing to the wood-specific enterprises identified in the EUTR implementation reports.

Estimation of enterprises based on Structural Business Statistics

In addition to the enterprises trading commodities between countries and identified in the international trade statistics, a number of relevant enterprises may not be involved in international trade and might only be concerned with a single Member State market only. These companies would still be impacted by the introduction of a DDS due to the obligations to collect information and perform risk assessment for products first placed on the EU market, so it is important to determine their likely numbers as well. The total number of domestically operating enterprises could be more significant for specific commodities with a large EU domestic production while they could be less significant for commodities mainly imported from outside the EU.

Structural Business Statistics (SBS) provide data for enterprises or parts of enterprises at a NACE code level. This does not cover agriculture, forestry and fishing (which already undermines the usefulness of this dataset to estimate the total number of relevant enterprises) but does address manufacturing and retail that are likely to be two of the largest sectors impacted by the measures foreseen under this impact assessment.

A selection of the most likely sectors linked to the commodities in scope, using the more detailed NACE codes where available could allow the estimation of the upper bound of the number of enterprises that may be impacted. While the SBS provides the possibility to derive somewhat more detailed figures regarding the number of affected companies by providing more detailed NACE codes than those of the international trade statistics, this is still not sufficiently detailed to reflect the commodities in scope. In the table identifying

[490] Taken from EUTR Analysis 2017-2019.pdf (europa.eu) Table 16

relevant NACE codes earlier, we have highlighted with blue the more detailed codes considered relevant and linked them to specific commodities where relevant, instead of the broader NACE codes available in the International trade statistics.

However, as there is no EU-level data available on the total value of the commodities in scope traded also domestically and exclusively within EU MS, there is no reliable way to derive more precise figures regarding the share of the enterprises of each NACE code relevant to each commodity (or to all the relevant commodities), as done in the previous section using a four-step approach. Additionally, the use of these statistics will likely lead to a number in excess of reality as seen in the following Table, as it would not be possible to separate out those manufacturers and retailers not relevant to the commodities in scope and would rather need to retain a great number of irrelevant enterprises in the figures eventually used.

Table 8.6 Number of relevant enterprises for all relevant NACE activities based on structural business statistics (relevant for all commodities in scope)

	Large enterprises	SME enterprises
Total number of enterprises	**3,652**	**1,291,216**

All in all, none of the two approaches developed to exploit the most relevant identified statistical datasets resulted in a reliable estimation of the total number of enterprises relevant to the commodities in scope. Therefore, the estimation of the administrative burden of the introduction of the DDS under Policy Options 1 to 4 is performed based on the relevant cost of the EUTR-introduced DDS compared to the total value of imports of the EUTR-covered commodities. This assessed portion of EUTR-DDS cost compared to total trade value is then extrapolated to the total trade value of the commodities within the scope of this DDS requirement

8.2.4 Option 1 – economic costs

The measures considered under this assessment carry costs for complying with the regulatory regime. Administrative costs have been calculated according to administrative burdens that would be added under the different options. This section presents the assumptions for each option.

Cost of performing due diligence for businesses

Policy Option 1 is based upon a mandatory due diligence system. In order to estimate the costs for operators of establishing and maintaining DDS[491], an approach has been used based on costs estimates for the compliance with the due diligence system under the EUTR. Based on the information available to the EUTR FC, , the overall annual DDS-induced costs for importing operators under the EUTR has been estimated in € 714 million, with a range between € 71 million (low estimate) and € 1,071 million (high estimate) as outlined in the Fitness Check report of the EUTR and FLEGT Regulation.

These costs have been estimated by applying a best estimate of € 10,000 per operator (€ 1,000 low estimate and € 15,000 high estimate) to half of the total number of estimated operators importing timber (approx. 143,000 according to the same report). When compared to the total import value of products under the scope of EUTR, which was estimated at € 24.5 billion on average, before custom and taxes, between 2015-2019, the overall DDS costs for importers of EUTR-regulated products is estimated at a range of between

[491] The EUTR FC study identified that the costs of setting up and first year of operating a DDS are comparable to the total annual costs of operating a DDS, thus costs of establishing a DDS are hereafter considered within the costs of their annual operation.

0.29% and 4.3% of the total import value of commodities. For the purpose of the other commodities considered in this assessment, we have taken into account features of the supply chain to derive more realistic costs. See Table 8.30 for further information.

The approach taken to estimate the costs of due diligence for operators presents a number of uncertainties and limitations:

- It is based on EUTR due diligence which includes only legality. The deforestation-free definition is likely to add complexity to the due diligence process and thus lead to an increase of total costs.
- The same EUTR ratio is applied across the board to all commodities on the basis of import value, but it is likely that exercising due diligence for some commodities would be different (easier or more complex) than for wood depending on the complexity of the supply chain of each commodity and the number of organisations involved. There will also probably be significant differences depending on the levels of risk of deforestation in sourcing countries and the ease of collecting relevant information from these countries. The impact of this parameter on the estimation of the DDS costs can vary depending on the commodity and the most common countries of origin/production of the imported commodities. More aggregated supply chains lead to less costs while commodities originating from countries with higher deforestation risk lead to higher costs.
- The DDS requirement put forward in this Policy Option – considering the findings of the Fitness Check - varies from the approach taken under the EUTR, mainly in that measures are proposed to facilitate compliance (such as the guidance prepared by the EC to clarify interpretations and set DDS requirements, or the country overviews that will provide information on the risk-profile of each country) and could lead to lower costs for operators and competent authorities.

Although these elements introduce uncertainty in the calculations, the estimation provided is considered as the best estimate. Other attempts to estimate the costs of due diligence based on estimating the number of operators for each commodity showed a very high variability (as explained earlier sections) due to the lack of reliable data and were therefore discarded.

The exact costs at the Member States and trader level will vary depending on the country of establishment (due to labour costs), the complexity of the value chains that need to be audited and the number of commodities in scope each operator uses. The costs include setting up a due diligence process, evidence gathering, reporting and assistance to competent authorities in their performance of inspections.

There are limited sources of information on due diligence costs available. A majority of due diligence schemes have been applied in relation to financial matters or other schemes that are not directly comparable with the due diligence foreseen under this option. In this respect, an OECD report 'Quantifying the Costs, Benefits and Risks of Due Diligence for Responsible Business Conduct[492]' published in 2016 reflected on a number of schemes that refer to due diligence in these difference contexts. Annex C of that report considers costs and benefits of responsible business conduct (RBC) and due diligence that report reflected on costs and benefits resulting from the Dodd-Frank Wall Street Reform and Consumer Protection Act as well as the OECD responsible mineral supply chain guidelines[493] and EU non-financial reporting requirements[494]. In light of the lack of other corroborating data on due diligence costs it is considered that the costs identified in the EUTR Fitness Check are the most appropriate to be used for calculations under this option.

[492] https://mneguidelines.oecd.org/Quantifying-the-Cost-Benefits-Risks-of-Due-Diligence-for-RBC.pdf
[493] Companies estimated average costs of €270 000 in the first year and recurring annual costs of €535 000
[494] The cost of EU non-financial reporting the costs of application ranged from between €155 000 and €604 000 per annum accordingly to the results of the Centre for Strategy and Evaluation Services 2011 report. The report of the Global Reporting Initiative quoted in the same OECD study put the costs of reporting from as little as €2 000 to over €100 000.

Cost for public authorities

The costs of implementing and enforcing a due diligence system for Member State competent authorities is assumed to be in line with the costs for implementing the EUTR Regulation, proportionally adjusted to cover the potential number of operators and traders that will need to be overseen by authorities due to the new expanded scope of commodities. However, due to the lack of reliable data on the number of operators and traders, the costs are adjusted for each commodity proportionally to the total import value of each. These costs include the costs of assessing compliance of due diligence documentation accompanying commodities and derived products, the costs of inspections and provision of data to other relevant competent authorities (taking into account, for example competent authorities comprised of customs officials operating alongside competent authorities within Member States where sharing of information is necessary to ensure traceability of commodities and derived products). Overall, these costs cover human resources required by public authorities for both implementation and enforcement of a potential regulation. The estimation of the number of operators and traders relevant for each commodity is explained in the previous section (see section 8.2.3).

Analysis published in 2019 on EUTR implementation using information from Biennial Reports published by MSs in the period 2017-2019 provides an overview of human resources available in MSs for the implementation of the EUTR[495]. The table below shows that the total number of FTEs in competent authorities to implement the EUTR was estimated to 182 FTEs (across the EU).

Table 8.7 Human resources dedicated to the implementation and enforcement of the EUTR for domestic and imported timber, by country. (FT: full-time staff; PT: part-time staff. Square brackets contain the combined total number of FTEs for EUTR)

Country	Domestic timber	Imported timber	Total FTE s	Other relevant information
Austria	FT: >94 [1]; PT: 0*	FT: 3 [1]; PT: 0	2	Number of FT staff on imported timber will increase to 4 [2]
Belgium	FT: 4 [2]; PT: 0		2	From 01/01/2019, the number of FT staff increased to 5 [3]
Bulgaria	FT: 0; PT: 18 [6]		6	
Croatia	FT: 3 [1*]; PT: 1 [0.33*]		1.3	
Cyprus	FT: 0; PT: 22 [4]		4	
Czech Republic	FT: 51 [20]; PT: 0		20	
Denmark	FT: 3 [2]; PT: 0		2	
Estonia	FT: 9 [2]; PT: 0		2	
Finland	FT: 4 [2]; PT: 0		2	
France	FT: 6.5 [6.5]; PT: 0	FT: 2.8 [2.8]; PT: 0	9.3	
Germany	FT: 21 [12.4]; PT: 4 [2.68]		15.1	
Greece	FT: 40 [20]; PT: 2 [1]		21	

[495] UNEP-WCMC. (2020). EUTR Analysis 2019: Background analysis of the 2017-2019 national biennial reports on the implementation of the European Union's Timber Regulation (Regulation EU No 995/2010), Retrieved from https://ec.europa.eu/environment/forests/pdf/EUTR%20Analysis%202017-2019.pdf

Country	Domestic timber	Imported timber	Total FTE s	Other relevant information
Hungary	FT: 12 [12]; PT: 1 [0.5]		12.5	
Iceland	No national report submitted			
Ireland	FT: 3 [2]; PT: 1 [0.25]		2.3	
Italy	FT: 0; PT: Unspecified [601]	FT: 0; PT: Unspecified [63]	6.73 (other MS average used)	Staff/time are considered adequate at the regional level. There are shortages of staff at central level. The 601 value is assumed an outlier.
Latvia	FT: 401	FT: 1; PT: 3	0	
Liechtenstein	No national report submitted			
Lithuania	FT: 92 [15]; PT: 0		15	
Luxembourg	FT: Unspecified [0.125]; PT: 0		0.125	
Malta	FT: 4 [2.5]; PT: 0		2.5	
Netherlands	FT: 10 [2]; PT: 0		2	Priorities on allocation and dedication of personnel are based on risk assessment
Norway	FT: 0; PT: 1 [0.1]	FT: 1 [1]; PT: 3[1]	2.1	
Poland	FT: 45 [9]; PT: 0		9	
Portugal	FT: 0; PT: 39 [9.6]		9.6	
Romania	FT: 11 [11*]; PT: 0		11	
Slovakia	FT: 12 [12]; PT: 2 [1]		13	Number of FT staff was expected to increase to 30 [30*] in 2019
Spain	FT: Unspecified [2]; PT: Unspecified [134.6]		6.73 (other MS average used)	The high 134.6 value is assumed an outlier.
Sweden	FT: 0; PT: 2 [0.5]	FT: 1 [1]; PT: 2 [1]	6.73	

It is assumed that the resources required from Member State authorities to enforce and monitor the implementation of a Regulation covering an expanded scope of commodities are proportional to the total value of imports of each commodity.[496] Extrapolating from the EUTR-induced costs and accounting for the total value of wood imports regulated by the EUTR, the expansion of the scope will lead to the need for around 449 FTEs of additional human resources for MSs as seen in the table below. When calculating the cost for expanding the scope of the regulation to other commodities, an average annual wage of € 40,000 per FTE has been used (based on the findings of the Fitness Check on the EUTR). This results in a total cost of approx. €18 million for all MS and commodities. The total import values used for the calculation of impacts is based

[496] It should be also expected that the addition of inspection standards could lead to some increase in the amount of resources required by some MS.

on a selection of HS codes aiming to represent a realistic view of a progressive scope and was finalised in discussion with DG Environment.

Table 8.8 Estimated total resources needed (FTE) and costs (Euro) incurred by Member States under Policy Option 1

Commodity	Total import value (€billion) average 5 years 2015-2019	Enforcement resources needed (FTEs)	Enforcement costs (€ million)
Wood	24.53	182	7.28
Beef	4.3	32	1.28
Cocoa	7.42	55	2.20
Coffee	8.06	60	2.39
Palm Oil	5.01	37	1.49
Soy	11.13	83	3.30
Total (excluding wood)	35.92	267	10.66
Total (including wood)	60.45	449	17.94

Note: The import value average is based on the following HS codes: 0102, 0201, 0202, 020610, 020622, 020629, 4101, 4104, 4107, 1801, 1802, 1803, 1804, 1805, 1806, 0901, 120710, 1511, 151321, 151329, 230660, 1201, 120810, 1507, and 2304. For wood, EUTR codes are used.

Costs for EU administrations

Under Option 1 **an online database** will be made available to EU Competent Authorities which will contain information on legal cases, inspections, and their outcome and best inspection practices. This will enable effective enforcement and mitigate the risk of rule-shopping by operators or traders. This will monitor the performance of countries in relation to deforestation and forest degradation at the EU level. The level of complexity of such a system will depend upon its final objectives – the more complex the data to be managed, in general, the more costly the system.

In the context of the assessment of policy options to revise the Waste Shipments Regulation[497] consideration of the setting up of an Electronic data interchange (EDI) has taken place. Arguably, such as system that would look to share information on actual shipments is more complex that that considered under Option 1 of this assessment. However, it offers important considerations in terms of potential costs of development and maintenance in relation to a similar trade matter.

In the case of an entirely new system that provides information that is not currently collected at the national level by Member States, the costs related to the EU component would be financed from the general budget of the EU. However, there is information considered under this option that is already likely to either already exist or would be developed by Member States at the national level, particularly in relation to compliance assessment and legal cases taken. In this respect it is expected that any database at an EU level would require some form of ability to communicate with national systems to ensure its effectiveness.

[497] Regulation (EC) No 1013/2006 on shipments of waste

Setting up EU central systems that communicate with national systems is not unique to environmental data. In its report to the European Parliament and Council in 2019, the Commission examined approaches for setting up an interconnection of national centralised automated mechanisms (central registries or central electronic data retrieval systems) of the Member States on bank accounts. Depending on the complexity of the system, the cost of an interconnect in terms of set up is approximately €2 million, with annual maintenance of costs of €150 000. The cost of participation by countries in this system is approximately €20 000 per country. These values were derived from the associated costs of each specific existing system, summarised in the table below:

The Commission has also looked to estimate the cost of establishing and maintaining an electronic interchange system for waste shipment data using its own in-house IT service. The cost of different EDI systems, as provided by the Commission to the contractors in the context of waste shipments are included in the table below.

Table 8.9 Costs of establishment and maintenance of different electronic interchange systems

System	Establishment costs	Maintenance costs	Participation costs
BRIS	EUR 1 700 000	n/a	n/a
IRI	EUR 450 000	n/a	n/a
ECRIS	EUR 2 050 000	EUR 150 000	n/a
EUCARIS	n/a	n/a	EUR 20 000
Commission ICT	EUR 480 000	EUR 230 000 for the first two years and then EUR 113 000 per year from then on	n/a

Based on the table above listing the different costs of different electronic systems, an average has been derived to serve as an indication of the cost of setting up an EU-wide database in relation to Option 1. These estimated costs are outlined in the table below.

Table 8.10 Indicative / approximate costs for database

Establishment costs	Maintenance costs
EUR 1 170 000	EUR 164 333

Furthermore, **an expert group** to support MS enforcement of the regulation will be established. We assume the costs for the operation of this expert group to be in line with the cost for other similar EU expert groups on enforcement issues. Although the costs will depend on final decisions about the expert group, costs could be comparable to the costs incurred by expert group support to the implementation of the FLEGT Regulation, which are estimated at €20,000 per annum[498].

8.2.5 Option 2 – economic costs

Under Option 2 there are four costs not considered under Option 1 that have been calculated as described below.

[498] FTE value provided by the European Commission on FLEGT and EUTR and assuming a standard average Commission wage of €60,000 per annum

Costs for businesses

The first cost relates to a tiered due diligence system, with the level of due diligence dependent upon the results of benchmarking of third countries. In this respect the costs for such tiered due diligence have been derived from the same sources as for Option 1. We did not identify any example of a similar regime with enhanced and simplified requirements to base our assumption on costs for. So we have assumed that the 'enhanced' due diligence would be the same than under Option 1, while the 'simplified' due diligence would assume lesser costs for the Member States based on a reduction of 50%. The threshold of 50% was chosen to reflect a significant enough difference for the purpose of the analysis, however it is acknowledged that it is an arbitrary threshold. The resulting costs are shown in the table below and are based on import values extracted from Comext and applied in Option 1.

Table 8.11 Costs of DDS – tiered approach (cost in EUR per operator / trader)

Operator or trader type	Cost of enhanced due diligence € (% of commodity value in brackets)	Cost of simplified due diligence € (% of commodity value in brackets)
Domestic (including intra-EU) operator	1,000 – 10,000 (0.29% - 4.3%)	500 – 5,000 (0.15% - 2.15%)
Importing operator (extra-EU)	1,000 – 10,000 (0.29% - 4.3%)	500 – 5,000 (0.15% - 2.15%)

We have used as a proxy the information related to the existing level of sustainable production of commodities and products to derive an assumed share of operators and traders that would likely fall under enhanced due diligence (i.e., those operators and traders placing products on the EU market that come from countries whose benchmarking assessment reveal high risk of being associated with deforestation). This proxy is an over-simplification but enable us to translate the differences on the availability of sustainable production intra and extra EU.

As presented in section 8.4 the share of sustainable products varies based on commodities considered. An average of the share of sustainable production at global level for the commodities considered is 21%. We have used this share as the basis for our assumption for extra EU operators. For intra EU we have used the average share of sustainable production imported in the EU as presented in IDH report[499], averaging the share of sustainable consumption of soy, palm oil, coffee and cocoa as identified for a small number of EU Member States, which is 43.9%.

Table 8.12 Share of operators and traders in enhanced/simplified DDS

Operator type	Share of operators and traders in enhanced due diligence	Share of operators and traders in simplified due diligence
Domestic (including intra-EU) operator	56.1	43.9
Importing operator (extra-EU)	79	21

Note: shares derived based on expert assumptions, including level of sustainable production and consumption globally and at EU level.

For the cost estimates based on import values of relevant commodities, it is estimated that 21% of extra EU operators will face the simplified due diligence requirements when placing products on the EU market. These 21% of operators will occur 50% of Option 1 due diligence costs. The remaining 79% of operators will face 100% of the costs in Option 1 (enhanced due diligence). Similarly, 43.9% of intro EU operators will face the simplified due diligence requirements when placing products on the EU market. These 43.9% of operators

[499] IDH,2020, The urgency of action to tackle deforestation

will occur 50% of Option 1 due diligence costs. The remaining 56.1% of operators will face 100% of the costs in Option 1 (enhanced due diligence).

Costs for EU administrations

The second cost relates to the development and maintenance of the underlying information to analyse the situation in all relevant countries.

This requires an assumption to be made on the number of relevant countries which has been done using COMEXT data and as part of our baseline calculations. For this, we have selected the average number of countries that are included in the COMEXT data base as source for commodities placed on the EU market. The data represent The table below presents the number of countries (including both EU and non-EU countries, for the period 2009-2019) from which products or commodities are placed on the EU market. The list of HS codes used to extract this data from COMEXT is presented in Appendix C.

Table 8.13 Number of countries

Palm	121
Cattle	131
Cocoa	146
Coffee	181
Soy	117
Wood products	162
Average	134

This information reflecting the benchmarking will be presented in the platform whose costs are presented below (i.e., third cost). This second cost component covers gathering information to establish the first benchmarking assessment and regular monitoring and update of the benchmarking assessment. It is assumed that this work is carried out desk-based and does not involve extensive engagement with specific countries. We have assumed the following for one country.

Table 8.14 Data gathering and update for benchmarking

Type of activity	Time per country	Frequency	Equivalent in €
Initial assessment and data gathering	20 days	One off	2,514
Update of the information	10 days	Annual	1,257

Note: time assumed based on similar research activities undertaken by project team, hourly salary of 15.71€/hr based on Average labour costs for the public sector in EU 28 [source: EUROSTAT labour cost, by NACE Rev.2 activity, LCS surveys 2008, 2012 and 2016, [lc_ncost_r2] assuming 8 hours work per day, so €125.7/day

For an assumed 134 countries of relevance, the cost would be: Year 1: €336,876; Year 2 and thereafter: €168,438.

The third cost components relates to the development and maintenance of an online benchmarking platform to monitor performance of countries in relation to deforestation and forest degradation at the EU level. Such

a database would present information gathered, the outcome of the benchmarking assessment and would require regular update. In keeping with the online database consideration under Option 1, the same costs are considered under Option 2.

Similarly, the fourth cost component that relates to the development and maintenance of an online platform of contravening operators and traders would be wrapped up into the same platform and the costs would be subsumed into the overall total. It is expected that this would constitute only an additional page / tab of the existing platform and not entail significant meaningful additional costs.

8.2.6 Option 3 – economic costs

Under Option 3, there are seven costs elements that are not considered under previous options which are described below. However, before tackling the costs, it is important to determine the likely number of countries that would decide to set a public mandatory scheme.

Commodities placed on the EU market by non-EU countries and respective share of exports in those non-EU countries

Further research was conducted to identify countries with a substantial share of exports (of commodities) to the EU, to explore the likelihood of certain non-EU countries to opt in or out for public mandatory certification schemes, under Option 3. The tables below present additional information from TRASE[500] on the respective share of exports (of commodities) from non-EU countries to the EU.

For each commodity, and for those top non-EU exporters placing key commodities on the EU market, the project team identified those countries that exported a large share of its production to the EU, assuming that those countries would be more likely to establish and implement certification to be able to continue to export effectively to the EU. It is however important to note that several countries with smaller contribution to commodities placed on the EU market may be seeking to establish a certification system under option 3, if the volumes they placed on the EU market represent a substantial share of their exports.

Table 8.15 Soy

	Share of total EU imports [501]	**Share of the domestic production exported to EU[502]**
Brazil	42%	Brazil to EU: 11%
Argentina	28%	Argentina to EU: 23%
USA	15%	No data in TRASE
Paraguay	5%	Paraguay to EU: 17% Poland (4%) and Italy (3%)

[500] https://trase.earth/, TRASE only covers a selection of countries so far, however, it focuses on the biggest exporters in terms of volume. TRASE combines several sources of data, including COMEXT data. It is worth noting, however, that the data on TRASE do not cover yet rubber, cereals and wood.
[501] Data from COMEXT 2009-2019
[502] Data from TRASE 2018 data

Table 8.16 Coffee

	Share of total EU imports [503]	Share of the domestic production exported to EU[504]
Brazil	30%	Brazil to EU: 53%[505]
Vietnam	22%	No data in TRASE
Honduras	6%	No data in TRASE
Colombia	5%	Colombia to EU: 28%[506]

Table 8.17 Cocoa

	Share of total EU imports [507]	Share of the domestic production exported to EU[508]
Ivory Coast	44%	Ivory Coast to EU: 66%
Ghana	20%	Ghana to EU:59%

Table 8.18 Cattle meat

	Share of total EU imports [509]	Share of the domestic production exported to EU[510]
Brazil	13%	Brazil to EU: 8%
Argentina	10%	No data in TRASE

Table 8.19 Palm oil

	Share of total EU imports [511]	Share of the domestic production exported to EU[512]
Indonesia	51%	Indonesia to EU:13%
Malaysia	28%	No data in TRASE

[503] Data from COMEXT 2009-2019
[504] Data from TRASE 2018 data
[505] 2017 data
[506] 2016 data
[507] Data from COMEXT 2009-2019
[508] Data from TRASE 2019 data
[509] Data from COMEXT 2009-2019
[510] Data from TRASE 2017 data
[511] Data from COMEXT 2009-2019
[512] Data from TRASE 2018 data

Papua New Guinea	7%	No data in TRASE
Colombia	4%	Colombia to EU: 3%
Honduras	3%	No data in TRASE

Costs for businesses

The costs for the tiered due diligence system would be different than Option 2 as the split between operators and traders assumed to be in the simplified vs enhanced due diligence category would be different than in Option 2.

To distinguish simplified / enhanced requirements we have had to assume the number of countries that would be interested in setting up a public mandatory certification scheme. Our assumption considers that the main trading partners of the EU, including all EU Member States would be interested in such a scheme. Based on the experience with the EUTR and the public mandatory certification in Malaysia and Indonesia, this might be an over-estimate. As such a total of 36 countries (including EU Member States, UK, Norway, Malaysia, Indonesia, Brazil, Ghana, Ivory Coast, Argentina and Vietnam[513]) are included for the calculation of costs. These 36 countries represent 100% of intra EU operators and 8% of the extra EU operators.

[513] Based on the analysis of data from COMEXT, COMTRADE and TRASE and selecting those countries who are relying on the EU market for a large share of their exports. All EU Member States are included, which is an optimistic assumption, however, considering that scheme would be commodity specific it is likely that most EU Member States would want to establish a scheme for at least one of the commodities covered.

Table 8.20 Share of operators and traders with enhanced / simplified DDS

Operators and trader type	Share of operators in enhanced due diligence	Share of operators in simplified due diligence
Domestic (including intra-EU) operators and traders	0	100
Importing operators and traders (extra-EU)	92	8

For the cost estimates based on import values of relevant commodities, it is estimated that 8% of extra EU operators will face the simplified due diligence requirements when placing products on the EU market. These 8% of operators will occur 50% of Option 1 due diligence costs. The remaining 92% of operators will face 100% of the costs in Option 1 (enhanced due diligence). Similarly, 100% of intro EU operators will face the simplified due diligence requirements when placing products on the EU market. These operators will occur 50% of Option 1 due diligence costs.

An additional cost components for businesses is the cost of reaching and maintaining certification. Valuable examples are provided by the experience of Malaysia and Indonesia summarised in the table below.

Table 8.21 Case study from three existing public mandatory certification scheme provide us with example of likely costs

Example of mandatory public certification schemes
In Malaysia, the Malaysian Sustainable Palm Oil standard (MSPO) was launched in 2015. In 2021 88% of Malaysian producers were certified under the scheme, including nearly 100% of organised smallholders and plantation companies and 38% of independent smallholders.[514] The MSPO required that all palm oil producers must be certified by 1 January 2020. The value of the palm oil production in Malaysia is US$17 billion (2017), representing 4.5% of the country's GDP and provides job for more than 500,000 people in Malaysia with 39% of these smallholders[515]. Financial support of up to US$13 million has been allocated to Malaysia's smallholders through the Malaysian Palm Oil Certification Council to assist them in taking environmental practices and afford certification. A review of profitability of 39 palm oil companies for the period 2013-2017 found that certification led to an increase in companies' profitability by 3.5%, and this despite costs for certification. [516] The study confirms other recent research that found that in Malaysia, the sustainable certification 'positively affected firms' financial performance'.
Indonesia introduced the Indonesian Sustainable Palm Oil (ISPO) scheme in 2009, aiming at providing certification for palm oil plantation against a range of environmental and social criteria by 2014. The aim of the scheme was to support Indonesia's reduction of greenhouse gas emissions while sustainably increasing oil palm production. A 2013 review of the scheme noted that the 'certification process has not advanced on a broad scale since the standard's introduction'. [517] The scheme focused first on larger exploitation and in a second time (i.e., 2020) was extended to smallholders (defined as smaller than 25 hectares). In Indonesia, 40% of palm oil plantation are under smallholder managements. One of the aims of the scheme is to improve agricultural practices to increase yields for smallholder farmers and reduce the need to expand agricultural land. The aim is for all palm oil production (large and small) to be certified by 2025. A 2015 study[518] reviewed the costs and benefits of the introduction of the mandatory standard to smallholder farmers under two scenarios of possible extension of the ISPO scheme, both targeting the improvement of crop management practices. It assumed that

[514] Greenpeace, 2021, Deforestation certified

[515] https://www.foodingredientsfirst.com/news/malaysia-all-palm-oil-producers-must-be-certified-by-2020.html

[516] Does MSPO Certification Matter for Profitability of Malaysian Palm Oil Companies? S. SHAHIDA a, HAFIZUDDIN-SYAH B.A.M a* AND SITI HANISAH FUAD, International Journal of Economics and Management, 2019

[517] Ernah, 2015, Cost-Benefit Analysis of the Introduction of the Indonesian Sustainable Palm Oil Standards: A Case Study in Jambi Province, Indonesia

[518] Ernah, 2015, Cost-Benefit Analysis of the Introduction of the Indonesian Sustainable Palm Oil Standards: A Case Study in Jambi Province, Indonesia

Example of mandatory public certification schemes

ISPO would be introduced via a campaign strategy, with initial costs of IDR250,000/ha for the first two years of operation of the campaign plus regular marginal extension costs of IDR 10,000 per annum until year 5. Other costs identified include:

- Initial costs of certification IDR 35,000/ha
- Corrective costs (in Year 2) IDR 400,000/ha
- Maintenance and monitoring costs of IDR 130,000/ha

A benefit equivalent is IDR 1,577/kg fresh fruit bunch (FFB) equivalent, accounting for a price benefit of 25%.
Based on these estimates, the study concluded that the cash flow turns positive after 11 years, which is due to the high certification costs. The benefits of certification are also mainly expected to be for oil palm producers and economic. It is important to note that environmental benefits taken into account in the study include mainly reduced pesticides costs. Additional benefits would be obtained if the certification resulted in international certification that would provide additional price benefits. Additional environmental benefits could be assumed to materialise from better environmental agriculture practices.

Indonesia introduced in 2009 the Indonesian Timber Legality Assurance System (Sistem Verifikasi Legalitas Kayu, Svlk) in order to is used to assess the compliance of Indonesian timber with domestic laws. The SVLK requires that all timber producers and timber processors obtain a certificate that indicates either sustainable production forest management or legality of the timber. Products that are covered by the system can be placed on the EU market without having to exercise a due diligence. A 2021 Greenpeace report reviewed the effectiveness of the scheme and noted that "the evidence suggests that while the scheme has contributed to improving the administration of Indonesian forests and the beginnings of a traceability system, it has had limited impact on tackling illegal logging".[519] These findings were also confirmed by our Fitness Check of the EUTR and FLEGT.

Guatemala introduced a mandatory requirement for the Maya Biosphere Reserve (MBR) for a Forest Stewardship Council certification in order for a concession to be granted. A review of the impact of the FSC certification was conducted and concluded that the average annual deforestation rate for the entire MBR was 20 times higher than the deforestation rate for the FSC certified concessions with a significant drop of wildfires in the area.[520] The concessions in the MBR general more than $5billion and thousands of jobs and the Guatemalan approach is seen as one example of strategies for conserving forests. [521]

It is important to note that concerns have been voiced regarding the effectiveness of the Malaysian and Indonesian scheme. Greenpeace highlighted in a recent report on certification that the standards included in the schemes "are reportedly relatively weak, lacking core requirements on no deforestation (such as via the HCSA), no expansion onto peatlands, implementation of HCV approach, comprehensive FPIC and respect for Indigenous and local community rights, protection of smallholders' and workers' rights or prohibition of the use of fire."[522] The report also notes, that while mandatory, both schemes' effectiveness is affected by a weak accreditation oversight and weak implementation. Overall, this does not discard the potential effectiveness of such scheme, but it highlights the need for them to be attuned to EU requirements, to address their vulnerability and the need for robust implementation.

Costs for public authorities

The second cost relates to provisions relating to **establishing a mandatory public certification scheme** under this Option. This cost is borne by public authorities and reflects that where a country chooses to do so, a public mandatory certification scheme would need to be developed and maintained. As this is a discretionary rather than mandatory choice at the country level it cannot be assumed that all countries will choose to develop such a scheme.

Consequently, costs have been derived at a typical country level, recognising that for countries that the following types of factors can significantly impact that costs of such a scheme:

- Whether a country is the source of a single commodity or multiple commodities.

[519] Greenpeace, 2021, Deforestation certified
[520] Rainforest alliance, 2008, Impact of FSC Certification on Deforestation and the Incidence of Wild fires in the Maya Biosphere Reserve
[521] https://www.rainforest-alliance.org/articles/community-the-secret-to-stopping-deforestation-in-guatemala
[522] Greenpeace, 2021, Deforestation certified

- The volumes of commodities concerned.
- The nature of the supply-market – the greater the number of suppliers the more costly the scheme is to administer.
- The geographical scale of countries.
- Accessibility to producers.

Some examples were identified from Indonesia, with an average set up cost for country's authority of €14.7 EUR per hectare certified on the first year and then annual costs of €0.59 per hectare annually.

Another example of mandatory public certification scheme has been identified in the EU legislation, in particular the Energy Performance of Building Directive. While different in the scope, the mechanisms of the public mandatory certification are very similar to the one considered under the Option and provide a useful proxy.

Table 8.22 Examples of costs under certification schemes

Examples	Cost borne by	Elements included	Costs
Indonesian Sustainable Palm Oil (ISPO) scheme[523]	Third country public authority	Initial costs of for the first two years of operation of the campaign Regular marginal extension costs of per annum until year 5.	IDR250,000/ha (EUR 14.7 / ha) IDR 10,000/ha (EUR 0.59/ha)
Development and maintenance of a mandatory certification system - EPBD[524]	Member States / Third Countries	Staff costs, services and supporting studies and campaigns	160.8 M€ for EU 28 in the 2011-2015 period for the Energy Performance of Building

Based on the last example of the EPDB we can assume a minimum annual cost of €1.2 million per country for setting up the public mandatory certification scheme. Note that while there are obvious differences, the comparison with the EPBD is valid as both imply similar certification schemes mechanisms. However, building certification is expected to require less efforts, and as such this is likely to be an under-estimate as the requirements for the deforestation free definition are likely to require more involvement from public authorities, in particular on initial set up and research costs. Costs would also increase if more than one commodity is covered.

When considering that 36 countries would decide to set up a public mandatory scheme a total annual cost of EUR 44.4 million would be a resulting minimum cost.

An alternative cost for third countries can be based on a 2009 assessment of expected impacts of IUU Regulation for third countries. The IUU Regulation is a very relevant example to consider at it looked at controlling placing on the market of fish products (i.e., a commodity) and ensure it met a set of requirements (i.e., not coming from illegal or unregulated fishing activities) through a certification process. The IA included a range of case studies for selected countries and found that additional annual control costs for 8 countries (Namibia, Indonesia, Thailand, Morocco, Ecuador, Senegal, Mauritania and Mauritius) would equate to €5.9 million, with additional exports gained estimated to be €33.2 million. This means that with every EUR1 of

[523] Ernah, 2015, Cost-Benefit Analysis of the Introduction of the Indonesian Sustainable Palm Oil Standards: A Case Study in Jambi Province, Indonesia
[524] European Commission, SWD (2016)408, Evaluation of the EPBD

costs incurred in implementing the catch certification measure an increase in value of EUR 5.6 was expected to be achieved.[525]

The third cost represent the costs of reaching and maintaining certification and will be borne by individual producers seeking to meet the requirements of the mandatory public certification. Here also examples have been identified on current certification costs, in both mandatory public and private situation.

Table 8.23 Examples for certification

Examples	Cost borne by	Elements included	Costs
Indonesian Sustainable Palm Oil (ISPO) scheme – mandatory public[526]	Producer	Other costs identified include: Initial costs of certification IDR Corrective costs (in Year 2) Maintenance and monitoring costs	35,000/ha (EUR 2/ha) – one off cost IDR 400,000/ha (EUR 23.5/ha) – one -off cost IDR 130,000/ha (EUR 7.65/ha) – annual costs
Wood - other[527]	Producer	Set up costs	Range from €2.1 to €21 per hectare based on the location – one off cost
Wood – Indonesia[528]	Producer	Set up costs	€4.1 per hectare was identified for 'start up' – one off cost
EPBD[529]	Households	Certification costs	€85-140 per household €1/m2 – one off cost

The costs of certification are assumed to be the average €3/ha for set up (one off), €23.5/ha for corrective action (one off) and €7.65 for maintenance costs (annual). Actual costs would then depend on the size of the holding being certified. The average size of a holding depends on the region but also the commodities being harvested. An example is taken for illustration purpose but it should be noted that its representativeness for all commodities is limited.

Based on the Indonesian example above, costs of certification are €33.9/ha (covering initial costs of certification, corrective costs and annual maintenance and monitoring). In 2009 there were 7.3 million hectares of palm oil plantation in Indonesia. [530] As such, the costs of achieving certification for all of the plantations would be €186 million of set up costs and €55.8 million annual costs.

Costs for administration at EU level

The fifth cost covers costs of the work necessary for the recognition of public certification schemes submitted by countries

[525] Study on the consequence of the IUU regulation for developing countries, https://ec.europa.eu/fisheries/documentation/studies/iuu_regulation
[526] Ernah, 2015, Cost-Benefit Analysis of the Introduction of the Indonesian Sustainable Palm Oil Standards: A Case Study in Jambi Province, Indonesia
[527] https://wwf.panda.org/wwf_news/?250330/FSC-certification-yields-financial-benefits-for-tropical-forest-businesses-shows-new-WWF-report
[528] https://wwf.panda.org/wwf_news/?250330/FSC-certification-yields-financial-benefits-for-tropical-forest-businesses-shows-new-WWF-report
[529] European Commission, SWD (2016)408, Evaluation of the EPBD
[530] PWC, 2010, Palm Oil plantation https://www.pwc.com/id/en/publications/assets/palm-oil-plantation.pdf

The implementation of Option 3 would require that at EU level the public certification systems are reviewed and assessed and for which recognition that the schemes meet the deforestation free definition will be sought.

A similar example that can be considered is the CERTCOST under organic farming products imported into the EU. These certificates are issued either by control bodies designated by the authorities of 'equivalent countries' or by control bodies designated by the EU. Countries can request recognition of their control bodies to the EU through a web interface (Agricultural web application interface). The impact assessment of the Regulation estimated that cost of approval and supervision of control bodies by national authorities ranges from €33 per operator in the Czech Republic to €79 per operator in Germany. [531] Average costs in Germany were €8,340 (corresponding to 300 working hours) for approval or one control body, followed by €3,336 (120 working hours) for annual supervision costs. In France, an average cost of €6,688 for the approval and annual supervision of one control body was estimated. [532] Assuming that the approval and supervision of one control body is similar to the efforts required for the approval and supervision of a mandatory public scheme, a median figure of €9,182 for the approval and supervision of each mandatory scheme can be used.

This figure then needs to be multiplied by the number of countries and the number of commodities that we would assume would be covered. Our assumptions, based on key exports to the EU are presented in the table below.

Countries	Number of commodities covered
EU Member States	1 each (e.g., wood, soy, palm)
UK	1 (e.g., beef)
Norway	1 (e.g., wood)
Malaysia	2 (e.g., palm and soy)
Indonesia	2 (e.g., palm and soy)
Brazil	3 (e.g., soy, coffee and beef)
Ghana	1 (e.g., cocoa)
Ivory Coast	1 (e.g., cocoa)
Argentina	1 (e.g., soy)
Vietnam	2 (e.g., wood and coffee)

The resulting costs for the EU to approve and supervise the corresponding mandatory public schemes are: €376,462. This is an annual cost.

The sixth cost relates to the set-up of an online database to support exchange of information between competent authorities in the EU on the existing public mandatory certification schemes and their validation. The platform would present information in relation country certification schemes related to prevention of deforestation and forest degradation. The same costs than platform development under Options 1 and 2 are assumed.

The seventh cost relates to the submission of recurring report from Member States and third countries to the entity in charge of reviewing and assessing on their certification schemes. For this we assume standard

[531] untitled (europa.eu)
[532] untitled (europa.eu)

reporting costs that were assessed as part of the Fitness Check on Environmental reporting, for 'Regular reporting by MS of very detailed and extensive information that should already be available but require significant time to compile'[533] which is assumed to be €100,000 - €1,000,000 per country per annum.

8.2.7 Option 4 – economic costs

The main costs that are relevant for this option are costs for changes to labels to address new labelling obligations for commodities and products and costs associated with the checking labelling of commodities and derived products.

Costs for businesses

A key cost component will be the costs of labelling. Administrative costs related to labelling obligations can include costs to assimilate/obtain relevant information to comply with labelling regulations, translations for labelling in different languages, redesign of the label and packaging, production of the printing plate, printing of the label, auditing, submitting information to the regulator, etc.

A study on food labelling legislation estimated the administrative burden for businesses in the food and drink manufacturing industry to represent between 0.01% and 0.69% of industry turnover.[534] This upper and lower bound can be used to estimate labelling costs in Option 4, applying the same percentages to import values (similar to the methodology used in Option 1).

Table 8.24 Assumed labelling costs

	Value of imports (billion EUR)	Costs of labelling lower estimate (million EUR)	Costs of labelling higher estimate (million EUR)
Wood	24.53	2.5	169.2
Beef	4.3	0.4	29.7
Cocoa	7.42	0.7	51.2
Coffee	8.06	0.8	55.6
Palm oil	5.01	0.5	34.6
Soy	11.13	1.1	76.8
Totals	60.45	6.0	417.2

Source: Import values extracted from Comext, average of 5 years (2015-2019).

Costs for public authorities

A key cost of public authorities is the cost for labelling inspections. This would entail checking labelling compliance on products and ensuring that products that comply with DD obligations or mitigate potential risks (as identified by the DD process) are correctly labelled.

[533] This reporting category was selected as this is the one under which EUTR and FLEGT are currently classified
[534] https://ec.europa.eu/food/sites/food/files/safety/docs/labelling-nutrition_better-reg_nutrition-labelling.pdf

The example of the energy labelling scheme demonstrates that MS follow a different approaches to their inspections (e.g., visual inspections, laboratory tests, documentary checks) and incur varying costs.[535,536]

A study on the energy labelling scheme (Energy Labelling Directive) assumed a similar volume of resources needed for compliance administration as for labelling compliance.[537] In the absence of better data and on the basis that more products would be covered under the present scheme (in comparison to the Ecodesign and energy labelling schemes), we can assume a range between 100 and 200 FTE staff needed to ensure compliance with labelling requirements (across all MSs), in addition to resource needs under Option 1.

At a cost of EUR 40,000/FTE/year (as in Option 1), annual (labelling) inspection costs at EU level can be calculated.

8.2.8 Option 5 – economic costs

Under Option 5 a number of the costs are already addressed under the other options above, in particular for mandatory public certification, inspection and other activities including for EU and third countries.

The unique cost in relation to Option 5 relates to the country-carding of countries at an EU level. In this respect, the setting up of a public EU body involved in country carding is not specifically addressed in options 1 to 4 above. Costs of the country carding systems are expected to be higher than the benchmarking under Option 2 as the level of details and information to be sought will be more extensive (i.e., including use of questionnaire to be distributed to the country being assessed).

Some of the main differences are for the development and maintenance of the underlying information to analyse the situation in all relevant countries (assumed to be 136) and supporting the country carding system. This cost component covers gathering information to establish the first assessment and regular monitoring and update of the carding information. It is assumed that this work is carried out desk-based but also supplemented for countries where there are concerns identified as part of the initial desk-based assessment by country visits and that it involves extensive engagement (e.g., questionnaire) with specific countries. As such we have assumed the following for one country:

Table 8.25 Assumed costs for benchmarking system

Type of activity	Time per country	Field trip in priority countries	Frequency	Equivalent in €
Initial assessment and data gathering	50 days	10 days	One off	7,542
Update / follow up of the information	25 days	10 days	Annual	4,399
Expenses		2 trips x 2 individuals		28,000

Note: time assumed based on similar research activities undertaken by project team, hourly salary of 15.71€/hr based on Average labour costs for the public sector in EU 28 [source: EUROSTAT labour cost, by NACE Rev.2 activity, LCS surveys 2008, 2012 and 2016, [lc_ncost_r2] assuming 8 hours work per day, so €125.7/day and 14,000 per trip (involving at least 2 people and 1 week)

The desk-based assessment would cover all countries, the more detailed assessment with field trip would be more gradual with an assumed similar rate than for the IUU fishing regulation, where 27 country carding

[535] https://www.eca.europa.eu/Lists/ECADocuments/SR20_01/SR_Ecodesign_and_energy_labels_EN.pdf
[536] https://www.clasp.ngo/research/all/enforcement-of-energy-efficiency-regulations-for-energy-consuming-equipment-findings-from-a-new-european-study/
[537] https://www.clasp.ngo/research/all/enforcement-of-energy-efficiency-regulations-for-energy-consuming-equipment-findings-from-a-new-european-study/

completed in 10 years of implementation.[538] This seems to indicate an annual rate of 2.7 countries being reviewed and assessed per year, which would be significantly less than the needs of the option considered here.

An alternative estimate would be to consider the implementation of the country carding system under the IUU Regulation involves 10 FTE within DG MARE. A similar number of individuals would be required at minima, equating to €600,000[539].

The second cost relates to the development and maintenance of a database available to EU Competent Authorities with information on legal cases, inspections and their outcome and best inspection practices. This will allow the monitoring of performance of countries in relation to deforestation and forest degradation at the EU level. An example of the EU CATCH platform could serve as inspiration and provides support to the verification of the certificates[540]. In keeping with the online database consideration under Option 1, the same costs are considered relevant here.

Similarly, the third cost that relates to the development and maintenance of an online platform of contravening operators and traders would be wrapped up into the same platform and the costs would be subsumed into the overall total.

The fourth cost reflect the economic loss for those countries whose operators will not be able to be used for sourcing products and commodities to place on the EU market. This would happen in situation where operators are unable to reach certification for deforestation free requirements, and the resulting commodities are not allowed on the EU market. For example, if soy from Brazil was not certified as meeting the requirements of deforestation free, this could represent a loss of up to EUR 4.15 billion depending on the quantity of soy that cannot be placed on the EU market (based on 2019 data).

8.2.9 Determining social impacts

There are two large social impacts stemming from some of the measures foreseen under this impact assessment:

- those related to additional employment within the EU as a result of additional requirements within the EU.
- those related to the social impacts, including both employment and impacts on standards of living for people living in the third countries that would be impacted in relation to the measures foreseen.

Additional employment within the EU

The impacts related to additional employment within the EU are captured to some extent under the economic costs, in particular when considering the inspection costs. Enforcement resources are likely to be very similar for Options 1 and 4 and as per the below.

[538] https://ec.europa.eu/fisheries/sites/fisheries/files/illegal-fishing-overview-of-existing-procedures-third-countries_en.pdf
[539] Uusing an average estimate of 1 FTE = €60,000
[540] https://ec.europa.eu/oceans-and-fisheries/fisheries/rules/illegal-fishing_en

Table 8.26 Estimated total resources needed (FTE) and costs (Euro) incurred by Member States under Policy Option 1

Commodity	Total import value (€ billion)	Enforcement resources needed (FTEs)	Enforcement costs (€ million)
Wood	24.53	182	7.28
Beef	4.3	32	1.28
Cocoa	7.42	55	2.20
Coffee	8.06	60	2.39
Palm Oil	5.01	37	1.49
Soy	11.13	83	3.30
Total (excluding wood)	35.92	267	10.66
Total (including wood)	60.45	449	17.94

Note: assuming a €40,000 annual salary per FTE.

For Options 2 and 3, the administrative burden for Member Sate is expected to be lower and balanced by a higher administrative burden for the European Commission. In particular resources will be needed to 1/ set up and operate the benchmarking platform under Option 2 and 2/ set up and operate at EU level the mutual recognition of the mandatory certification schemes.

For Option 2 a minimum of 3 FTE is assumed, while for Option 3 a minimum of 5 FTE is assumed.

For Option 5, the hiring of staff to the EU would be necessary to administer the benchmarking and country carding system. The IUU system requires 10 FTE. It is likely that option 5 would require more staff, considering the wider scope of commodities and products considered. As such we assume 15 FTE.

At Member State level, 26 Member States had around 474 people allocated to new roles and responsibilities relating to control of catch certifications.[541] It is expected that at least the same number of staff members would be needed to control the certifications for commodities and products. As such we assume the same incremental 50% resources: 711 FTE throughout the EU.

Additional employments could arise in companies to support fulfilling due diligence requirements (options 1-4) or other new requirements (option 5). These will depend on the companies' size, structure and existing capacity and no estimate of additional job creation in private company has been undertaken.

Social impacts for third countries

The social impacts, including both employment and impacts on standards of living for people living in the third countries that would be impacted are difficult to calculate. It is assumed that the impacts on third country employment in the countries that are currently involved in deforestation and forest degradation would be negative should such practices continue as a result of the loss of the EU as a market for their commodities and/or products. For those countries where deforestation and forest degradation is known to

[541] https://ec.europa.eu/fisheries/sites/fisheries/files/iuu_regulation_final-report_en.pdf

be a problem the costs of a fall in EU demands for commodities from those countries could be significant, see in particular section on baseline where information on share of imports is presented.

Conversely, the social impacts of addressing the issue of deforestation and forest degradation would be positive for third countries. Some information was identified to support a qualitative assessment:

- An assessment of social impacts of the Forest Stewardship council certification in the Congo basin concluded that the presence of a certified forest management unit is consistently associated with better working and living conditions.[542]
- An assessment of impacts of the Forest Stewardship council by WWF noted that certification was 'found to result in increased inclusiveness' with more involvement and better relationships between workers and communities.[543] Better working conditions were also observed in areas where certification are present.

Information identified on specific social impacts is presented below.

Improvement of land tenure status

Although there are estimated to be between 2.5-3 billion rural dwellers globally who own a total of 6 billion hectares of land under customary law, much of this land ownership is often not acknowledged. As a result, this land is often leased to logging, mining and agricultural companies against the will of those rural dwellers[544]. Poorly defined land tenure and property boundaries have been identified as being linked to lack of transparency in supply chains. This is because poorly defined land tenure makes it hard to link specific suppliers to land-use practices[545].

Any requirement to improve transparency in supply chains as a result of these options is expected to simultaneously provide incentives for more clarity on land tenure and existing land title (for example to know who is responsible to providing what information).

This relationship between supply chain transparency and land tenure has been demonstrated by NGOs such as SeedChange in partnership with Cadasta in the Kigoma region of Tanzania to create a transparent palm oil supply chain, such that farmers' rights are protected in the region. As part of this project, details such as the farmers' land right, detailed information on land use and productivity, the impact of sustainable farming in the community and data on farm growth patterns were collated[546].

The status of land tenure rights is likely to be marginally improved with the implementation of **options 1, 2, 3, 4 and 5 over time** due to deforestation-free requirement which is implemented either through due diligence or through prohibition (ensuring that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation worldwide).

Capacity building in administration and monitoring

The application of a deforestation free definition will lead, at a global level, to an increased capacity in monitoring and reporting on forest coverage, forest loss and associated knowledge.

[542] https://www.cifor.org/publications/pdf_files/OccPapers/OP-103.pdf
[543] https://forestsforward.panda.org/?231170/Research-review-The-impact-of-Forest-Stewardship-Council-FSC-certification
[544] Fern, 2019. Are corporate voluntary commitments to halt deforestation working? https://www.fern.org/publications-insight/are-corporate-voluntary-commitments-to-halt-deforestation-working-1976/
[545] Lambin et al. 2018. The role of supply-chain initiatives in reducing deforestation, https://www.nature.com/articles/s41558-017-0061-1
[546] Cadasta, n.d. Seed Change, https://cadasta.org/partners-list/seedchange/

Depending on the systems chosen for monitoring the deforestation free definition, it could lead to a reduction in corruption, for example if electronic report and satellite / remote sensing are used rather than more vulnerable declarations and paper reporting.

The Environmental Defense Fund has identified that the inclusion of annual monitoring and measurement-reporting (which is also transparent) has the potential to significantly reduce the cost of monitoring and reporting via economies of scale (when performed over whole jurisdictions) as well as increasing the robustness of these systems overall. In many instances the systems for monitoring are already available, such as the monitoring of deforestation by the Brazilian National Space Agency. Therefore, the inclusion for a deforestation-free definition which emphasises the need for monitoring has the potential to improve monitoring and reporting on forest coverage, forest loss and associated knowledge[547].

Management of information and monitoring is likely to be **greater** with the implementation of **options 1, 2, 3, 4 and 5 over time** due to deforestation-free requirement which is implemented either through due diligence or through prohibition (ensuring that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation worldwide).

Improved understanding of deforestation and forest degradation

The EU intervention is expected to develop the technical understanding of practices and their impacts on forest management and conservation. The intervention will provide a strong background for knowledge sharing.

The process of monitoring and reporting, which is present in all proposed options, is expected to generate large amounts of data collected through appropriate means and shared for further use. The data will enable detailed analyses at multiple levels throughout supply chains.

Culture

Reduced deforestation and forest degradation will lead to better preservation of resources used by local communities and an improved protection of local cultural heritage/cultural diversity etc.

Forest communities have a key role in protecting forests and their lives and cultures are deeply bound to the forest environment. The forests and the natural world around them influence the daily decisions and activities of forest communities[548].

It has previously been identified how deforestation followed by industrial commodity production is responsible for desecrating the sacred sites and damaging the cultural heritage of indigenous populations. Furthermore, the physical embodiment of indigenous cultures in various parts of the world are erased through the use of machinery to transform the land[549].

As a result, since all of the policy options work towards preventing deforestation and forest degradation, their actions are expected to indirectly protect and preserve the cultural heritage of indigenous populations.

Effects on income, distribution, social protection and social inclusion

Improved protection of local forest resources and reduction of deforestation and forest degradation will lead to positive effects on the income and social inclusion of local communities. According to their position papers, a number of businesses, business associations, NGOs and international bodies view changes pursued

[547] Meyer and Miller, 2015. Zero Deforestation Zones: The Case for Linking Deforestation-Free Supply Chain Initiatives and Jurisdictional REDD+, https://www.tandfonline.com/doi/full/10.1080/10549811.2015.1036886
[548] World Economic Forum, 2016. Why indigenous people are key to protecting our forests, https://www.weforum.org/agenda/2016/03/indigenous-people-forest-preservation/
[549] FPP, Pusaka and Pokker SHK, 2014. Report of the International Workshop on Deforestation and the Rights of Forest Peoples, https://invisibleperu.files.wordpress.com/2014/11/confidential-palangka-raya-workshop-report-2014.pdf

by current legislation on deforestation (i.e., the EUTR and FLEGT) as an opportunity to also improve human and working rights[550].

The need for greater protections of the rights of indigenous populations has been highlighted in numerous reports. For example, the Business and Human Rights Resource Centre (BHRC) has attempted to document the number of company-related attacks on people acting to protect the environment and show that over 29% of attacks are against community leaders and members and over 23% of attacks are against indigenous peoples[551].

The links between deforestation and modern slavery have been established in several geographies[552].

Working conditions / health and safety

Deforestation practices have been linked to a number of human rights abuses including on working conditions, community and indigenous groups treatment and wider abuses. A 2019 report by the International Labour Office (ILO) of the UN highlights that poor working conditions, inadequate occupational health and safety measures, obstacles to the right to freedom of association and the effective recognition of the right to collective bargaining and high levels of informality (over 72% of workers are informally employed) are key issues in the global forestry sector. To combat these issues, the ILO has worked in numerous producer countries to establish safer employment with better working conditions and with a more sustainable model[553].

As such it is expected that the EU intervention would lead, indirectly, to better standards of working and living.

Political acceptance of EU demand side intervention

The feedback identified from a range of stakeholders including third countries, indicate that on its own, demand side measures of any type are unlikely to be accepted. Without support from other intervention (including dialogue and development mechanism) the demand side measures could trigger negative reactions from third countries.

It is important to note that the limits of such an approach are acknowledged and that one of the assumptions made in this study is that the EU intervention on demand side measure would be only one of a range of tools deployed and further supplemented by other initiatives adopted in response to the 2019 Communication on Stepping Up Action.

8.2.10 Determining environmental benefits

There are a number of environmental benefits that are likely to stem from some of the measures considered under this impact assessment. These are further explained below as well as our approach for determining the effectiveness of the measures.

[550] Proforest, the Indonesian Civil Society Communications Forum, BDSI, Nestle, the Wildlife Conservation Society, the Malaysian Palm Oil Authority, Fern, GAR Agriculture and Food and the Rights and Resources Initiative
[551] Literature 180 - "R:\Projects\42884 PP-EU policy on forest products and deforestation\3 Task 3 IA\1. Literature\Sent By COM\167_to_193_IIA Sources from Comments\180_Environmental defenders under attack - the threats facing people who protect nature.pdf"
[552] Brown et al., 2019, Modern slavery, environmental degradation and climate change: Fisheries, field, forests and factories, https://journals.sagepub.com/doi/full/10.1177/2514848619887156
[553] International Labour Office, https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_437197.pdf

Effectiveness of measures

For policy options 1-4 we assume that the improved due diligence introduced, will lead to a full coverage by due diligence of all relevant commodities placed in the EU market. We assume that although not all relevant operators will introduce DD by the entry of the regulation in effect, they will do so by 2030 as the industry accustoms with the requirements and authorities develop mature their enforcement approach. For Option 5, assumed a similar effectiveness than options 2 and 3.

Table 8.27 Effectiveness in reduction of deforestation driven by EU consumption

Policy Option	Effectiveness of measures - deforestation	Justification
1	30%	The average effectiveness of the DD is based on the assumed effectiveness of the DD scheme under the EUTR. Information on how this data was derived is presented under the Fitness Check analysis
2	45%	We have assumed a higher effectiveness than Option 1 due to improved transparency from benchmarking, the effectiveness is increased by half (15%) for illustration purpose
3	40%	Higher effectiveness than Option 1 due to improved transparency from mandatory certification, however lower effectiveness than Option 2 as the mandatory certification scheme is not expected to have a large uptake. The effectiveness is increased by a third in comparison to Option 1.
4	30%	Identical to Option 1 as labelling is not expecting to bring additional effectiveness.
5	Assessed qualitatively	Lack of precise information on the effectiveness of the EU rules to combat illegal, unreported and unregulated fishing (IUU), on which the system is based.

Biodiversity

Without further intervention it is likely that deforestation (particularly tropical forest loss/degradation) will result in great biodiversity loss and mass extinction over the next couple of centuries.[554] The risk of species extinction associated with option 0 is therefore likely to be higher with time.

The impact of the various policy options on biodiversity will depend upon many factors, for example, the regions in which deforestation and/or forest degradation is reduced or action is taken (e.g., tropical or temperate regions), the type of forest (i.e., primary forests, mangroves, secondary forestry, etc). These will affect the species richness, taxa and biodiversity that is likely to be associated with the site and/or area and the environmental impact. For example while primary forest is invaluable for sustaining tropical biodiversity, other forest types may also retain biodiversity value, depending on their age and land-use history.[555] Risk of species extinction is likely to be lower with all options over time due to deforestation-free requirement which is implemented either through due diligence or through prohibition (ensuring that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation worldwide).

[554] Giam, X (2017): Global biodiversity loss from tropical deforestation, PNAS, June 2017 https://www.pnas.org/content/114/23/5775

[555] Lyons-White, J and Knight, A (2018): Palm oil supply chain complexity impedes implementation of corporate no-deforestation commitments, Global Environmental Change 20(2018) 303-313.

Water Quality & Soil Erosion

The impact of the various policy options on water quality and soil erosion will depend upon many factors, for example, the regions in which deforestation and/or forest degradation is reduced, the type of forest (i.e., primary forests, mangroves, secondary forestry, etc). **Water quality** is likely to be **higher** with **options 1, 2, 3, 4 and 5 over time** and soil erosion is likely to be **reduced** with **options 1, 2, 3, 4 and 5 over time** due to deforestation-free requirement which is implemented either through due diligence or through prohibition (ensuring that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation worldwide).

Soil Quality

The impact of the various policy options on soil quality will depend upon many factors, for example, the extent to which deforestation and/or forest degradation is reduced, the type of forest (i.e., primary forests, mangroves, secondary forestry, etc). **Soil quality** is likely to be **higher** with **options 1, 2, 3, 4 and 5 over time** due to deforestation-free requirement which is implemented either through due diligence or through prohibition (ensuring that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation worldwide).

Air Quality

Without further intervention it is likely that deforestation and/or forest degradation will continue and thus the risk of fires and air pollution is likely to rise in the future. The **risk of increased air pollution and thus decreased air quality** is thus more likely under **option 0**.

The impact of the various policy options on air pollution is dependent on the extent of deforestation and/or forest degradation as well as the type of forests and regions they occur. Furthermore, health risks may vary in different regions of the world which need to be taken into account. The **risk of air pollution** is likely to be **lower** with **options 1, 2, 3, 4 and 5 over time** due to deforestation-free requirement which is implemented either through due diligence or through prohibition (ensuring that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation worldwide).

Carbon Storage

Without further intervention it is likely that deforestation and/or forest degradation will continue to rise and thus the risk of carbon emissions from deforestation is likely to increase in the future too. The **risk of increased carbon emissions and thus reduced carbon storage** is thus more likely under **option 0**.

The impact of the various policy options on reducing carbon emissions is dependent on the extent and the type of forests and regions they occur in. Different forests have varying different carbon stock levels associated with them and these need to be accounted for. The **reduction in carbon emissions** is likely to be **greater** with the implementation of **options 1, 2, 3, 4 and 5 over time** due to deforestation-free requirement which is implemented either through due diligence or through prohibition (ensuring that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation worldwide).

Monetisation of CO_2 emissions

The monetisation of the prevented CO_2 emissions is based on the estimated cost of emission licences per tonne of CO_2 in the Emissions Trading Scheme (ETS). According to the Climate Target Plan (CTP) Impact Assessment[1], these will reach by 2030 the price of 44 Euro/ CO_2 tonne. Nonetheless the 2019 Handbook on

the external costs of transport[556] provides an estimated avoidance cost 60-189 Euro/ CO_2 tonne with a central value of 100 Euro/ CO_2 tonne. In this analysis we will use both values as a range.

8.3 Anticipating unintended effects from an EU intervention on deforestation

Even when achieving its objectives, public intervention may still have unintended negative (or positive) consequences. This section explores unexpected impacts, including those outside the EU, based on the literature as well as feedback from stakeholders involved in the consultation. The section also looks at whether there are potential "knock-ons" effects in other areas due to the intervention.

8.3.1 Risk of leakage

One of the challenges in preventing deforestation through supply chain interventions is the risk of leakage or spill-over effects. Through supply chain interventions, zero-deforestation may be achieved for particular supply chains and/or regions. This, however, is not always enough to also contribute to reduced global levels of deforestation because leakage or displacement may occur, transferring unsustainable production activities from a region with stringent regulations to another region with less strict rules, from one producer to another, or from one consumer market to another[557]. As a result of the international character of the leakage effects, which often are outside the direct sphere of influence of supply chain actors it is difficult to address such leakage effects only with measures at the supply-chain level or local governance level.

The risk of leakage is particularly high with initiatives that are at the forefront of setting sustainability requirements. Various stakeholders indicated that they expect that the demand side measures proposed by the EU are likely to entail a high degree of risk for leakage. Nevertheless, they also agree that this is an acceptable risk if additional measures are taken to mitigate this risk as much as possible. As addressed in the assumption annex, the effectiveness in preventing the placement of products associated with deforestation and forest degradation of due diligence and other measures will also vary.

Leakage may occur in many different forms. Based on recent studies[558],[559] and inputs from consulted stakeholders, the following types of leakage can be identified with different underlying mechanisms, which are presented in the table below. Moreover, based on these insights and additional inputs from consulted stakeholders, some additional precautionary measures can be identified to mitigate the degree of risk for leakage associated with demand side measures minimising the risk of deforestation.

More information on specific supply chains of the commodities and the availability of alternative is presented in Section 7.

[556] European Commission (2019). Handbook on the external costs of transport. https://op.europa.eu/en/publication-detail/-/publication/9781f65f-8448-11ea-bf12-01aa75ed71a1.

[557] Ingram, V., J. Behagel, A. Mammadova and X. Verschuur. (2020). The outcomes of deforestation-free commodity value chain approaches. Background report. Wageningen University and Research, Wageningen, The Netherlands

[558] Lambin, E.F., H.K. Gibbs, R. Heilmayr, K.M. Carlson, L.C. Fleck, R.D. Garrett, Y. le Polain de Waroux, C.L. McDermott, D. McLaughlin, P. Newton, C. Nolte, P. Pacheco, L.L. Rausch, C. Streck, T. Thorlakson and N.F. Walker. (2018). The role of supply-chain initiatives in reducing deforestation. Nature Climate Change 8 (2):109-116. https://doi.org/10.1038/s41558-017-0061-1.

[559] Meyfroidt, P., J. Börner, R. Garrett, T. Gardner, J. Godar, K. Kis-Katos, B.S. Soares-Filho and S. Wunder. (2020). Focus on leakage and spillovers: informing land-use governance in a tele-coupled world. Environmental Research Letters 15 (9):090202. http://dx.doi.org/10.1088/1748-9326/ab7397.

Table 8.28 Examples of risks of leakages and mitigation measures

Unintended effect	Mechanism	Potential mitigation measures
Shift to other commodities not under the scope of the measures.	Substitution of commodities that are included in the scope of the demand-side measures with commodities that are not covered by the scope of the measures. This could happen if for instance, palm oil in products is substituted by other vegetable oils that are not covered by the scope of the measures. Another example is on property leakage where deforestation occurs on the same property for different products than the ones covered under the measures. For instance, evidence shows that soy farmers under the Amazon soy moratorium continued deforestation for non-soy land-uses[560].	Include in the legislation all commodities with a risk for deforestation, not only those commodities that are currently associated with high deforestation rates, but also commodities that could likely be grown on lands abandoned by commodities that currently involve high deforestation risks. Alternatively, regularly review the product scope to be able to deal with changing trends in commodities involved in deforestation. Besides the commodities currently associated with deforestation, also include commodities that potentially can be used as a substitute in products placed on the EU market. Analyses of (potential) leakage occurring in current voluntary zero-deforestation commitments of companies show that the commitments that cover more different commodities with a high risk of deforestation are considered to be more effective to avoid such risk of leakage [561]. Such commitments not only cover a target commodity, but also potential substitutes, preventing the risk of spill-overs between supply chains for different commodities
Shift to other ecosystems not covered under the 'deforestation-free' definition	Expansion of agricultural production into natural non-forest ecosystem with high nature values, like natural savannah, grassland or wetland ecosystems, which are not under the scope of the demand-side measures. For example, stricter rules aiming to protect Amazon forest has already been shown to accelerate conversion of Cerrado savannah and Pantanal wetlands for agricultural production	In order to prevent the risk that prevented deforestation results in enhanced conversion of other natural ecosystems, the scope would need to be expanded from preventing deforestation to preventing conversion of natural ecosystem that represent high nature and carbon values. Feasibility of such expansion in scope is unknown and highly uncertain. Alternatively, occurrence of this potential leakage effect could be actively monitored in combination with an option to review the scope of ecosystems to be included if monitoring gives reasons for concern.
Shift to other non-EU markets with laxer regulation, to avoid the burden of the measures.	Leakage across countries when producers acquire land for deforestation in areas with laxer regulations. Stricter deforestation regulations in one region may then result in increased deforestation in neighbouring regions. While the risk of this type of leakage is probably smaller with demand side measures that do not necessarily rely on the regulations in the producer region, this may be a potential risk in relation to country benchmarking. Patterns are found that exports from regions with more stringent deforestation regulations are	Leakage will probably only be minimised once a substantial share of the global market is covered by regulations for deforestation-free supply chains. Regarding reorientating trade patterns, concerted action is needed between the EU and other major consumer countries (like China, Brazil, India and USA) and/or international organisations for global, more coherent policies addressing leakage of embodied deforestation in commodities and

[560] Gibbs, H.K., L. Rausch, J. Munger, I. Schelly, D.C. Morton, P. Noojipady, B. Soares-Filho, P. Barreto, L. Micol and N.F. Walker. (2015). Brazil's Soy Moratorium. Science 347 (6220):377-378.
[561] Garrett, R.D., S. Levy, K.M. Carlson, T.A. Gardner, J. Godar, J. Clapp, P. Dauvergne, R. Heilmayr, Y. le Polain de Waroux, B. Ayre, R. Barr, B. Døvre, H.K. Gibbs, S. Hall, S. Lake, J.C. Milder, L.L. Rausch, R. Rivero, X. Rueda, R. Sarsfield, B. Soares-Filho and N. Villoria. (2019). Criteria for effective zero-deforestation

Unintended effect	Mechanism	Potential mitigation measures
	reduced. Also, products from regions with less stringent deforestation regulations are redirected to markets with less stringent requirements. Market share is considered an important element determining risk for leakage in terms of reorientating trade patterns. If market shares for importing commodities are low, commodities from deforested land easily find their way to other consumer markets. Equally, if market shares for exports from producing countries are dominated by just a few countries, it is harder to look for alternative supplies than if the commodity is more evenly shared among more exporters.	products from one consumer region to another[562]. In this context some of the stakeholders consulted refer to the need for "green diplomacy". Supply chain diversion, could also be addressed by requiring businesses placing products on the EU market to have a due diligence system in place that covers its worldwide operations. It is worth noting, however, that the transformation of several of the considered industries towards deforestation-free supply chains is under way, through voluntary commitments, and thereby, the adoption of the new measures should not come with a high level of burden. Some studies show that 'no deforestation no peat no exploitation' (NPDE) sourcing policies cover the majority of palm oil that is refined in Europe, with 100% of refineries in the Netherlands, Germany and the UK held by companies with such policies[563]. Another report shows that, while in 2016, about 20% of palm oil fruit grown was produced by companies adhering to voluntary certification standards[564], in 2019, about 86% of palm oil imported into Europe was certified sustainable[565]. While similar practices exist in other industries for other commodities within scope, these may not be applied to the same extent. For example, a study reports that, in 2017, 22% of soy used in Europe is compliant with the FEFAC Soy Sourcing Guidelines and 13% is deforestation-free[566]. This last number increased to 19% in 2018, which shows, however, a rapid increase. While being a frontrunner in sustainability (following several commitments such as the Green Deal, etc.), the EU should aim to set high standards on the international scene and engage bilaterally or through international organisations with both producing and consuming countries, to promote better and sustainable practice, both in the EU and abroad.
Shift to other entry points within the EU due to internal market discrepancies	Where the enforcement of measures is not harmonised across Member States in the EU, there is a risk that operators and traders place commodities on the EU market through those Member States where enforcement is known to be less strict.	It is key that implementation and enforcement is harmonised across the EU, limiting discrepancies among Member States, e.g., in terms of penalties, fines, frequency and type of inspections, etc.

[562] Ingram, V., J. Behagel, A. Mammadova and X. Verschuur. (2020). The outcomes of deforestation-free commodity value chain approaches. Background report. Wageningen University and Research, Wageningen, The Netherlands
[563] https://chainreactionresearch.com/wp-content/uploads/2017/11/unsustainable-palm-oil-faces-increasing-market-access-risks-final-1_updated-july-2018.pdf
[564] Global Market Report: Palm Oil (iisd.org)
[565] Driving sustainable palm oil in Europe: 5 takeaways from #SPOD2020 | Articles | RSPO - Roundtable on Sustainable Palm Oil
[566] European-Soy-Monitor.pdf (idhsustainabletrade.com)

8.4 Availability of sustainable commodities and products

Currently, most commodities and products on the international market are being produced in land plots that are in production prior to the cut-off date imposed by the proposed options. The majority will therefore not be affected by any of the options. However, for those areas that will be affected, the implementation of some options (particularly the prohibition related options) could impact the availability of sustainable commodities and products that can be diverted into the EU market. This is likely to be a short-term issue and while more sustainable production patterns are adopted in a longer term.

A review of the literature was undertaken to identify share of current production of the main commodities that can be considered sustainable has been undertaken in the literature, and the information identified is summarised in the table below. The table provides different global estimates per each year available in different literature sources reflecting also the wide range of information presented and the challenges in obtaining comparable data for all commodities. The table also shows the diversity of situation considering the scope of operations and the importance of smallholders for several of the commodities.

Currently, for each commodity the majority of global production is not sustainable/certified. The commodities with the highest current share of global production sustainable/certified are coffee, wood, cocoa, and palm oil although this percentage does not exceed 40% (cocoa) for any commodity.

Table 8.29 Overview of share of available sustainable commodities

Commodity	Current share of global production sustainable / certified?	Scale of Operation
Beef	<10% (2016)[567] 0% (2017)[568]	Mainly large holdings
Palm oil	2% (2008)[569] 15% (2012)[567] 18% (2015)[567] 15% (2017)[568] RSPO certifies 21% (2020)[570]	Mix of large and smallholders
Cocoa	3% (2008)Error! Bookmark not defined. 22% (2012)Error! Bookmark not defined. 29.4% (2017) [571]	Mainly smallholders
Coffee	15% (2008)Error! Bookmark not defined. 40% (2012)Error! Bookmark not defined. 26.1% (2017)[571]	Mainly smallholders
Wood	28% (2017)[568]	Mix of large and smallholders
Soy	2% (2008)Error! Bookmark not defined. 3% (2013)[567] 1% (2017)[568] 2% (2020)[570] 1.5% (2017)[571]	Mix of large and smallholders

[567] European Union, 2018. Feasibility study on options to step up EU action against deforestation, https://ec.europa.eu/environment/forests/pdf/KH0418199ENN2.pdf
[568] Neeff, 2017. Zero deforestation initiatives and their impacts on commodity supply chains, http://www.fao.org/3/i6857e/i6857e.pdf
[569] Global Canopy Programme, 2015. Achieving Zero (Net) Deforestation Commitments, https://forest500.org/sites/default/files/achievingzeronetdeforestation.pdf
[570] TFA, 2020. Commodities and Forests Agenda 2020: Ten priorities to remove tropical deforestation from commodity supply chains, https://www.tropicalforestalliance.org/assets/Uploads/TFA2020_CommoditiesandForestsAgenda2020_Sept2017.pdf
[571] UN-iLibrary, 2019. The State of Sustainable Markets 2019, https://www.un-ilibrary.org/content/books/9789210046145/read

Commodity	Current share of global production sustainable / certified?	Scale of Operation
Average	19%	Average

Based on the data gathered, an average share of sustainable production of 19% is derived. This represents the average of the highest share of sustainable production for each commodity, as identified in the table above.

8.5 Option 1 – Due diligence

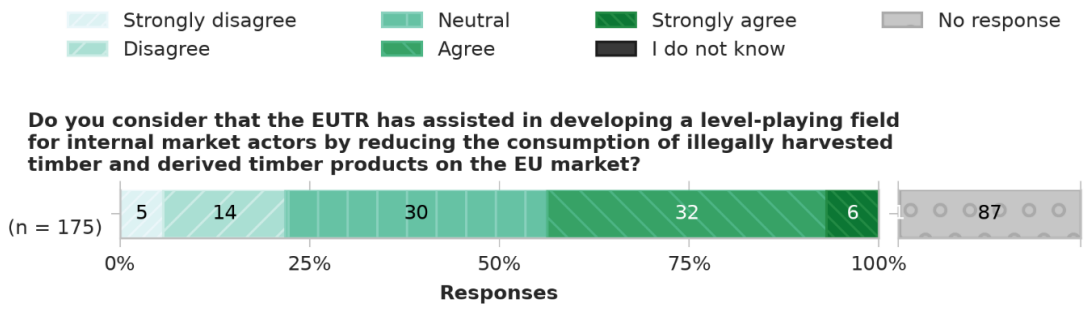
8.5.1 Overview of policy option and key impacts

Option 1 consists of a mandatory due diligence approach to ensure that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation worldwide. Operators and traders will use a Due Diligence System (DDS) to minimise the risk of placing commodities associated with deforestation and/or forest degradation on the EU market. This DDS will rely on the definition for 'deforestation-free' and a set of corresponding criteria to be covered in the DDS. The DDS will be as described under Section 7.2.2.

The design of the measure incorporates the learning from the fitness check of the EUTR and FLEGT Regulation to improve the DDS already in place, including establishing clear definitions and providing sufficient guidance for the DDS implementation. The key risks associated with this policy option are: 1. the achievement of full implementation; and 2. the ability to verify that a product is 'deforestation-free'.

Regarding the former, limited evidence exists which indicates that not all operators and traders on the EU market have implemented their due diligence requirements under the EUTR. The results of an operator survey conducted by Thünen Institute in 2020 regarding the implementation of the EUTR in Germany found that of those respondents that identified as operators and traders, 34% did not know of the EUTR. However, the operators which did 'understand' the EUTR together covered about 91 % of the total import value of all imported EUTR-products in Germany[572]. In 2018, the Danish CA reported that when contacting operators about checks, it found that many of them are still unaware of their EUTR obligations (approximately 18%)[573]. These findings are supported by the information from the fitness check OPC, according to which only 43% of respondents agreed/strongly agreed that the EUTR had contributed to achieving a level-playing field by reducing illegal timber and timber products on the EU market, with the rest being neutral, disagreeing or, in a few cases, strongly disagreeing (see figure below).

Figure 8.1 EUTR contribution to achieving level-playing field in the EU market



[572] Thünen Institute, 2020, Implementation of the European Timber Regulation (EUTR) by German importers https://www.thuenen.de/media/institute/wf/5_Aktuell/Projectbrief_2020/Project_brief_2020_07a.pdf
[573] http://eutr.dk/miljoestyrelsen-orienterer-3-500-importvirksomheder-om-eutr-forpligtelser/

With respect to the latter, the evidence from the fitness check showed that it is extremely difficult to prove if a product was subject to illegal harvest, as such it can be reasonably assumed that similar challenges will apply in the current context for 'deforestation free'. Forensic analysis has proven somewhat helpful, but these methods are associated with high costs, and due to their novelty, there are a lack of common databases which may help interpreting the results. The problem is further complicated in the secondary or recycled products since information is needed about the status of the input products. Furthermore, findings from the fitness check showed that verifying information from countries with corruption problems may be more difficult and may lead to products which are not 'deforestation-free' entering the EU market.

Overall, it can be expected that the improved DDS regime introduced by this policy option could lead to a near full coverage over time of the products placed on the EU market under the scope of the DDS. Although it may be the case that a number of operators and traders handling smaller volumes do not fully implement DDS, these are likely to represent a smaller part of the overall product volumes and thus it may be assumed that a near full coverage of products can be achieved. Moreover, the role of customs authorities ensuring that all importers are aware of their obligations will contribute to reducing number of companies not complying with the DDS requirements. Nevertheless, fraudulent practices feeding false information into the DDS performed by EU operators and traders cannot be excluded and is likely to lead to a certain amount of product leakage the extent of which would be very difficult to anticipate. The capacity of operators and traders and inspecting authorities to identify such practices and operators and traders and avoid supplying products from them in the future can be expected to gradually improve with the supporting measures implemented by the EC and Member States.

This section presents the main expected impact from the implementation of this policy option and elaborates on the causal links between the implementation of the actions and their expected effect. We provide an initial overview of relevant evidence to substantiate this analysis.

8.5.2 Environmental impacts

Quality of natural resources – deforestation and forest degradation

Due to the improved DDS provisions adopted to improve supply chain transparency and enforcement, it is expected that products placed on the EU market will comply with the deforestation-free definition. This means either:

- replacing current partner operators and traders in the supply chain providing products considered of higher-risk of using practices non-compliant with the deforestation-free definition, with operators and traders using practices considered to minimise deforestation risk; or
- adjusting the production practices of operators and traders to be compliant with the deforestation-free definition.

Both approaches will (if they function as intended) lead to the substitution of products placed in the EU market and considered of high-deforestation risk, with products produced with processes compliant with the deforestation-free definition.[574] Therefore, this policy option, assuming an effective implementation, will lead to the reduction of deforestation for which, products related to the EU supply chains, are responsible.

This impact of improved quality of natural resources has been identified by major businesses, associations, and NGOs alike, in their position paper submissions to the EUTR and FLEGT Fitness Check OPC. Several major commodities trade associations and businesses argue that demand side measures (such as more stringent

[574] Considering the assumption that placing deforestation-free products in the EU market will not substitute the placement to other markets currently supplied with such deforestation-free products, leading to the placement of more products related to high-risk of deforestation in these markets.

due diligence) will improve the quality of natural resources at their source leading to a reduction of the areas affected by deforestation and forest-degradation globally. The position papers of major international NGOs, not for profits and international bodies[575] also support the introduction of mandatory due diligence as a tool to improve the quality of natural resources originating from countries with conventionally high risk of deforestation and malpractice. Stakeholder interviews with major NGOs also emphasise that a mandatory DD is the most effective tool to address deforestation. This positive impact will be larger for countries with higher deforestation rates in which products supplying the EU market are responsible for a large contribution to the deforestation rate.

It is expected that an improved DDS scheme should be able to cover the majority of the relevant products, however the policy option's effectiveness in delivering this impact will also be somewhat mitigated by other factors. Parameters affecting the effectiveness of the policy option relate to the corruption levels in trade partner countries as well as by the way the deforestation free concept is defined. Finally, the timing of entry into force of the relevant legislation will affect the overall potential of the policy option. The initiative can be expected, similar to the EUTR process, to enter into force three years after a proposal is agreed upon. This means that the entry into force of the regulation can be placed around 2025 and a couple of years will be required to reach its maximum effectiveness as operators and traders and Competent Authorities adjust their approaches to be able to more effectively perform their duties in the context of the new requirements.

The baseline assessment of the embodied deforestation for which EU consumption of the commodities in scope is responsible can be seen in Section 7.3. There the potential maximum effectiveness of any initiative in this field is estimated to a total volume of preventable forest deforestation of 248,467 ha annually. An average minimum effectiveness of the improved DDS was estimated to be **30%** (based on the EUTR/FLEGT FC study) with regard to preventing deforestation. With this assumption, it is estimated that the due diligence measure will be able to prevent a potential of **74,540 ha of deforestation annually** in 2030 when the implementation of the Policy is expected to reach its full potential.

A number of organisations seem to agree there is value in mandatory due diligence but specify that mandatory due diligence will be most effective as a tool within a suite of policies[576], which in combination could lead to a higher even effectiveness (also reflected in our assumptions on effectiveness of options). There is some variation regarding the policies that different organisations believe should support DD. Some are other demand side measures, which are considered as options under this impact assessment (see options 2, 3 and 4). Others are supply side measures, with green diplomacy and poverty alleviation being the two policies being most often quoted. Some organisations, particularly businesses and international non-governmental organisations and countries with high risk of illegal deforestation emphasise the value of green diplomacy, including through the use of Voluntary Partnership Agreements (VPAs) between the EU with countries where there is high risk of illegal deforestation in order to improve the quality of natural resources[577].

[575] Conservation International, Alliance pour la Préservation L des Forêts, Trase Stockholm Environment Institute, Environmental Justice Foundation, Forest Peoples Programme, Deutsche Umwelthilfe, Indonesian Civil Society Communications Forum, ClientEarth, Global Witness, Wildlife Conservation Society, Global Canopy, Fern, The Initiative for Sustainable Agricultural Supply Chains and the Carbon Disclosure Project.

[576] Nestle, Ikea, Cargill, Pepsico, Wilmar, TetraPak, COCERAL, FEDIOL, FEFAC, the European Tyre and Rubber Manufacturers' Association, GAR Agriculture and Food, Conservational International, the Food and Agriculture Organisation, the European Feed Manufacturers' Federation, the European Livestock and Meat Trading Union, academics from Oxford University, Chalmers University of Technology and Tilburg University, Forest Peoples Programme, Deutsche Gesellschaft fur Inernationale Zusammenarbeit (GIZ), the Indonesian government, Roundtable for Responsible Soy and the World Resources Institute.

[577] The World Resources Institute, the Food and Agriculture Organisation, Conservation International, Profrest, ClientEarth, The Malaysian Palm Oil Authority, Wilmar, Cargill, the Indonesian Palm Oil Association, Henkel, Climate Focus, Pepsico and Global Canopy

Biodiversity

The reduction of deforestation estimated as a result of this policy option will lead to improved preservation of the natural habitats of (endangered) flora and fauna species.

This impact will occur due to the fact natural habitat preservation often leads to a decrease in biodiversity loss[578] in line with the findings presented in the assumption annex.

Climate

Reduced deforestation will lead to an improved CO_2 capture capacity. The value of protecting forests in tackling climate change has long been recognised by the scientific community[579].

The baseline assessment of the embodied emissions for which EU consumption of the commodities in scope is responsible can be seen in Section 7.3. As with the deforestation impact of the policy option, there is a total potential of preventing 109 $MtCO_2$ emissions per year in 2030. However, a fully effective policy option cannot be expected and the improved DDS policy option is expected to have a lower effectiveness as already explained in the section on the impact on deforestation. We assume for this Policy Option a minimum average effectiveness of **30%** in preventing CO_2 emission. With this assumption, it is estimated that Policy Option 1 will be able to prevent a potential of **32.7 MtCO2 emissions annually** in 2030 when the implementation of the Policy is expected to reach its full potential. This can be monetised to about 1.4-3.2 billion Euro of annual savings depending on the unit cost value used for monetising CO2 emissions.

Sustainable production and consumption (awareness raising)

Operators and traders placing products in the EU market will need to change the ways they operate and source deforestation-free commodities. Observing the commodity production deforestation-free criteria will lead to a more sustainable production of certain commodities. This will result in turn in more environmentally-friendly products being placed and consumed in the EU market and a more traceable record of suppliers and customers. However, some organisations' position papers[580] and views laid out in stakeholder interviews[581] raise concerns that a scheme which focuses on sustainable consumption rather than production, will be vulnerable to the impacts of supply-chain divergence[582].

This option would likely lead to better general awareness of deforestation and forest degradation issues related to the production of specific products**.** This was also an identified impact of the EUTR regarding raising awareness on timber products production as a result of the DDS implementation. The majority of respondents to the EUTR and FLEGT Fitness Check OPC (52 respondents or 55% of all respondents) stated that *better general awareness of timber and timber products legality issues and their relation to illegal trade* was a significant impact of EUTR DDS requirements. However, this may not impact consumers to the same extent.

[578] https://www.iucn.org/commissions/world-commission-protected-areas/our-work/biodiversity-and-protected-areas#:~:text=The%20creation%20of%20protected%20area,biodiversity%20loss%20continues%20to%20increase.
[579] https://www.lse.ac.uk/granthaminstitute/explainers/whats-redd-and-will-it-help-tackle-climate-change/
[580]Position papers by the Brazilian government, Cocoa Forest Initiative, the European Cocoa Association, the International Cocoa Organisation, the European Feed Manufacturers' Federation, the European Livestock and Meat Trading Union, the Forest Peoples Programme, Deutsche Gesellschaft fur Inernationale Zusammenarbeit (GIZ) and the Indonesian government all argued there was a significant risk that Mandatory Due Diligence would cause leakage or diversion.
[581] Stakeholder interview with Client Earth, Environmental Investigation Agency International, Greenpeace and the Worldwide Wildlife Fund

8.5.3 Economic impacts, including administrative burden

Operating costs and conduct of business

An impact of this option will be a change in compliance costs for operators and traders placing products on the EU market. This includes the additional costs operators and traders need to undertake to comply with the essence of the regulation. In this case the additional costs for operators and traders **placing commodities on the EU market** are related to any additional costs of sourcing commodities from producers applying practices compliant with the deforestation-free definition as operators and traders need to minimise the risk of supplying products non-compliant with this definition as specified by the mandatory due diligence assessment. The **additional costs undertaken by producers** of these commodities would be eventually passed through to the operators and traders placing these products on the EU market and lead to an increased price for sourcing the commodities. Such costs for producers relate to:

- cost of producing with production practices compliant with the deforestation-free definition,
- environmental compliance costs for producers (these are administrative costs related to meeting environmental regulation requirements for producers but passed through as compliance costs for operators and traders placing the products in the EU market – when the two entities differ),
- cost of certification of products to prove compliance with the deforestation-free definition, when used as an input to the DDS

Along this point, a third country business association highlighted in their position paper concern that the costs of operators and traders to meet EU mandatory DD requirements will be carried down the supply chain to businesses in the EU. They argue that this is a cause of concern for these businesses, especially SMEs.

The **production of goods in line with a deforestation-free definition** is likely to lead to increased production costs for producers. Initially, it needs to be acknowledged that given the variety of commodities in scope and the potentially widely different production practices currently applied in the production of these commodities, it is very difficult to point to a specific impact of adopting deforestation-free compliant production practices. These costs are likely to differ significantly between different regions and commodities due to the local production practices, market context and legislative framework.

To prove the variety of possible results, we provide some evidence identified on the impact that sustainable production practices may have on the cost of production of commodities. In the following, mixed results are obtained even within a number of case studies concentrated on the cases of Indonesian and Malaysian palm oil and its deforestation-free certification. These studies examine producer revenue before and after adoption of a sustainability certification and can be used as a proxy indicator for the costs that would be associated with adopting production practices complying with the deforestation-free definition developed for the environmental due diligence.

One study on a 11,821ha palm oil plantation in Papua, Indonesia, estimated that if the plantation started producing in compliance with the RSPO certification process in 2025, the plantation would experience a loss on net present value of 1.9% over the period of 2012 to 2040[583]. The study argues this is a relatively small reduction on plantation income, especially when the competitive advantages, market resilience, improved agricultural practices, and human resource benefits to the organisation are considered[584]. In comparison, a

[583] Salman, F., Najib, M., & Djohar, S. (2017). Cost and Benefit analysis of RSPO certification (case study in PT BCA oil palm plantation in Papua). Indonesian Journal of Business and Entrepreneurship, 219-228 https://journal.ipb.ac.id/index.php/ijbe/article/view/16765/0

[584] Salman, F., Najib, M., & Djohar, S. (2017). Cost and Benefit analysis of RSPO certification (case study in PT BCA oil palm plantation in Papua). Indonesian Journal of Business and Entrepreneurship, 219-228 https://journal.ipb.ac.id/index.php/ijbe/article/view/16765/0

study of 39 palm oil companies in Bursa, Malaysia from 2009 to 2016 showed the profitability of firms with a sustainability certification is almost 2% higher than firms without certification[585]. The cost of certification and sustainable production practices for the Amanah group of 349 independent small holder palm oil producers located in Riau, Indonesia, demonstrates that there was a relatively sharp reduction in income for farmers: after certification, overall income was 5.3% lower than before certification[586]. The study cannot guarantee that the loss in earnings is uniquely attributable to the certification process, however, it is clear that despite increased sales value and additional yield after certification, the increased cost of production due to certification outweighed increased revenue[587]. It also needs to be noted that the costs of producing deforestation-free commodities can be different between small holder farmers and larger plantations due to economies of scale (discussed further in the section: Economic Impact on SMEs)[588].

The costs of **environmental compliance** for producers are administrative costs stemming from ensuring compliance with environmental legislation. These are administrative costs for producers which are passed onto operators and traders as compliance costs. Results from a 2015 survey of 15 "typical" producer SMEs in the forest product industry (located in Cameroon, DR Congo, Gabon, Ghana, Liberia, and Vietnam) provide an estimate of the costs of compliance with environmental standards[589]. On average, environmental compliance costs are €9,341 per annum which represents 0.16% of the average turnover (EUR 5.67mil) of surveyed SMEs. In terms of time spent ensuring compliance with legislation, organisations required an employee to spend, on average, 4.8 hours per week to fulfil tasks related to environmental compliance. Using this information to estimate the average cost of environmental compliance to businesses producing commodities from forest products is unlikely to be representative due to the small sample of businesses surveyed and the considerable variance in the types and sizes of organisations surveyed. However, it provides an indication of the size of these costs which are unlikely to impact the cost of commodities passed through to operators and traders placing these products on the EU market.

In the context of the implementation of a DDS for the EUTR, a large majority (44 out of 62, 71%) of respondents to the OPC indicated that the introduction of the DDS requirement had led to an increase in the costs of importing timber and timber products to the EU (as seen in Figure 8.2). Such a cost increase can be attributed to the combination of changes to the cost element described in this section and can be expected to be indicative of the expected impacts on product prices of a broader scoped DDS requirement as introduced under this Policy Option.

[585] Hafizuddin-Syah, B. A., Shahida, S., & Fuad, H. S. (2018). Sustainability Certifications and Financial Profitability: An Analysis on Palm Oil Companies in Malaysia. Jurnal Pengurusan, 143-154 https://ejournal.ukm.my/pengurusan/article/view/30080

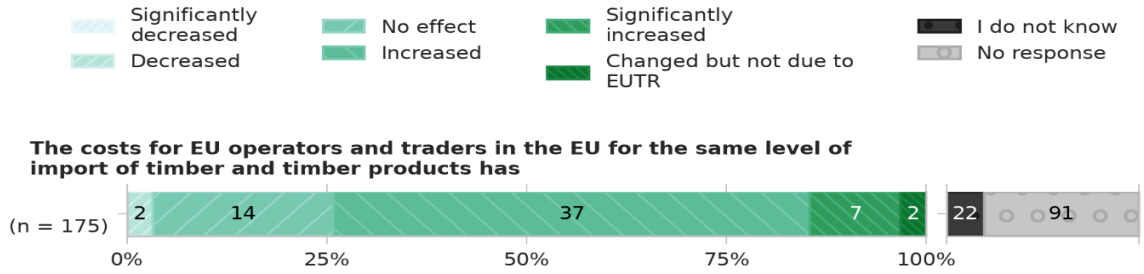
[586] Hutabarat, S., Slingerland, M., Rietberg, P., & Dries, L. (2018). Costs and benefits of certification of independent oil palm smallholders in Indonesia. International Food and Agribusiness Management Review, 681-700 https://www.wageningenacademic.com/doi/10.22434/IFAMR2016.0162

[587] Hutabarat, S., Slingerland, M., Rietberg, P., & Dries, L. (2018). Costs and benefits of certification of independent oil palm smallholders in Indonesia. International Food and Agribusiness Management Review, 681-700 https://www.wageningenacademic.com/doi/10.22434/IFAMR2016.0162

[588] Setyowati, A., & McDermott, C. (2017). Commodifying Legality? Who and What Counts as Legal in the Indonesian Wood Trade. Society & Natural Resources, 30:6 750-764 https://www.tandfonline.com/doi/abs/10.1080/08941920.2016.1239295?journalCode=usnr20

[589] Global Timber Forum. (2015). GTF Supplier and Consumer Due Diligence Analysis. Retrieved 10 08, 2020, from https://www.gtf-info.com/wp-content/uploads/2015/09/gtf-supplier-and-consumer-due-diligence-analysis.pdf

Figure 8.2 OPC responses regarding the impact of the implementation of the EUTR on imported product prices



To conclude, compliance costs for operators and traders are a result of increased production costs and depend significantly on the type of commodity, region and current production processes. Due to these differences, it is difficult to derive a uniform approach to assess the cost implication of producing in accordance with the deforestation-free definition. However, certification costs associated with providing relevant information as required for the DDS can be a significant parameter especially for SMEs and together with the costs of deforestation-free compliance and lead to some minor increases in total costs for operators and traders when supplying certain commodities.

Administrative burden

There will also be **administrative costs for operators and traders** placing products in the EU market relating to the development and administration of the DDS itself. These will likely include costs relating to DDS set up and updating as well as DDS operation and outsourcing costs. For example, there will be costs associated with setting up a DDS (for operators and traders not already obliged to operate a DDS). For operators and traders already operating a DDS e.g., timber operators and traders, covered by the EUTR, there will be costs for updating existing DDS systems to comply with the requirements for improved DDS. Operators and traders handling other types of commodities can expect an increase in their costs as through the proposed policy option, there are a number of requirements which are expected to lead to an increase in administrative costs.

Evidence gathered for the Impact Assessment study for revision of the EUTR indicate that in many cases, costs associated with DDS might not be substantial[590]. Notably, the impact assessment finds the size of the company could not be correlated with the costs of DDS. Instead, the main cost drivers were the characteristics of a business's supply chain, such as, the number of products and suppliers within each chain as well as the length of each chain[591]. With regards to the impact of expanding the scope of DDS to companies not currently covered by the EUTR, the impact assessment notes that pre-existing use of voluntary certifications or internal corporate social responsibility commitments will reduce overall cost of ensuring EUTR compliance. However, according to the results of a study on due diligence requirements through the supply chain, for the European Commission, 37.1% of the 341 businesses surveyed indicated they are currently undertaking broad due diligence for human rights and environmental impacts, and a further 33.7% undertake due diligence focused on a specific issue, such as, health and safety, environmental, equality[592]. This suggests the majority of businesses have some experience implementing DDS, which could reduce

[590] COWI A/S, Indufor & Milieu. (2019). Impact Assessment Study for the Revision of the Product Scope of the EU Timber Regulation. Brussels: European Commission https://op.europa.eu/en/publication-detail/-/publication/fd26ad03-9895-11e9-b2f2-01aa75ed71a1/language-en

[591] COWI A/S, Indufor & Milieu. (2019). Impact Assessment Study for the Revision of the Product Scope of the EU Timber Regulation. Brussels: European Commission https://op.europa.eu/en/publication-detail/-/publication/fd26ad03-9895-11e9-b2f2-01aa75ed71a1/language-en

[592] BI ICL, CIVIC Consulting & the LSE. (2020). Study on due diligence requirements through the supply chain. European Commission https://op.europa.eu/en/publication-detail/-/publication/8ba0a8fd-4c83-11ea-b8b7-01aa75ed71a1

capital expenditure and administrative burden for businesses required to comply with DDS. However, the survey also finds that although 16% of the surveyed companies conduct due diligence throughout their supply chain, and a further 16% include the impacts of the entire value chain (up and downstream), more than half of the participating companies (52%) of who undertake due diligence indicated that third party impacts are included for first tier suppliers only[593]. Therefore, due diligence that is conducted voluntarily by businesses might not be as comprehensive as the improved due diligence foreseen by this policy option and an updated and potentially more effort intensive approach would be required even when compared with DDS currently in place.

A key change outlined across policy options is the requirement for the use of a deforestation-free definition. There are expected to be costs for transitioning from a DDS aiming to secure timber legality to a DDS centred around a deforestation-free definition. The proposed enhanced DDS would require operators and traders to enact strict obligations on traceability and transparency, which will be expected to lead to increased DDS costs to ensure these obligations have been met. Also, there are likely to be administrative costs associated with the need to provide analysis identifying all the possible risks the commodity or products could pose to deforestation/forest degradation. DDS operation costs will also be incurred, to conduct risk assessment and to collect and store information from suppliers. These costs also include those for annual reporting on DDS implementation[594]. This increase in operating costs may also apply to operators and traders that already have a DDS in place. Alternatively, operators and traders choosing not to operate a DDS in-house will face the costs of outsourcing a DD operation to a professional provider.

There may also be unforeseen costs associated to difficulties in implementing the DDS. This impact has been identified in the EUTR and FLEGT Fitness Check OPC where nearly half (28 out of 63 respondents, 44%) indicated that they have encountered difficulties in implementing due diligence requirements either often (21 respondents, 33%) or always (7 respondents, 11%). Approximately another third of respondents indicated they encountered difficulties either sometimes (11 respondents, 17%) or rarely (12 respondents, 19%). Only one respondent stated they had never experienced any difficulties. In addition, 11 respondents (17%) answered that they did not know the answer to the question.

In their position paper submissions to the EUTR and FLEGT Fitness Check OPC, multiple businesses and business associations have expressed concern relating to the burden placed on businesses relating to the impact of a more stringent DD mechanism[595]. Interviews with major Individual businesses accept that there will be some increase in admin as a result of an improved DD while being clear that reducing red tape and excessive requests for paper trails must be avoided to reach the common goal of reducing illegal deforestation. Another business argued that the administrative burden should be placed on the state.

Most NGOs recognise that an improved DDS will incur increased administrative costs for businesses[596]. In a stakeholder interview with major conservation groups, the position put forward by all organisations is that legislation should reflect the difference between smallholders and SMEs.

However, there is also potential for reducing the administrative burden depending on DDS design. The proposed measure of developing of country overviews with risk information will likely contribute to reducing the cost of finding country specific risk information. A lack of clear definitions could also increase the administrative costs, if there is ambiguity and resources needed to decipher requirements. Thus, the proposed measure of clarifying information requirements for operators and traders implementing a DDS could contribute to overcoming this issue particularly in regard to risk mitigation and defining adequate due

[593] BI ICL, CIVIC Consulting & the LSE. (2020). Study on due diligence requirements through the supply chain. European Commission https://op.europa.eu/en/publication-detail/-/publication/8ba0a8fd-4c83-11ea-b8b7-01aa75ed71a1

[595] Pepsico, Imace European Margarine Association, COCERAL, FEDIOL, FEFAC, GAR Agriculture and Food, RSPO
[596] Position papers for ClientEarth, Proforest and stakeholder interviews by Client Earth, Environmental Investigation Agency International, Greenpeace and the Worldwide Wildlife Fund

diligence systems. Eventually the additional clarity could lead to some further decrease in the costs of operating a DDS.

According to the EUTR and FLEGT Fitness Check OPC, further cost reductions could be achieved with the potential use of electronic databases could prevent the duplication of due diligence on timber sources used in multiple products, increase transparency and ease the administrative burden placed on operators and traders.

Most importantly, the overall costs of the DDS can be impacted by the shifting scope of the regulation and specifically by the choice to expand relevant provisions beyond operators and traders to also potentially cover traders of commodities and depending on the choices to implement this scope extension. Obliging all traders to perform a full DD can be expected to greatly increase the amount of relevant entities obliged to implement a DDS. To mitigate this effect, should traders be required to simply collect already available DD information from their suppliers and not be asked to fully implement a DDS including risk assessment and a separate data collection, costs would be more manageable.

It is also important to acknowledge that these costs may vary between MS due to different costs for labour[597]. It is also important to note that the costs provided are based upon a legality DDS and that the actual costs for a deforestation or forest degradation DDS can be expected to be higher. Further to this, as the studies above rely on limited sources to derive these costs estimates, a certain level of uncertainty exists regarding the validity of their findings. In this view we use this information to derive a range of potential costs for the implementation of the improved DDS per year per operator. It should be noted therefore that one limitation of the approach taken is that there is likely to be some divergence in DD costs for timber legality requirements compared to the costs associated with the additional commodities which do not focus anymore on proving the legality of the production process but rather compliance with the deforestation-free requirement.

Administrative costs associated with the DDS are typically borne by the operators and traders. The EUTR also permits operators and traders to outsource the costs of running a DDS to a monitoring organisation, provided it is recognised by the European Commission. However, to date there has been limited take up of this option by EU operators and traders, with only thirteen monitoring organisations acknowledged by the European Commission. The costs for DDS undertaken by external consultants have been estimated by IMM to be approximately €10,000 - 60,000 for an average SME with between 10 to 30 suppliers[598]. It has also been noted that the costs will be likely to decline over time as a greater number of suppliers have been vetted.

The **costs of operating a mandatory DDS** outlined below have been based upon the estimated costs derived from the EUTR requirement for a mandatory due diligence system. This will lead to costs for operators related to establishing and maintaining appropriate DDS. They will vary depending on complexity of supply chains and companies' size. The proposed enhanced DDS would require operators to take action to ensure on traceability and transparency. In addition, there are likely to be administrative costs associated with the need to identify and analyse the possibility that commodities or products in the supply chain could be associated to deforestation and forest degradation. It should be noted that the costs below do not include the one-off costs of establishing a due diligence system but take into consideration the ongoing operating costs of the system only. The omission of one-off implementation costs is due to a lack of quantified data within the literature to enable a reliable estimate of these costs, with only one source (reliant upon a small sample size) providing an estimate of €5,000 - €90,000[599]. The approach to omit one-off costs from the final

[597] COWI A/S, Indufor & Milieu. (2019). Impact Assessment Study for the Revision of the Product Scope of the EU Timber Regulation. Brussels: European Commission. https://op.europa.eu/en/publication-detail/-/publication/fd26ad03-9895-11e9-b2f2-01aa75ed71a1/language-en

[598] IMM. (2017). FLEGT VPA Independent Market Monitoring (IMM). Brussels: European Commission. Retrieved from https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetailDoc&id=34689&no=8

[599] Indufor (2016), Evaluation of the EUTR: In COWI(2019), Impact Assessment Study for the Revision of the Product Scope of the EU Timber Regulation

estimated costs is consistent with the method used by other studies[600], which similarly determined there was insufficient data to include these implementation costs. Further to the absence of sources able to quantify one-off costs, the literature reviewed has suggested that the one-off costs are unlikely to significantly differ from the ongoing annual costs already accounted for, with operators typically able to set up and apply the DDS as a single activity. It is, however, important to note the potential for one-off costs as some stakeholders have stated that the costs of the DDS were higher in the first year following the system's implementation. This suggests the existence of initial one-off costs, even if it is not possible to accurately quantify this, although they can be expected to be largely covered by the costs of operating a DDS for the first year.

As with one-off costs, the costs displayed below in Table 8-35 do not take into account potential indirect costs as a consequence of the DDS, for example due to an induced change in suppliers to supply commodities from those better able to prove low deforestation and forest-degradation risks in their production processes. This is similarly due to a lack of available quantifiable data in order to accurately estimate these costs, and the conclusion, from the EUTR Fitness Check, that indirect costs as a result of operators switching suppliers was not considered a significant result of the Regulation. Nonetheless, as this Policy Option foresees a more comprehensive and effective DDS, providing also clear guidance for its implementation, these costs might stop being insignificant overtime. As the need to change suppliers and the induced costs can be very context specific, it is not possible to quantify this indirect impacts.

As it is the case with the EUTR, operators that place imported products on the EU market will be the most impacted by compliance costs. Operators that place relevant commodities produced in the EU on the market are already under the obligation to apply national and EU laws, which comprehensively cover a wide range of legal and sustainability aspects (e.g., existing nature legislation as well as planned legislation under the Biodiversity Strategy), and therefore the additional burden that the new initiative would place on them is expected to be negligible.

In order to ascertain the anticipated increase in DD costs due to the increased product scope, an approach has been used to estimate the costs for operators of establishing and maintaining DDS based on costs estimates for the compliance with the EUTR. For importers of EUTR products it is estimated that **DDS operation costs range between 0.29% and 4.3% of the value of the commodity imports** (see SWD Fitness Check EUTR/FLEGT Regulation).

Applying the same percentages for the other commodities in scope would however disregard their supply chain characteristics. Whilst wood supply chains are considered to be highly decentralised and complex in nature, the same is not the case for the supply chains of cocoa and coffee, that are known to be dominated by a small number of larger traders. A case is made out of the coffee trade which is known for its highly concentrated supply chain. An assessment provided by the European Coffee Federation (ECF) indicated that about 50% of coffee trade globally is in the hands of 5 major trading firms and about 65% lays with between 35 and 45 larger firms. In this respect, the proportion of trade value absorbed by DDS as mentioned above would be applicable only to the remaining 35% of trade imports that seem likely to share common characteristics with the wood trade. Assuming that the larger firms would be near the high-cost estimate regarding their DDS costs (€15,000) a recalculation of the DDS costs for coffee trade would deliver an assessment of DDS costs being between 0.11%-1.51% of total import value that can be considered more representative of highly concentrated supply chains.

[600] COWI (2019), Impact Assessment Study for the Revision of the Product Scope of the EU Timber Regulation

Commodity	Value of imports (EUR million)	Calculation of DDS based on	Costs of DD lower estimate (EUR million)	Costs of DD higher estimate (EUR million)
Coffee large traders (65%)	5,240	€15 k for each of the 35-45 large traders	0.525	0.675
Coffee rest of supply chain (35%)	2,821	similar proportion of import value as for wood	8.2	121.3
Coffee Total	8,061		8.7	122.0
DDS cost as % of coffee imports			0.11%	1.51%

With regards to the other commodities, a similar approach was not possible to undertake as information regarding the concentration of the supply chain was not made available by stakeholder associations. However, it is known that cocoa presents a supply chain structure fairly similar to that of coffee, while soy, beef and palm oil, present more decentralised supply chains, although not as much as that of the wood trade. For this reasons, for cocoa, the same percentages as for coffee have been applied to estimate the DDS costs compared to the value of imports. While for beef, soy and palm oil an average of the proportion assessed for wood and coffee is considered. As seen in the following table, these lead to the following estimation of due diligence costs for the importers of those commodities in being between €0.14-1.88 billon.

Table 8.30 Estimate of costs of due diligence based on EUTR and value of imports. Import values extracted from Comext, average of 5 years (2015-2019)

Commodity	Value of imports (EUR billion)	Cost of DDS as proportion of import value (Low)	Cost of DDS as proportion of import value (High)	Costs of DD lower estimate (EUR million)	Costs of DD higher estimate (EUR million)
Wood	24.53	0.29%	4.30%	71.137	1054.79
Beef	4.3	0.25%	2.90%	10.75	124.7
Cocoa	7.42	0.11%	1.51%	8.162	112.042
Coffee	8.06	0.11%	1.51%	8.866	121.706
Palm oil	5.01	0.25%	2.90%	12.525	145.29
Soy	11.13	0.25%	2.90%	27.825	322.77
Totals (excluding wood)	35.92			68.1	826.5

Totals (including wood)	60.45	139.265	1881.298

The approach taken to estimate the costs of due diligence for operators presents a number of uncertainties and limitations:

- It is based on EUTR due diligence which includes only legality. The deforestation-free definition is likely to add complexity to the due diligence process and thus lead to an increase of total costs.
- The same EUTR ratio is applied across the board to all commodities on the basis of import value, but it is likely that exercising due diligence for some commodities would be different (easier or more complex) than for wood depending on the complexity of the supply chain of each commodity and the number of organisations involved. There will also probably be significant differences depending on the levels of risk of deforestation in sourcing countries and the ease of collecting relevant information from these countries. The impact of this parameter on the estimation of the DDS costs can vary depending on the commodity and the most common countries of origin/production of the imported commodities. More aggregated supply chains lead to less costs while commodities originating from countries with higher deforestation risk lead to higher costs.
- The DDS requirement put forward in this Policy Option – considering the findings of the Fitness Check - varies from the approach taken under the EUTR, mainly in that a number of measures are proposed to facilitate compliance and would lead to lower costs for operators and competent authorities.

Although these elements introduce uncertainty in the calculations, the estimation provided is considered as the best estimate. Other attempts to estimate the costs of due diligence based on estimating the number of operators for each commodity showed a very high variability (as explained earlier sections) due to the lack of reliable data and were therefore discarded.

The exact costs at the Member States and trader level will vary depending on the country of establishment (due to labour costs), the complexity of the value chains that need to be audited and the number of commodities in scope each operator uses. The costs include setting up a due diligence process, evidence gathering, reporting and assistance to competent authorities in their performance of inspections.

There will also be **administrative costs for commodity producers,** as they will be required to develop systems to keep track of the required information by EU partners DDS. There may also be the additional cost of certifications or audits to comply with DD requirements. These are elaborated in the previous section on compliance costs for operators and traders as they are expected to be passed through the prices of commodities.

Economic impact on SMEs

The costs of compliance with DDS requirements varies across operators depending on a range of factors, with the most important one being, the structure of their supply chains (including the number and location of suppliers as well as the chain complexity, considering and the length of the chains and the number of suppliers involved). In general, although the EUTR Fitness Check concluded that DDS costs are manageable, in the occasions where the supply chain characteristics render the DDS costs more significant, SMEs are more likely to find implementation of DDS more challenging than larger organisations. This is especially the case as some SMEs may not have the capacity to comply with the DDS requirements. Producer SMEs and operator SMEs face different challenges in implementing DDS. Producer SMEs may face issues with switching to

sustainable production and proving that to operators and traders through certification or other means while operator SMEs are more likely to face challenges related to setting up and implementing a DDS.

Economic impact on operator SMEs

According to a study examining potential extension in the scope of the EUTR, operator SMEs in the EU constitute a significant majority of enterprises within sectors considered for possible inclusion into the scope of the EUTR: the share of SMEs is over 94% for most of the relevant sectors[601]. The 2016 evaluation of the EUTR found that 47% of companies incurred additional costs for developing and operating DDS[602]. Therefore, the new DDS requirement can be expected to affect a significant number of businesses, the majority of which are SMEs

As the costs of operating a DDS are estimated to be between 0.29% and 4.3% of the total value of the traded commodities, the level of investment required to comply with DDS requirements are likely to be manageable for both SMEs and larger businesses. However, a UNEP-WCMC study found that SMEs were more challenged to address the additional requirements given their reduced capacity in terms of overall turnover and staff availability[603,] hindering their capacity to adapt to new requirements. In the same vein, the 2016 Evaluation of the EUTR found that large companies seem to have been able to adapt better and more quickly to the new requirements than SMEs, which were in a disadvantaged position due to their low economies of scale and turnover[604].

Although pre-existing, voluntary due diligence undertaken by businesses can potentially reduce the economic and administrative burden of due diligence associated with widening the scope of the EUTR[605], a study on due diligence requirements conducted for the European Commission, identified that pre-existing DDS are more common in companies with more than 1000 employees (82% of the examined cases) in comparison to medium-sized companies (50 to 259 employees), where about 60% undertake due diligence[606]. This suggests that a larger proportion of SMEs would be unfamiliar, and therefore face some short of challenge associated to familiarising with implementing a DDS.

Such notions have been supported by responses to the EUTR and FLEGT Fitness Check OPC regarding the DDS experience with timber regulation. The responses to the OPC for the Fitness Check indicated that, in general, EU SMEs were expected to incur the greatest increase in administrative costs due to implementing the EUTR. This pattern of disproportionate impacts was also reported in interviews for the Fitness Check where CAs noted that the relative cost (of compliance) is not substantial for larger importers whereas smaller companies (which make up the majority of companies affected by the EUTR) are subject to a higher burden as they are likely to be unable to invest the time and economic resources needed compared to medium or large companies.

Overall, the costs induced due to the additional DDS requirements do not seem to be disproportionately high in most cases and do not seem to differ depending on the size of operators, however for operators running more extensive or complicated supply chains, these requirements might be more challenging for SMEs to handle compared to larger enterprises. This can in turn lead to indirect effects of the policy option such as the potential change in the scope of SME operations from operators to traders to avoid the most

[601] COWI A/S, Indufor & Milieu. (2019). Impact Assessment Study for the Revision of the Product Scope of the EU Timber Regulation. Brussels: European Commission. https://op.europa.eu/en/publication-detail/-/publication/fd26ad03-9895-11e9-b2f2-01aa75ed71a1/language-en

[602] TESAF, EFECA, INDUFOR. (2016). Review of the European Union's Timber Regulation. TESAF

[603] UNEP-WCMC. (2019). Insights from the implementation of the EUTR by operators. UNEP-WCMC

[604] TESAF, EFECA, INDUFOR. (2016). Review of the European Union's Timber Regulation. TESAF

[605] COWI A/S, Indufor & Milieu. (2019). Impact Assessment Study for the Revision of the Product Scope of the EU Timber Regulation. Brussels: European Commission. https://op.europa.eu/en/publication-detail/-/publication/fd26ad03-9895-11e9-b2f2-01aa75ed71a1/language-en

[606] BI ICL, CIVIC Consulting & the LSE. (2020). Study on due diligence requirements through the supply chain. European Commission https://op.europa.eu/en/publication-detail/-/publication/8ba0a8fd-4c83-11ea-b8b7-01aa75ed71a1

burdensome requirements of performing the DDS (expecting that traders can rely on the information collected by operators and traders to meet their DDS requirements). SMEs may also be at a higher risk of sourcing illegal forestry products because they might not have the expertise to implement an effective DDS and perform a detailed risk assessment and risk mitigation plan exposing them to potential enforcement penalties.

Economic impact on producer SMEs

When looking into the capacity of producer SMEs to respond to the DDS requirements and provide proof regarding their production processes, the experience of the EUTR is also a useful starting point. In the context of Indonesian private third-party verification of the legality of timber harvesting, the available evidence indicates that the costs borne by producer SMEs for certification can be perceived as prohibitive for SMEs to successfully participate to the scheme[607, 608, 609]. Producer SMEs (and especially micro-enterprises) are challenged to gather sufficient funds to certify their production due to a number of factors. First, the artisanal nature of tree growing practices on private land (as applicable also to other agricultural practices to be included under the extended product scope of this initiative) makes it challenging for smallholders to obtain a SVLK certificate[610]. Second, SMEs often source from a diverse and changing array of small producers, many of which do not verify their legality, while the enterprises themselves lack capacity to produce the detailed, long-term transaction records that certification requires[611]. Despite some state subsidies, economies of scale have SMEs at a disadvantage in achieving certification in comparison to larger operators and traders. In some cases, group certifications have been developed, and even supported by public authorities, as a response of SMEs to reduce the overall costs of certification. This can be expected to be a potential development following the implementation of this Policy Option, but as this requires advanced cooperation between SMEs, this cannot be expected to be the de facto producers' response. These indicate a potential drawback in producer SME competitiveness should they be required to certify their products and no actions are foreseen to support this process.

Businesses and business associations have also highlighted that a mandatory DD will have a disproportionate impact on SMEs[612]. This may vary amongst sub-sectors, depending on the market share of SMEs. A similar market share is observed for cocoa's products. Such diversity in the supply chain of this industry may make implementation of DDS more challenging. Meanwhile, representing timber operators and traders in the EU, the European Timber Trade Federation highlights that it represents 95% of SMEs importing timber into the EU, and has a significant interest in reducing the administrative burden that represent a significant challenge to the profitability of its members operations. Many businesses raise concern regarding the impact that mandatory DDS may have on SMEs while also indicating that a successful mandatory DDS framework must

[607] CIFOR. (2014). Timber legality verification system and the Voluntary Partnership Agreement in Indonesia: The challenges of the small-scale forestry sector. CIFOR https://www.cifor.org/knowledge/publication/5456/

[608] Maryudi, A., Nawi, A. A., Permadi, D. B., Purwanto, R. H., Pratiwi, D., Syofi, A., & Sumardamto, P. (2015). Complex regulatory frameworks governing private smallholder tree plantations in Gunungkidul District, Indonesia. Forest Policy and Economics, 59 1-6 https://www.sciencedirect.com/science/article/abs/pii/S1389934115300095

[609] Setyowati, A., & McDermott, C. (2017). Commodifying Legality? Who and What Counts as Legal in the Indonesian Wood Trade. Society & Natural Resources, 30:6 750-764 https://www.tandfonline.com/doi/abs/10.1080/08941920.2016.1239295?journalCode=usnr20

[610] Maryudi, A., Nawi, A. A., Permadi, D. B., Purwanto, R. H., Pratiwi, D., Syofi, A., & Sumardamto, P. (2015). Complex regulatory frameworks governing private smallholder tree plantations in Gunungkidul District, Indonesia. Forest Policy and Economics, 59 1-6 https://www.sciencedirect.com/science/article/abs/pii/S1389934115300095

[611] Setyowati, A., & McDermott, C. (2017). Commodifying Legality? Who and What Counts as Legal in the Indonesian Wood Trade. Society & Natural Resources, 30:6 750-764 https://www.tandfonline.com/doi/abs/10.1080/08941920.2016.1239295?journalCode=usnr20

[612] Holz-ETFF, Caobisco, Eurococoa, Ferrero, Icco, Worldcocoa, The European Coffee Federation, Brazilian Association of Animal Protein Ikea, BDSI, GAR Agriculture and Food and The European Tyre and Rubber Manufacturers' Association argue that SMEs are particularly vulnerable to sharp changes in legislation and administrative burdens.

create a level playing field[613]. Stakeholders' recommendation that the legislation should create a level playing field as well as expressing concern relating to the impact of a mandatory DDS on SMEs and small holders represents a challenge for implementation. In case SMEs cultivate multiple deforestation commodities, it might be that a single certification would suffice to cover both commodities regarding the DDS requirements, as long as there are certifications available that cover all the commodities cultivated. Such certifications can be expected to develop for regions for which the simultaneous cultivation of different deforestation commodities is often the case. Such multiple certifications may be expected to cost more but will probably cost less than separate certifications for both commodities.

Various NGO position papers also recognise that SMEs and smallholders could be disproportionately affected by the impact of the improved DDS[614]. As for responses to OPC, a total of 9 respondents (from a total of 33, 27%) stated that they thought due diligence costs were disproportionate particularly for small companies. The position taken by a group of major conservation stakeholders as elaborated in their interview demonstrated they are concerned about the impact of DD on smallholders[615]. As mentioned above, the NGOs differentiate between an SME's versus a smallholder's ability to absorb the financial and administrative burden associated with due diligence. The NGOs argue the financially precarious position of smallholders means that support outside of the legislation will be essential to help smallholders fulfil requirements[616].

Trade implications

The DD requirement for only placing products of minimum deforestation risk on the EU market will lead to a decrease in the volumes of commodities placed on the EU market that are imported from high-risk producers. It is possible that part of this transition will involve replacing suppliers from high-risk producers with lower-risk suppliers marking a shift in the EU trade patterns for specific commodities. The improved DDS could also lead to a change in EU consumption volumes of some high-risk commodities in favour of substitute, lower-risk commodities for example, a portion of the palm oil currently used in the EU could be substituted with other vegetable oils with lower risk-profiles, or the use of wooden furniture could be replaced with that of metal or composite ones.

Operators and traders not complying with the deforestation-free definition production practices may re-orientate their production towards third countries without similar requirements (e.g., China). Operators and traders will have an incentive to continue with non-compliant practices, exporting to countries with less strict import requirements, where switching to compliant practices requires high capital and operational expenditure to undertake. For example, in the context of timber production, feedback received from the EUTR and FLEGT Fitness Check OPC indicated the view that additional costs of due diligence and the compliance costs required by producers to provide the relevant information can be a moderate barrier to trade. The implications of the additional cost associated with due diligence were examined in a study of 330 "timber actors" in Indonesia and Ghana across local and national levels of timber production and governance . The study's results confirmed that trade diversion was a genuine issue and identified several reasons motivating timber actors to shift exports from Europe to Asia and other African countries. Notable reasons

[613] Cocoa Forests initiative, European Cocoa Association, International Cocoa Organisation, FEDIOL and COCERAL, GIZ, Nestle and the Round Table on Responsible Soy

[614] The Wildlife Conservation Society, Global Canopy, Fern and The Initiative for Sustainable Agricultural Supply Chains all suggest that SMEs and small holders should be supported in the case that the EU implemented MDD or labelling systems.

[615] Stakeholder interviews with Client Earth, Environmental Investigation Agency International, Greenpeace and the Worldwide Wildlife Fund

[616] Stakeholder interviews by Client Earth, Environmental Investigation Agency International, Greenpeace and the Worldwide Wildlife Fund

included the cost of complying with due diligence process of the EUTR, which was described as cumbersome and bureaucratic[617].

In stakeholder interviews, several businesses, governmental and not for profit organisations argued that changes made on the demand side, in isolation of policies to address deforestation in high-risk areas will lead to trade diversion or leakage[618]. Businesses position papers both refer to the threat posed to effective functioning of legislation to reduce deforestation by leakage. An interviewed timber operator supported this argument cautioning that sustainable products may be diverted elsewhere if more stringent DDS requirements come in place (e.g., China where there is less regulation). An agricultural company argues that leakage markets should be addressed via a compensation mechanism similar to the mechanism used by the RSPO to allow operators and traders to reforest and take other actions so they can be reintegrated into the supply chain.

Sectoral competitiveness

The impact of the deforestation-free requirement on the cost of production for high-risk producers (usually based in high-risk countries), combined with the impact of the DDS on the administrative costs, which as we saw can be more significant for operators and traders sourcing products from outside the EU, may lead to an eventual increase in the costs of commodities, currently produced with high-risk practices and placed in the EU market.

In increasing the costs of these commodities, the industry sectors using them as inputs may become less competitive in exporting their products to third countries, compared to industries established in countries not subject to such requirements. The increase in price could impact the operators and traders proportionally to the value of the commodities in scope compared to the total sector inputs. Such an impact on competitiveness will only affect competition for third country markets as it is assumed that the policy option will develop a level playing field within the EU market.

In contrast, a positive impact would likely be felt by operators and traders producing the commodities that are compliant with the deforestation-free definition. They main gain a competitive advantage, as they will not face the same increased costs as non-compliant operators and traders and will thus see an improvement in their competitive position.

Functioning of the internal market and competition

Even implementation will hinge on clear definitions and consistent interpretation. In their position papers, businesses indicate that due diligence systems are currently defined and implemented differently by Member States, meaning that companies that operate in several Member States have to develop separate processes for each MS which leads to greater costs. Their papers advocate for greater resources to be given to Member State CAs in order for them to ensure that operators and traders are audited, and that due diligence systems are applied in a harmonised way- reducing the requirement to rely on burdensome paper trails to prove traceability. According to the EUTR and FLEGT Fitness Check OPC evaluation roadmap, some stakeholders also highlighted issues with the interpretation of due diligence by Competent Authorities.

The measures included in the policy option will improve enforcement practices and effectiveness across EU Member States. There will likely be a positive impact of increased clarity for inspection requirements due to the publication of common guidance on the information and processes that the operator's DDS will be required to comply with. Furthermore, sharing of best practices and a database of legal cases could provide

[617] Acheampong, E., & Maryudi, A. (2020). Avoiding legality: Timber producers'strategies and motivations under FLEGT in Ghana and Indonesia. *Forest Policy and Economics*, 111 102047 https://www.sciencedirect.com/science/article/abs/pii/S1389934118304441

[618] The Brazilian government, Eurococoa, the Cocoa Forests Initiative, the European Cocoa Association, the International Cocoa Association, European Livestock and Meat Trading Union, FEDIOL, Forest Peoples Programme, Fern, Nestle and the Indonesian government.

clarity to enforcement authorities on when they can prosecute a case and thus allow them to step up their enforcement. Enforcement improvement could also lead to a reduction in the differences in regulation implementation between Member State and support a level-playing field for operators and traders established in different Member States.

Impact on consumers

The primary impact of an improved DD on consumers could be an increase in prices for various commodities due to an increase in operating and administrative costs (addressed earlier). The impact of voluntary social and environmental certifications on prices of commodities could be used as an indicator of the impact that due diligence requirements might have on the cost of commodities to consumers. Studies of Fair Trade-certified products demonstrate that certified producers receive higher prices than conventional farmers for their products, with various studies showing a positive correlation between fair trade and higher prices, translating into prices of certified coffee between 200 to 265 Euro/tonne higher than non-certified coffee[619]. A Global Timber Forum's study also estimated that producers received a 5-10% price premium for being able to provide assurance that all of its exports were from legally harvested timber[620].

Drawing from the DDS experience of the EUTR regulation, it can be seen that the majority of respondents to the EUTR and FLEGT Fitness Check OPC (40 out of 53, 75%) did not see any impact on product prices as a result of the EUTR implementation. Another (smaller) group of respondents (7 out of 53, 13%) identified either a decrease in costs or a change unrelated to the EUTR DDS implementation something supported also by written feedback received from businesses regarding the impact of the EUTR requirements on consumer prices.

These points that it can be expected that the DDS introduction may either lead to a negligible cost implication for consumers, or a cost premium for consumers, which at least) some might be willing to pay should the products placed in the EU market be certified for their environmental performance.

Public authorities

Costs for authorities will be created through a number of foreseen consequences of the measures introduced through the new legislative instrument. In the following, the cost implications for individual Member States and the EU are presented.

Member States inspection burden and factors influencing costs

Mandatory due diligence will increase the administrative burden for Member States to enforce and report to the EC on implementation of the regulation. The added burden will largely be due to the logistical demand created by a larger DDS scope of products, new information dissemination and enforcement activities, including: creating knowledge exchange platforms with other EU Member States, preparing and disseminating guidance for operators and traders in local languages and developing linking systems of referencing commodities import and linking them to individual DD systems.

There will also be other factors impacting the cost to different Member States:

- **Implementing stringent and mandatory due diligence will increase the demand for the number of inspections and the volume of commodities checked**. Under the current Regulation, Member State CA checks of operators consist of desk-based checks, document review on site, product inspection on site or document and product inspection on site (UNEP-

[619] Dragusanu, R., Giovannucci, D., & Nunn, N. (2014). The Economics of Fair Trade. The Journal of Economic Perspectives, 217-236 https://www.aeaweb.org/articles?id=10.1257/jep.28.3.217

[620] Global Timber Forum. (2015). GTF Supplier and Consumer Due Diligence Analysis. Retrieved 10 08, 2020, from https://www.gtf-info.com/wp-content/uploads/2015/09/gtf-supplier-and-consumer-due-diligence-analysis.pdf

WCMC, 2017; 2018; 2019; 2020a). While Italy and Sweden stated that checks covered 10% of all operators in 2020 and 2018 respectively, Latvia checked 60% in 2017, and Germany checked 80% of all imports[621] in 2020. However, limited conclusions can be drawn from these insights on the inspection standards of Member States. This is because the volume of imports covered is not equivalent to the number of checks. For example, it could be that a smaller volume of checks may be covering small and risky importers.

- **The costs to implement inspections varies between Member States due to differences between enforcement procedures and can be expected to rise for Member States that will need to improve the quality of their inspections.** The EUTR Fitness Check found that the proportion and quality of checks is not consistent across Member States and thus it can be expected that in the event of a common standard being introduced, some MS would need to improve their processes and thus potentially father additional costs. Confirming the compliance of commodities placed on the EU market with the deforestation-free definition may require more elaborate examination and assessments of the documentation supporting products, which would also increase costs. Furthermore, increases in the standards of checks is likely to raise the number of enforcement cases that will need to be addressed requiring additional funding and support.

- **The costs will vary between Member States due to differences between type of checks conducted between Member States.** The Fitness Check found that ratio between desk based and in-person checks varied between Member States, with Bulgaria reporting that approximately half of the checks are desk-based, Italy reporting that all checks are in person, and Germany reporting more checks in person (UNEP-WCMC, 2017; 2018; 2019; 2020a). This is another consideration that will impact the costs shown in this analysis, as desk-based checks are less costly than in person checks.

- **Costs will hinge on the human resources earmarked by each Member State for implementation and enforcement.** The EUTR fitness check also showed combined human resources for EUTR implementation and enforcement ranged from 0.125 Full-Time Equivalent (FTE) staff in Luxembourg, to as many as 601 FTE equivalent staff in Italy[622]. Overall, the majority of EU Member State had less than 10 FTE available for implementation and enforcement of EUTR. Belgium, Denmark, Finland, Ireland, Malta, the Netherlands and Belgium have between 2 to 3 FTE each. WWF highlight the ratio of FTE to the number of employees (between 1,200 – 5,000 operators and traders per FTE) suggests competent authorities are severely understaffed[623].

Additionally, as recommended by this Option, developing a risk-based approach for inspections will also require some capital expenditure. MS will also have to account for the costs of inevitable litigation costs to pursue non-compliant operators and traders in the courts.

The current EUTR due diligence system costs to Member States can be used as a useful indicator of the likely costs an improved due diligence system may incur, as many of the processes can be assumed as broadly similar. However, given the increased scope of the improved due diligence system, a key difference will be the number of operators and traders covered by the scope of the new regulation. This is likely to impact Member State costs due to the need for increased checks for monitoring and enforcement, and therefore increased number of staff and hours dedicated to due diligence. This change in scope is used in the calculations for the costs.

[621] Imports below 25,000 EUR are not checked.
[622] This figure is likely to also include customs personal or other supporting staff
[623] WWF. (2019). *WWF Enforcmeent Review of the EUTR.* European Union

To conclude, it must be noted that although the aforementioned factors illustrate that Member State differences in enforcement processes will have an impact on the real costs incurred of implementing a harmonised enforcement process, these cannot be accurately captured. The Fitness Check highlights that some Member States are not undertaking sufficient enforcement, undertaking different types of checks, or overstating costs, whilst others are going above and beyond what is required. Improving the quality and number of inspections conducted by lower-performing Member States will impact the actual overall costs, however we are unable to pinpoint *which* Member States are not undertaking sufficient checks, nor *by how much* as there is no unified approach on which MS inspection performances can be judged for the adequacy. Nevertheless, what can be determined is that under the new DDS, costs will be higher both due to the increase in product scope and that in some cases implementation / enforcement in some MS will be improved to ensure consistent implementation across Member States.

Based on this rationale the estimated costs have been calculated, with the caveat that not all Member States differences will be truly reflected, and the costs may be even higher if current enforcement is underreported / not sufficient[624].

Calculation of improved DDS costs for Member State

In the EUTR Fitness Check, interviewees confirmed that the CA costs for the EUTR implementation depends on the number of operators and traders within a specific country. As an example, Germany has a large number of importing operators and traders, between 20,000 and 30,000, which requires about 15 FTE. Recent analysis published in 2019 on EUTR implementation using information from Biennial Reports published by Member States in the period 2017-2019 compares the human resources available for the implementation of the EUTR[625]. This is shown in the table below.

[624] Note: There is also the possibility that the uptake of more best practice targeted risk-based inspection practices may eventually lead to a reduction of the number of checks (and reduce costs), whilst leading to more effective enforcement.
[625] UNEP-WCMC. (2020). EUTR Analysis 2019: Background analysis of the 2017-2019 national biennial reports on the implementation of the European Union's Timber Regulation (Regulation EU No 995/2010). Retrieved from https://ec.europa.eu/environment/forests/pdf/EUTR%20Analysis%202017-2019.pdf

Table 8.31 Human resources available for the implementation and enforcement of the EUTR for domestic and imported timber, by country. (FT: full-time staff; PT: part-time staff. Square brackets contain the combined total staff time dedicated to the EUTR, as a full-time equivalent[626]

Country	Domestic timber	Imported timber	Total FTE s	Other relevant information
Austria	FT: >94 [1]; PT: 0*	FT: 3 [1]; PT: 0	2	Number of FT staff on imported timber will increase to 4 [2]
Belgium	FT: 4 [2]; PT: 0		2	From 01/01/2019, the number of FT staff increased to 5 [3]
Bulgaria	FT: 0; PT: 18 [6]		6	
Croatia	FT: 3 [1*]; PT: 1 [0.33*]		1.3	
Cyprus	FT: 0; PT: 22 [4]		4	
Czech Republic	FT: 51 [20]; PT: 0		20	
Denmark	FT: 3 [2]; PT: 0		2	
Estonia	FT: 9 [2]; PT: 0		2	
Finland	FT: 4 [2]; PT: 0		2	
France	FT: 6.5 [6.5]; PT: 0	FT: 2.8 [2.8]; PT: 0	9.3	
Germany	FT: 21 [12.4]; PT: 4 [2.68]		15.1	
Greece	FT: 40 [20]; PT: 2 [1]		21	
Hungary	FT: 12 [12]; PT: 1 [0.5]		12.5	
Iceland	No national report submitted			
Ireland	FT: 3 [2]; PT: 1 [0.25]		2.3	
Italy	FT: 0; PT: Unspecified [601]	FT: 0; PT: Unspecified [63]	6.73 (other MS average used)	Staff/time are considered adequate at the regional level. There are shortages of staff at central level. The 601 value is assumed an outlier.
Latvia	FT: 401	FT: 1; PT: 3	0	
Liechtenstein	No national report submitted			
Lithuania	FT: 92 [15]; PT: 0		15	
Luxembourg	FT: Unspecified [0.125]; PT: 0		0.125	
Malta	FT: 4 [2.5]; PT: 0		2.5	
Netherlands	FT: 10 [2]; PT: 0		2	Priorities on allocation and dedication of personnel are based on risk assessment

[626] UNEP-WCMC. (2020). FLEGT ANALYSIS 2018 - Background analysis for the 2018 annual synthesis report on implementation of the FLEGT Licencing Scheme under Council Regulation (EC) No 2173/2005. Brussels: European Commission. Retrieved from https://ec.europa.eu/environment/forests/pdf/FLEGT-regulation-reports/FLEGT%20annual%20synthesis%20background%20report_2018.pdf

Country	Domestic timber	Imported timber	Total FTE s	Other relevant information
Norway	FT: 0; PT: 1 [0.1]	FT: 1 [1]; PT: 3[1]	2.1	
Poland	FT: 45 [9]; PT: 0		9	
Portugal	FT: 0; PT: 39 [9.6]		9.6	
Romania	FT: 11 [11*]; PT: 0		11	
Slovakia	FT: 12 [12]; PT: 2 [1]		13	Number of FT staff was expected to increase to 30 [30*] in 2019
Spain	FT: Unspecified [2]; PT: Unspecified [134.6]		6.73 (other MS average used)	The high 134.6 value is assumed an outlier.
Sweden	FT: 0; PT: 2 [0.5]	FT: 1 [1]; PT: 2 [1]	6.73	

Estimated overall costs of EUTR for CAs are shown in the table below. This shows the total number of FTEs across the EU is 182 and based on an average wage across Member State in the EU of 40,000 Euro per year, the total costs of EUTR compliance for Member States CAs is approximately 7.3 m EUR per year. This cost is comparable to the total cost of EUTR compliance reported for Member States CAs in the 2016 evaluation of the EUTR, which provided a range of €20,000 - 466,000 Euro per year, depending on the Member States[627]. This corresponds to an approximate cost per Member State of €243,000, and results in total costs for the EU of €6.8 million.

Table 8.32 Estimated total costs incurred by Member States for EUTR

Total number of FTEs	Average wage per annum	Total cost of EUTR for CAs	Comments
182	€ 40,000	€ 7.3m	Calculations based on (UNEP-WCMC, 2020)[628]
-	-	€ 6.8m	Calculation based on 2016 EUTR Evaluation (European Commission, 2016).

It is assumed that the resources required from Member State public authorities to enforce and monitor the implementation of a Regulation covering an expanded scope of commodities are proportional to the total value of imports of each commodity. Extrapolating from the EUTRE-induced costs and accounting for the total value of wood imports regulated by the EUTR, the expansion of the scope will lead to the need for around 449 FTEs of additional human resources for Member States as seen in the table below. When calculating the cost for expanding the scope of the regulation to other commodities, an average annual wage of € 40,000 per FTE has been used (based on the findings of the Fitness Check on the EUTR). This results in a total cost of approx. €18 million for all Member States and commodities.

[627] European Commission. (2016). Evaluation of Regulation EU/995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the obligations of operators who place timber and timber products on the market (the EU Timber Regulation)

[628] UNEP-WCMC. (2020). FLEGT ANALYSIS 2018 - Background analysis for the 2018 annual synthesis report on implementation of the FLEGT Licencing Scheme under Council Regulation (EC) No 2173/2005. Brussels: European Commission. Retrieved from https://ec.europa.eu/environment/forests/pdf/FLEGT-regulation-reports/FLEGT%20annual%20synthesis%20background%20report_2018.pdf

Table 8.33 Estimated total resources needed (FTE) and costs (Euro) incurred by Member States under Policy Option 1

Commodity	Total import value (€ billion)	Enforcement resources needed (FTEs)	Enforcement costs (€ million)
Wood	24.53	182	7.28
Beef	4.3	32	1.28
Cocoa	7.42	55	2.20
Coffee	8.06	60	2.39
Palm Oil	5.01	37	1.49
Soy	11.13	83	3.30
Total (excluding wood)	35.92	267	10.66
Total (including wood)	60.45	449	17.94

Expecting a similar cost per FTE of resources the total costs for EU Member States the new commodities coming under the scope of the regulation are calculated to be € 18 million[629]. For wood products, we estimate no change in the resources deployed to enforcement as there is no specific measure taken in the direction of changing the product scope under the current policy option (beyond the difference in the definition of the DDS goal from a legality-based to a deforestation-based approach). In this policy option the cost implication is expected to be on average €670,000 for each Member State authority although the distribution between Member States will be proportionate to the number of operators and traders in each. However, this calculation should be viewed with caution, given the EUTR implementation may include other activities not directly replicable in case of an increased scope.

EU level

The policy option will also likely generate administrative costs to the EU, for the implementation of actions at an EU level. These are linked to applying measures meant to support the effective implementation of the regulation.

Depending on the deforestation-free definition chosen, there might be additional costs related to the classification of which areas the definition will be applicable and which not. Determining DDS criteria will **require maps to be developed at a country/regional level** to distinguish which areas will be classified as forests and thus protected from degradation/deforestation. This mechanism will need to account for the cut-off date, meaning there will also be a cost for acquiring/developing relevant data from the past.

There will also be costs associated with **developing guidance for DDS for Member States and operators and traders** regarding DDS requirements. Six stakeholders responding to the EUTR and FLEGT Fitness Check OPC stated that a centralised database containing relevant information (e.g., on operators and traders, species harvested, legislation and risks in third countries, forest concession and harvesting permits etc.) should be developed to help reduce the effort and uncertainty when performing DD activities. In order to

[629] Likely an underestimate

have an effect, guidance must be effectively communicated and translating technical documentation into national languages will also incur a cost. This impact has been identified in responses to the OPC. Stakeholders identified as the main issue to developing DDSs to be language barriers in communicating with third countries and translating documentation and guidance into the national language of the EU Member State. Specifically, the majority of respondents (66 out of 85, 78%) described this as either a moderate or significant barrier. **Publication costs** will also be incurred following translation of the guidance. It must be noted that as the design of the guidance will incorporate lessons learnt from the fitness check of the EUTR and FLEGT Regulation, this improved guidance will likely overcome to some extent, certain issues associated with implementation of the existing EUTR DDS.

An additional measure aiming to support Member States in their implementation of the regulation is the provision for developing and updating the **database of relevant legal cases** and their outcomes to inform those lists, will also incur a cost. The development of the database will require some IT investment depending on the functionalities of the database which could range from a simple on-line repository of the results of cases, to including advanced searching functions. A database at an EU level will require some ability to communicate with national systems to ensure its effectiveness. The development of the database will also require spending some time to develop/adjust input material. The maintenance of the database and its update with information from new legal cases will lead to a small but ongoing operating cost in the form of effort put in developing and uploading new material. Setting up EU central systems that communicate with national systems is not unique to environmental data. In 2019, in its report to the European Parliament and Council in 2019, the Commission examined costs for setting up central registries and the cost of set up was estimated at approximately €2 million, with annual maintenance of costs of €150,000. Participation of each Member State in this system is approximately €20,000 per country. The costs of establishing and maintaining an electronic interchange system for waste shipment data using in-house IT services have also been assessed with establishment costs ranging from €450,000 - € 1,700,000 (depending on system type). An average of establishment cost of such a system being € 1,170,000 with annual maintenance cost of € 164,333. It can therefore be assumed the Commission will have to account for costs in this region.

Another support measure by the Commission includes the development of detailed **assessments of countries and subnational regions** considered to have credible risk that illegal deforestation is occurring. These lists will need to be published to facilitate the risk assessment actions of DDS operators and traders. Lists containing specific commodities production country risks will be required to be developed and regularly updated for this action. The EU is likely to face the cost of gathering, compiling, and updating the data and information required to inform the country level lists. For example, there will be costs associated with obtaining relevant information. This may be challenging according to responses to the EUTR and FLEGT Fitness Check OPC. The difficulty in obtaining information from third countries, and the difficulty collecting the necessary information and documentation were seen as moderate barriers. Member States have expressed that GIS/satellite data could be harnessed to aid implementation and reduce these costs. The exact costs of this action will develop on whether this assessment will be limited to the most important importers for each commodity, whether it is going to be limited to countries with considerable deforestation risks or if this is going to be expanded to all countries, in which case a specific study will need to be developed for each country.

Furthermore, it is likely that the scope of selected commodities will need to be reviewed by the EU (~every 3 years). In stakeholder interviews, there was agreement among the businesses, governmental and not for profit organisations that there is a need for a broader definition of ecosystems vulnerable to deforestation than only forests[630]. This reviewing process will also incur an additional cost.

Finally, there will be costs associated with the **operation of expert groups supporting Member State enforcement**, which includes exchange of information on effective CA training sessions and exchange of

[630] The Brazilian government, the Forest Peoples Programme, Nestle and the Indonesian Government. Academics from Oxford University, Chalmers University of Technology and the University of Tilburg, the Forest Peoples Programme, Nestle, RTRS, WWF, DG JRC, and ETRMA.

best practices, as well as the cost of operating a platform for interaction with third countries. Although the costs will depend on final decisions about the expert group, costs could be comparable to the costs incurred by expert group support to the implementation of the FLEGT Regulation, which are estimated at €30,000 per annum[631].

Costs to third countries

The policy option may lead to an increase in costs for the national governments of third countries that participate in a knowledge sharing and administrative platform with the EU. In position papers and in stakeholder interviews the majority of stakeholders argued that additional costs should not be borne by the governments of third countries[632].

8.5.4 Social impacts

Governance, participation and good administration

The policy option is expected to cause an indirect impact on the governance of forests in third countries as a result of the increased need to reduce the risks associated with commodity production in order to comply with the EU deforestation-free definition. This may include more efficient operation of public authorities, better forest protection, participation of local communities, combating corruption etc.

Employment

The policy option is expected to impact the competitiveness of specific sectors and more specifically of specific operators and traders within these sectors. The competitiveness impact will result in the creation of new jobs in operators and traders applying low-risk production processes, and a loss of jobs for operators and traders applying high-risk production processes. New jobs will likely be created related to meeting the DDS requirements for operators and traders placing products in the EU market (certification organisations, DD service providers, internal administrators for operators and traders etc.). In practice the additional administrative costs calculated are likely to be translated to a large extend in additional employment within the operators and traders handling each commodity. This creation of additional jobs has also been identified in the EUTR and FLEGT Fitness Check OPC. One company/business organisation stated that additional jobs have been created due to the implementation of the EUTR due diligence. However, others stated that the costs of due diligence systems outweighed benefits derived.

8.6 Option 2 – Benchmarking

8.6.1 Overview of policy option and key impacts

The policy option is that described in Section 7.5. This measure requires a higher-level due diligence (enhanced regime) from operators and traders importing to the EU from producer countries considered 'high-risk' for the commodity imported. Operators and traders importing from 'low-risk' countries are required to comply with a simplified level of due diligence. Combining mandatory due diligence with a benchmarking system will increase the effectiveness of the implementation and enforcement of the option.

[631] FTE value provided by the European Commission on FLEGT and EUTR and assuming a standard average Commission wage of €60,000 per annum

[632] The Brazilian government, the Cocoa Forests initiative, the European Cocoa Association, the International Cocoa Organisation, RSPO, Nestle, Indonesia,

This section presents the main expected impacts from the implementation of this policy option and elaborates on the causal links between the implementation of the actions and their expected effect. We provide an overview of relevant evidence to substantiate this analysis.

8.6.2 Environmental impacts

Quality of natural resources – deforestation and forest degradation

Option 1 estimates that the due diligence measure will be able to prevent a potential of **74,540 ha of deforestation annually** in 2030 when the implementation of the Policy is expected to reach its full potential. It is assumed that the combination of 'high-risk' and 'low-risk' due diligence systems will provide the same coverage of operators and traders and be as effective as Option 1 in relation to environmental protection. When due diligence is then combined with benchmarking, it is assumed to deliver a higher level of environmental protection to improved due diligence alone with a 45% effectiveness. Therefore, Option 2 is assumed to result in more environmental benefits than Option 1 and up to **111.8 kh of annual deforestation**.

For countries determined as 'high-risk' from benchmarking, stakeholders are assumed to seek to move to being 'low-risk' through increasing environmental protection associated with the benchmarking criteria. This is due to the lower costs associated with complying with 'low-risk' due diligence (further described below) acting as an incentive. For countries already in the 'low-risk' category, less incremental environmental protection will occur as benchmarking criteria are already being met for 'low-risk' due diligence requirements.

The option of benchmarking received a high level of support in the OPC, with 55% of respondents rating it as either 4 (somewhat suitable) or 5 (completely suitable) out of 5 to address the issue of deforestation and forest degradation associated with EU consumption.[633] Benchmarking was also reported to be effective in terms of halting and reversing EU and global deforestation by OPC respondents. 51% scored the measure either a 4 (somewhat effective) or 5 (perfectly effective) out of 5.

Biodiversity

The reduction of deforestation estimated as a result of this policy option will lead to improved preservation of the natural habitats of (endangered) flora and fauna species. This impact will occur due to the fact natural habitat preservation often leads to a decrease in biodiversity loss in line with the findings presented earlier in Section 8.2.1.

Climate

The implementation of the policy option is expected to reduce emissions of greenhouse gases related to deforestation and associated with products placed on the EU market due to the requirement to comply with due diligence requirements. It is expected that this policy option will have higher effectiveness than Policy Option 1 and with 45% effectiveness. There is the potential to prevent around **49.1 MtCO2 emissions annually** in 2030 when the implementation of the Policy is expected to reach its full potential.

Sustainable production and consumption (awareness raising)

Benchmarking facilitates information transfer to the public as well as stakeholders such as researchers, NGOs and policy-makers on 'high-risk' countries and associated commodities. Forest 500 by Global Canopy ranks

[633] Note that the OPC survey asked about the measure: "Build benchmarking or country assessments (e.g., index) showing which countries are exposed to and effectively combat deforestation or forest degradation for information purposes"

the 500 biggest companies and financial institutions in six commodity supply-chains and presents this on an online platform. Forest 500 holds companies and financial institutions accountable for their actions.[634]

8.6.3 Economic impacts, including administrative burden

Operating costs and conduct of business

This option is expected to have the same impacts as Option 1, with regards to a change in compliance costs for operators and traders placing products on the EU market. The analysis of impacts in Option 1 are therefore relevant for the 'high risk' due diligence requirements (assumed to be the same as Option 1 due diligence) but may differ for meeting the 'low risk' due diligence requirements.

Two markets would be created from benchmarking; one for commodities from 'high-risk' countries and one for commodities from 'low-risk' countries, and changes in business practices to comply with either the 'high-risk' or 'low-risk' requirements could result in additional costs for producers, with a greater increase in costs expected with compliance with the 'high-risk' requirements. However, evidence for this could not be identified.

It is assumed that commodities and products from 'low-risk' countries will experience greater demand as EU operators and traders source commodities and products from partners complying with the 'low-risk' due diligence requirement. This will likely increase the price compared to commodities and products from 'high-risk' countries. An increased price in commodities may also occur due to EU operators and traders needing to adopt more sustainable practices, which are more expensive. As detailed in Option 1, the production of goods in line with a deforestation-free definition is likely to lead to increased production costs for producers.

Regarding the benchmarking measure, Impact Assessment OPC respondents reported that benchmarking on its own would mostly not change the costs of operation for companies/businesses. 39% (N=54) reported that there would be no change in operating costs, 20% reported there would be either a minor or significant increase in costs, and 9% reported either a significant reduction or minor reduction in costs of operation. Results from companies/businesses in Member States only, 37% (N=38) responded there would be no change in operating costs, 16% reported there would be either a minor or significant increase in costs and 24% reported there would be a significant or minor decrease in operating costs. It is important to note that these questions focused on benchmarking only, rather than benchmarking combined with a due diligence system. Results from the OPC on the due diligence system are presented in Policy Option 1 and are relevant here.

Administrative burden

As a result of benchmarking, operators and traders placing scoped commodities and products on the EU market from producers categorised as 'high-risk' are assumed to have a greater administrative burden than operators and traders which source from producers categorised as 'low-risk'. This is due to the difference in due diligence requirements that are being associated with the categorisation. As with Option 1, costs will likely include those relating to DDS set up, updating, operation and the outsourcing of costs with both the 'high-risk' and 'low-risk' DD requirements.

For commodities or countries that are classified as high risk, the normal improved due diligence requirements will apply. For those classified as 'low risk' a simplified due diligence version will apply with less requirements (i.e., Not duplicating information already gathered at EU level)

Estimated costs of Option 2 distinguishing intra and extra EU traders and operators and traders are presented in the table below.

634 https://forest500.org/

The first cost relates to a tiered due diligence system, with the level of due diligence dependent upon the results of benchmarking of third countries. In this respect the costs for such tiered due diligence have been derived from the same sources as for Option 1. The 'enhanced' due diligence would be the same as Option 1, the 'simplified' due diligence would assume lesser costs for the Member States based on a reduction of 50% for illustration purpose. The resulting costs used for the purpose of this Option are shown in the table below and are based on import values extracted from Comext and applied in Option 1.

Table 8.34 Costs of DDS – tiered approach (cost in EUR per operator / trader)

Operator or trader type	Cost of enhanced due diligence € (% of commodity value in brackets)	Cost of simplified due diligence € (% of commodity value in brackets)
Domestic (including intra-EU) operator	1,000 – 10,000 (0.29% - 4.3%)	500 – 5,000 (0.15% - 2.15%)
Importing operator (extra-EU)	1,000 – 10,000 (0.29% - 4.3%)	500 – 5,000 (0.15% - 2.15%)

The total amount of administrative costs for all commodities involved in the improved DDS is estimated to amount to be between €111 million and €1.5 billion. The total administrative costs for all commodities involved in the simplified DDS is estimated to be between €14 million and €188 million. The total costs combined, therefore, would be between €125 million and €1.693 billion.

Operators and traders which already source from countries that are 'low-risk' and already meet the associated due diligence requirements are expected to experience little additional administrative burden. Operators and traders in 'high-risk' countries will experience an increase in administrative burden. However, due to limited evidence available on the application of having two different due diligence systems, this impact cannot be confirmed.

As with Option 1, there will also be administrative costs for commodity producers.

This study assumes that this will facilitate costs savings for operators and traders, as criteria will be clearly set out by the European Commission. In the draft conflict minerals regulation, the provision of an equivalent green list is considered to make the task of due diligence easier, and therefore increases the likelihood of regulation support by companies.[635]

Some additional insight was provided in targeted interviews, including guiding principles in benchmarking will assist operators and traders placing products on the EU market with designing their due diligence systems, and that if the benchmarking is set up in a similar way to the Money Laundering Directive (Directive (EU) 2015/749), the Commission's evaluation of risks at a country or sub-national level would provide binding guidance to operators and traders undertaking due diligence, as well as to competent authorities and legal bodies evaluating the results from the due diligence undertaken by operators and traders.

A list of contravening operators and traders will also need to be kept. Bager et al. (2020) assessed the development of a list of supply-chain operators and traders not conforming to sustainable criteria. Such option scored 'high feasibility' for institutional complexity and cost, when assessing its political feasibility. The policy scored a 'high feasibility' overall. The development of a list of suppliers who demonstrate and adhere to best practices for sustainability was also analysed, scoring 'medium feasibility' overall.

635 https://www.fern.org/fileadmin/uploads/fern/Documents/Developing%20EU%20measures_0.pdf

Economic impact on SMEs

As with Option 1, the introduction of a new DDS requirement has the capacity to disproportionately impact SMEs. The position of SMEs and small-holders in Option 1 are also relevant here, including their experiences with the EUTR.

Economic impact on operator SMEs

It is expected that SME operators and traders complying with the 'low-risk' DDS will face less of an economic impact than those complying with the 'high-risk' DDS. Operators and traders that are SMEs located in the EU importing from producer countries would also be able to import from 'low-risk' countries to reduce their administrative burden. SMEs located in third countries exporting to the EU would be able to do the same.

As outlined in Policy Option 1, a study looking at a possible extension of scope of the EUTR indicates that a new DDS requirement can be expected to affect a significant number of SMEs in the EU. A larger proportion of SMEs may also be unfamiliar with due diligence and experience challenges in the short-term. Whilst costs for the additional DDS requirements do not appear to differ depending on the size of operators, requirements may be more difficult for SMEs to handle than larger enterprises, resulting in indirect effects for SMEs.

Having a two-tier DDS system under Policy Option 2 may allow for some reduction in administrative burden due to a lower level of DDS needing to be complied with for those SMEs sourcing from 'low risk' countries. However, overall, it can be expected that operator SMEs will still face disproportionate economic impacts.

Economic impact on producer SMEs

Smallholder farmers in producing countries may be disproportionately affected by the additional requirements and unable to meet these, particularly if they are located in a 'high-risk' country. As with Option 1, this impact could be mitigated by adopting simplified requirements for or even excluding smallholders. Stakeholders in the targeted interviews thought that support for producers and producer countries can assist with mitigating risks that smallholders are side-lined, as well as other vulnerable groups. SMEs and smallholders were distinguished between by NGOs, with support essential for smallholders to fulfil requirements.

Policy Option 1 outlines the economic impact on producer SMEs in terms of competitiveness as well as how the market share of SMEs in their respective commodities impacts the feasibility of implementing a DDS. Additionally, where SMES have multiple commodities requiring DDS to be undertaken, there may be the possibility to streamline DDS requirements, although supply-chain analysis may still be commodity specific.

Implications for 3rd Countries

It is expected that the policy option would lead to a shift away from operators and traders placing on the market commodities and products from 'high-risk' countries to 'low-risk' countries, as lower due diligence requirements would be required and therefore, a lower administrative burden for the operators and traders placing products on the EU market. This means that producers in 'high-risk' countries may experience less trade with the EU. The international market could become divided, with EU operators and traders leaving the markets of countries considered 'high-risk'.

This can be interpreted as a positive impact for operators and traders placing products in the EU market, as lower due diligence requirements are needed. Producers may trade with other operators and traders outside the EU instead, or may experience a decline in trade.

There may also be a shift in EU trade towards 'low-risk' producer countries from 'high-risk' producer countries, even where producers in the 'high-risk' countries are sustainable. This is because benchmarking is

undertaken at country and commodity (rather than producer) level. This risks undermining incentives for sustainable production. However, no evidence could be identified to confirm the above impacts.

Third countries will be identified and their benchmarking status published. The FATF builds capacity and spreads international best practices.[636] This availability of information could act as an incentive for producer countries to improve their environmental protection and clean their supply chains in relation to the benchmarking criteria. This incentive is not a 'one-off' incentive, as benchmarking criteria will be reviewed and updated. This means that third countries will be regularly monitored and need to consistently meet criteria. Information on best practices could also be communicated. However, where third countries' and/or producers' exports go to non-EU countries, such an incentive would not be present. This could potentially lead to 'high-risk' producers and countries leaving the EU market.

Costs for third countries will include the direct costs of needing to provide information on benchmarking criteria, however these are expected to be low. Indirect costs include those associated with being given the status of 'high-risk' or 'low-risk' (also commodity specific). These may include changes in employment for producers, costs to improve environmental protection to meet benchmarking criteria, and impacts from changes to market structure.

Sectoral competitiveness

Benchmarking by country and commodity to determine the tier of due diligence provides greater granularity than a blanket due diligence. This increases the effectiveness of achieving the aims and objectives. This also means that not all countries will be considered high-risk for all commodities, as would occur if only one single blanket due diligence system was applied. Some of the systems being considered to obtain benchmarking data are based on country provided data (e.g., FAO FRA reporting). This data is readily available.

The impact of the deforestation-free requirement on the cost of production for high-risk producers (usually based in high-risk countries), combined with the impact of the DDS on administrative costs, may lead to an increase in the cost of commodities.

From the due diligence informed by the benchmarking, it could be that compliant operators and traders in the EU which source from 'low-risk' producers will see increased competitiveness compared to operators and traders sourcing from 'high-risk' producers. This would be due to a reduced administrative burden to meet due diligence requirements.

Publishing the benchmarking will also facilitate the amount of information available to consumers. It is possible that this may result in EU operators and traders sourcing from 'low-risk' countries, seeing further higher demand for their products. Producers in 'low-risk' producer countries may also see an increase in EU demand for their products if operators and traders in the EU shift from sourcing from 'high-risk' producer countries. However, evidence could not be identified to confirm these impacts.

Further context was provided in the target stakeholder interviews. A stakeholder reported that producers in countries the fastest to adapt (applicable to all EU measures) will benefit the most. This relies on good governance from country governments and may require assistance be given to Least Development Countries (LDCs) by the European Commission during the transition. Benchmarking could be used to determine where technical assistance could be offered, as well as support to mitigate against human rights violations. However, this could have the impact of incentivising bad performance and a 'stick' approach would be required alongside the 'carrot'.

Impacts on sectoral competitiveness for Option 1 are also relevant here.

[636] https://ec.europa.eu/environment/forests/pdf/FLEGT%20Eval%20Consultant%20Report%20EN.pdf

Functioning of the internal market and competition

Impacts for Option 1 are relevant here.

Impact on consumers

Option 1 impacts highlight that the primary impact of an improved DD on consumers would be an increase in prices for various commodities, as operating and administrative costs are increased. However, the EUTR and FLEGT Fitness Check OPC would suggest that an impact on product prices as a result of EUTR implementation was not seen. Overall, it is expected that the DDS introduction may either lead to a negligible cost implication for consumers, or a cost premium that consumers (some) may be willing to pay for certified products placed on the EU market. With the benchmarking enabling there to be two DDS approaches, it could be suggested that costs are likely to be even more negligible compared to the assessment made in Option 1. This is because benchmarking allows for the 'low-risk' due diligence, which is likely to be associated with lower administrative and operating costs for some operators and traders. Consumers purchasing products from 'low-risk' producers may pay lower prices for the same product from a 'high-risk' producer. Although, evidence to support this was not identified.

Benchmarking itself will provide consumers with information on a producer country's position with deforestation and any changes in position over time. If publicly presented on an accessible platform, consumers will have access to the information. Such information could be used to inform decisions on which products consumer's purchase.

Whilst evidence regarding certification and placing the burden on a consumer to make a choice is negative with regards to consumer behaviour being changed, OPC responses reported that 66% (N=1089) thought that from a consumer's perspective, information on the deforestation and forest degradation impact of products and services they purchased would influence their purchasing decision 'very much'. 24% reported that this information would influence their purchasing decision 'somewhat', 4% thought it would 'not much' influence their decision and less than 1% thought it would 'not at all' influence their decision. 3% responded 'neutral' and the remaining responding that they did not know.

Therefore, it can be expected that the introduction of the two DDS systems will lead to lower costs for consumers than those estimated in Option 1, due to a 'low-risk' option being available and its associated lower administrative and operation costs. However, there is likely to still be an increase in prices overall.

Innovation and research

Benchmarking (assumed output to be publicly available) will provide NGOs, academic institutions and policy makers with internationally available information on producer country performance against the benchmarking criteria. This may help to facilitate and inform campaigns, research and policy. This availability of information would have the potential to impact decisions made at global, regional and national level surrounding deforestation and forest degradation.

Public authorities

Member States

As with Option 1, the introduction of mandatory due diligence, whether 'high-risk' or 'low-risk', will increase the administrative burden for Member States to enforce and report to the EC on implementation of the regulation. It is assumed that EU competent authorities will face a greater administrative burden for commodities and products from 'high-risk' producer countries than 'low-risk' producer countries, due to the difference in due diligence requirements. For Member State public authorities, OPC results provide little information on whether the costs of enforcement and implementation of benchmarking would be high or low, with the most frequent response that there would be moderate costs.

Specific criteria relating to costs for Member States are further outlined in Option 1. It could be expected that most Member States will be enforcing both 'high-risk' and 'low-risk' due diligence. Although, the proportion of operators and traders needing to comply with 'high-risk' or 'low-risk' may change over the lifetime of the Policy Option, with it assumed that there would be an increase in 'low-risk' due diligence enforcement, due to the incentives provided (assuming that the Policy Option 2 is successful in achieving its aims). If a Member State is predominantly required to enforce the 'low-risk' DD, costs for that Member State may be lower than for Member States predominantly enforcing the 'high-risk' DD. This is potentially due to the 'low-risk' having less due diligence requirements and therefore there being less requirements to monitor and enforce. However, the number of operators and traders involved also impacts costs for Member States.

Under Option 1, the costs are expected to be on average €670,000 for each Member State authority. For the 'low-risk' DDS, the amount of resources required by Member States are expected to be lower.

EU level

In addition to the costs associated with Option 1, the European Commission will face costs associated with setting up the benchmarking criteria, platform and compiling information received. The platform will need to be kept up to date to reflect the existing scenario in producer countries. Option 1 impact of detailed assessments of countries and subnational regions is particularly relevant for Option 2 and associated costs could have the potential to be streamlined. Once the benchmarking system is set-up and established, it will cover all relevant trade associated with relevant countries (assumed to be 134).

Costs for the establishment of the benchmarking platform (assumed to make use of same IT architecture): Year 1 (including set up) €364,530 and Year 2 and thereafter: €182,265.

The criteria selected for the benchmarking are a key factor affecting the costs, benefits and effectiveness of the policy option. Opting for a small number of quantitative criteria would facilitate the regular update of the benchmarking and allow a very transparent basis for the assessment to be made. On the other hand, it might not be very tailored to the specific approach of a country or of a commodity. However, relying on a greater number of criteria, including qualitative criteria would open the potential for more challenge from the producer countries and would render the update process more technically challenging. Stakeholders highlighted that data sources would need to be assessed for their data credibility and based on clear criteria needing to be met. Where data is unavailable or does not align with the criteria, an alternative method for ranking the country would also be required.

The FATF publish lists of the status of countries in the FATF's global network, including high-risk and other monitored jurisdictions. The FATF FY2020 budget was €8,217,852 for staff costs for 51 staff members (salaries and indemnities) and the budget for IT (investments and maintenance costs) was €417,287.[637] The European Commission will also make visits to producer countries to facilitate data collection for the benchmarking criteria. The costs of these visits may be comparable to the similar visits made under the IUU. For the FATF, the FY2020 budget for travel was €1,641,873.[638] For the IUU, 1-2 missions are undertaken per year, per country, although the associated cost of these missions is not known.

The European Commission will also need to undertake research to identify whether new criteria need to be added to the benchmarking criteria, or whether thresholds need to be changed. Consideration of monitoring techniques and the latest available technology needs to be made. A review of the criteria after the set period of time will also be required, and costs associated with this.

[637] https://www.fatf-gafi.org/media/fatf/documents/brochuresannualreports/FATF-annual-report-2019-2020.pdf
[638] https://www.fatf-gafi.org/media/fatf/documents/brochuresannualreports/FATF-annual-report-2019-2020.pdf

Costs to third countries

Very little hard evidence was identified with regard to possible costs of benchmarking for third countries.

Stakeholders in the consultation provided context and inputs for potential costs to third countries. For third countries:

- One conservation organisation reported that a benefit from benchmarking is that it will avoid issues associated with producer countries self-reporting.
- Two European industry associations reported in the targeted stakeholder consultation that they thought buy-in for benchmarking would be questionable if no co-ordination or dialogue is in place between the European Commission and third countries. Good players within countries will be ignored and therefore, there will be discrimination against those who follow sustainable practices yet are located within a country benchmarked as 'high risk'. It was recommended that this could be overcome by some mechanism for exception.
- In the targeted interview with MS competent authorities, based on their experience, benchmarking can cause accusation. A commodity focus group also reported in the interviews that benchmarking can be seen as patronising for third countries.
- Third countries highlighted (generally, rather than only applicable to benchmarking), that thresholds established may not align with local laws, which would cause legal contradictions for producers in producing countries. A business, dealing with commodities under scope also reported the same, with different jurisdictions within a country may have different approaches and policies, as well as a varied 'willingness-to-act' on deforestation. The stakeholder therefore thought that benchmarking could not be done at country level alone. However, this can be mitigated by establishing benchmarking criteria against publicly available, sound and technical criteria.
- OPC responses from third countries responded overall there to be a positive impact of benchmarking in their country. 49% (N=114) scored either 4 (positive impact) or 5 (very positive impact) out of 5; 22% scored 3 (no impact) and 18% scored either 1 (very negative impact) or 2 (negative impact). However, it is important to note that only benchmarking was considered, rather than a combined policy option of benchmarking and due diligence.

For producer country governments:

- Different variables may be measured, different measurement methods may be used and there may be differences in the quantity and quality of data (i.e., due to technological ability) produced to enable benchmarking against certain criteria. This may lead to uncertainty in the ranking of producer countries, leading to uncertainty in the level of due diligence then required by operators and traders.
- Producer countries with a lack of data (quality, quantity or up to date data) or a lack of capacity to obtain data, may be prejudiced against. However, this could act as an incentive for producer countries, producers and EU operators and traders to undertake research and development and invest in technology to improve a country's ranking.
- Countries may dispute the outcome of their assessment, as well as the criteria and process used to benchmark. There may be disputes in areas particularly where countries produce the same commodities and/or products, as trade could move away from the country with a 'higher-risk', towards the country with a 'lower-risk'.

The FATF builds capacity and spreads international best practices.[639] Best practices can be identified, where producer countries have improved their ranking, and spread both to other producer countries and other countries outside of the system (do not export to the EU). In the targeted stakeholder interviews, two EU industry associations reported it would be important to identify a clear path for countries to improve their ranking. Another suggestion made was that in the draft Conflict Minerals Regulation, operators and traders are listed on an equivalent and credible green list, examples of best practices can be seen for suppliers to strive towards.[640]

8.6.4 Social impacts

Governance, participation and good administration

Option 1 impacts apply here. For benchmarking, producers are benchmarked, however it is the EU operators and traders which face the obligation to perform due diligence. It is therefore possible that there will be some communication between EU operators and traders, with the aim of improving a producer's benchmarked position in order to change the due diligence requirements for an operator placing products on the EU market. Community monitoring of a green list could assist with engaging civil society, community organisations and promoting governance improvements in producer countries.[641]

This policy option does not contain a clear, formal method or framework for such dialogue to take place, and relies on the political will of producer countries, producers and operators and traders importing to the EU. There is therefore a reliance on country-company co-operation, rather than direct co-operation with the European Commission under a clear framework (as with country-carding in the IUU). The effectiveness of this has not been determined and evidence associated with such an impact could not be identified.

Benchmarking is not a legislative obligation for any stakeholder involved in the policy option, however the due diligence requirement is a legislative obligation for operators and traders placing products on the EU market. Third countries are not obliged to contribute information for benchmarking.

Employment

Impacts from Option 1 on employment are relevant here.

Impacts in employment for third countries and operators and traders, in relation to benchmarking, could not be identified.

8.7 Option 3 – Mandatory public certification

8.7.1 Overview of policy option

The description of the policy option is presented in section 7.6.

Under this option using certification is not an alternative to due diligence (i.e. not a green lane). However, it would constitute a risk mitigation tool that could be used to demonstrate due diligence, maintaining operators and traders' liability in case of non-compliance. Products and commodities with a mandatory public certification would follow the 'low risk' route as described under Option 2. All other products and commodities under scope would follow the 'high risk' route. The analysis acknowledges that adopting public certification systems cannot be required of third countries. However, if this approach is taken, the public certification would need to be mandatory and covering the whole commodity supply chain in the country of

639 https://ec.europa.eu/environment/forests/pdf/FLEGT%20Eval%20Consultant%20Report%20EN.pdf
640 https://www.fern.org/fileadmin/uploads/fern/Documents/Developing%20EU%20measures_0.pdf
641 https://www.fern.org/fileadmin/uploads/fern/Documents/Developing%20EU%20measures_0.pdf

origin so that it can be recognised as valid, similar to existing mandatory certification scheme for palm oil in Indonesia and Malaysia for example.

This section presents the main expected impact from the implementation of this policy option and elaborates on the causal links between the implementation of the actions and their expected effect. We focus our analysis on the additional impacts from the option in comparison to the improved due diligence regime described under Option 1 and the costs related to the distinction of low / high risk as per Option 2.

8.7.2 Environmental impacts

Quality of natural resources – deforestation and forest degradation

The combined action of the due diligence and the mandatory public certification is expected to deliver an increased level of environmental protection than the action of the improved due diligence on its own. As such impacts identified for option 1 are relevant here.

The incremental environmental impacts from the mandatory public certification stem from the fact that the mandatory public certification introduces a de facto ban for any commodity or product to be placed on the EU market if it does not meet the requirements of the deforestation free definition. As such it provides further support to the action of the improved due diligence looking at reducing the risk throughout the supply chain.

Based on our analysis, this option would deliver 99,386 ha of annual deforestation prevented based on the effectiveness of 40% and based on potential deforestation level in 2030.

In addition, the public mandatory certification is set at a national level which means that once adopted, all the commodities and products under the scope of the certification will be eventually covered by the certification.

It is relevant to note that the policy option is very similar to the option assessed by the European Parliament as option 2 'mandatory certification standards' (i.e., option 3a) and policy option 3 'mandatory certification standards with due diligence' (i.e., option 3b). The European Parliament analysis assessed the effectiveness of measures containing mandatory certification standards and noted that these measures were the most effective in eliminating deforestation and associated carbon emissions. It estimated that avoided deforestation due to reducing EU imports of commodities associated with deforestation would result in 142,400 hectares of avoided deforested land and 62 million tonnes of avoided CO2 emissions.[642] The expected reduction in deforestation from the measure is quantified at 57% from the baseline which marks an increase from the due diligence only option of 3.9% of deforestation and associated greenhouse gas emissions of 4.4%. [643]

The information gathered as part of the impact assessment and feedback received confirm this analysis. In particular respondents to the OPC. The option received a very high level of support with 67% of the respondents to the OPC rating it as either 4 or 5 out of 5. Comments made by respondents included the fact that 'EU harmonised framework to certification' would support higher certification standards and monitoring systems. 67% of respondents rated the likely impacts of a mandatory public certification measure as positive to very positive.

[642] EPRS 2020 EU Legal Framework to halt deforestation
[643] EPRS 2020 EU Legal Framework to halt deforestation

Biodiversity

A 2011 study that looked into the impact of forest certification in the EU concluded that "the impact of certification in the EU forest-based sector is positive-neutral with respect to ecological aspects, positive-negative on the economic and positive-neutral on the social ones."[644,645]

Climate

The implementation of the policy option is expected to reduce emissions of greenhouse gases related to deforestation and associated with products placed on the EU market due to the requirement to comply with due diligence requirements. It is expected that this policy option will have greater effectiveness than Policy Option 1, due its addition of a mandatory public certification. The additional effectiveness has been assumed to be similar to the one estimated as part of the European Parliament work. As a result, a total of 43.6 **MtCO2 emissions annually** in 2030 when the implementation of the Policy is expected to reach its full potential. This is equivalent to €4.3 billion when monetising CO2 emissions savings.

Sustainable production and consumption (awareness raising)

Mandatory public certification will be made publicly available. Therefore, the impacts associated with Option 1 (DD) and Option 2 (benchmarking) could be assumed to be similar for Option 3 in particular in that it will raise awareness to sustainable production and consumption practices.

8.7.3 Economic impacts, including administrative burden

Operating costs and conduct of business

The first cost relates to a tiered due diligence system, with the level of due diligence dependent upon the results of certification of third countries. In this respect the costs for such tiered due diligence have been derived from the same sources as for Option 1. The 'enhanced' due diligence would be the same than under Option 1, the 'simplified' due diligence would assume lesser costs for the Member States based on a reduction of 50% for illustration purpose. The resulting costs used for the purpose of this Option are shown in the table below and are based on import values extracted from Comext and applied in Option 1.

Table 8.35 Costs of DDS – tiered approach (cost in EUR per operator / trader)

Operator or trader type	Cost of enhanced due diligence € (% of commodity value in brackets)	Cost of simplified due diligence € (% of commodity value in brackets)
Domestic (including intra-EU) operator	1,000 – 10,000 (0.29% - 4.3%)	500 – 5,000 (0.15% - 2.15%)
Importing operator (extra-EU)	1,000 – 10,000 (0.29% - 4.3%)	500 – 5,000 (0.15% - 2.15%)

For the cost estimates based on import values of relevant commodities, it is estimated that 8% of extra EU operators will face the simplified due diligence requirements when placing products on the EU market. These 8% of operators will occur 50% of Option 1 due diligence costs. The remaining 92% of operators will face 100% of the costs in Option 1 (enhanced due diligence). Similarly, 100% of intro EU operators will face the

[644]M. Gafo Gomez-Zamallo et all (2011), 15 years of Forest Certification in the European Union. Are we doing things right?
[645] The reason for which the impact is rather neutral on biodiversity is that "in EU forests the necessary modifications required to be certified are usually minor". Another study (M. Elbakidze et all (2016), The role of forest certification for biodiversity conservation: Lithuania as a case study), carried out on the situation in Lithuania in 2015, concluded that "FSC certification alone was not able to maintain structural and functional connectivity of forests for species at multiple spatial scales in Lithuania".

simplified due diligence requirements when placing products on the EU market. These operators will occur 50% of Option 1 due diligence costs.

The total administrative costs for all commodities involved in the simplified DDS is estimated to be between €6 million and €25 million, and between €128 and €1.7 billion for the enhanced DDS. The total costs combined, therefore, would be between €133 million and €1.8 billion.

Another part of the operating costs will be through achieving mandatory public certification which will be incurred by every producer under the scope of the legislation. Certification is a well-established process. Some countries have already started to develop national certification systems, which provide us with some example of likely costs. Examples of national level certifications include Guatemala's work on a national certification system, the Malaysian Sustainable Palm Oil [646], and Indonesia's sustainable palm oil standards.

This category entails costs associated with the certification process such as the fees paid to certifiers to conduct initial assessments and subsequent audits, hold stakeholder consultations and prepare reports. Independent audits are considered to be key in ensuring the robustness of the certification, and the lack thereof was found to be a key weakness of the private certification schemes.[647, 648]

Set up costs of certification, in particular for wood products, are documented and range from $2.50 to $25 per hectare based on the location. For Indonesia, costs of $4.76 per hectare was identified for 'start up'. [649] Another example found that costs of certification were higher than economic benefits from additional selling price. For example, a 2017 analysis of costs and benefits of certification in Papua (Indonesia) estimated costs of around 466 billion rupiahs with only 66 billion rupiahs of additional income from premium price.[650] In addition, for the first year of certification, 65% of the costs of the plantation were related to certification costs which is significant. This suggests that publicly administered certification schemes might be more effective and enable to support financially producers through the transition to more environmentally sustainable practices.

Based on the Indonesian example above, costs of certification are €33.9/ha (covering initial costs of certification, corrective costs and annual maintenance and monitoring). In 2009 there were 7.3 million hectares of palm oil plantation in Indonesia. [651] As such, the costs of achieving certifications for all of the plantations would be €186 million of set up costs and €55.8 million annual costs.

Administrative burden

As with Option 1, there will be administrative costs associated with the setting up of due diligence systems, updating, operating and outsourcing of costs.

For the mandatory public certification, a recent study by Bager et al. (2020) assessed the likely political feasibility of a similar policy option ('Mandatory regulatory standards (e.g. sustainability criteria, certification, HCS approach') and rated it medium score on advocacy, medium score on institutional complexity and low score for cost.[652] For Member State authorities responding to the OPC, the costs of enforcing and

646 https://www.mpocc.org.my/
647 WWF, 2015 Profitability and Sustainability in Responsible Forestry Economic impacts of FSC certification on forest operators
648 https://fsc-watch.com/2020/07/02/ikeas-ukrainian-illegal-timber-problem-that-fsc-didnt-notice/ ; https://fsc-watch.com/2018/10/18/new-documentary-slams-fsc-the-eco-label-could-not-slow-down-the-forest-industry/ ; https://e360.yale.edu/features/greenwashed-timber-how-sustainable-forest-certification-has-failed
649 https://wwf.panda.org/wwf_news/?250330/FSC-certification-yields-financial-benefits-for-tropical-forest-businesses-shows-new-WWF-report
650 https://www.researchgate.net/publication/320834327_Cost_and_Benefit_Analysis_of_RSPO_Certification_Case_Study_in_PT_BCA_Oil_Palm_Plantation_in_Papua
651 PWC, 2010, Palm Oil plantation https://www.pwc.com/id/en/publications/assets/palm-oil-plantation.pdf
652 Bager et al (2020), Reducing Commodity-Driven Tropical Deforestation: Political Feasibility and 'Theories of Change' for EU Policy Options, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3624073

implementing a mandatory public certification system were reported to be high to very high (for 5 out of the 8 responses). The magnitude of the increase in costs has not been determined.

The main aspect of the administrative burden would cover: costs for creation of an IT system, enforcement costs at Member State level and EU level for placing products on EU market but also costs of achieving certification.

Public authorities

Member States

The main cost for MS would be in setting up a public mandatory scheme, a cost of €1.2 million is assumed per country.

Enforcement at MS level, in particular the verification of the certification through audits performed by the authorities (or independent experts) that Member States and the EU would have designated as competent for the matter. This could involve additional staff costs.

Costs are likely to vary between Member States between those who would embed these activities in existing agencies and those who would have to set fully new team. Differences would stem also from the level of existing national activities related to deforestation and forest degradation associated with the placing on the EU market of products.

In addition, costs of reporting on certification schemes are estimated to be €100,000 - €1,000,000 per country.

EU level

The main cost would be to set up and operate the reviewing, assessing and recognising the existing public mandatory certification scheme. It is assumed that such a task would cost €376,462 per year.

Costs at EU level would also include the creation of an IT system to support the certificate system. As example the IUU implementation of the certification requirement is supported by an IT system, developed in 2016, and costing **€300,000 per year**.

Third countries

The main cost for third countries would be in setting up a public mandatory scheme, a cost of €1.2 million is assumed per country similarly to EU countries.

Administrative burden will be experienced by national government and authorities in third countries in charge of setting up the mandatory public certification scheme, defining its functioning but also implementing and enforcing it.

Economic impact on SMEs

While conceptually simple, it is important to not underestimate the costs of certification and in particular for SMEs. There is little literature available on public mandatory scheme, in addition some example from private certification scheme are useful. Feedback from trade associations indicated that it could be a challenge for smallholders and some certification organisations have adopted programme to financially support

smallholders through certification.[653] For example Malaysia has allocated US$13 million to support its smallholders in reaching Malaysian Sustainable Palm Oil standard (MSPO). [654]

However, certification also leads to additional benefits for smallholders including gaining knowledge on sustainable practices that allow for a long-term use of the land, protection of their rights including land and use rights, higher yields and income, ongoing technical support by the certification body, and access to markets that require such certification.[655]

Trade implications

Producers are expected to benefit from this measure by being able to reach higher prices for their commodity and products that meet the deforestation free standards / that are certified. As an example for wood, it was estimated that certified wood was earning producers an extra $1.80 for every cubic metre of FSC-certified roundwood over and above costs associated with certification (i.e., $6.69 vs $4.89, representing an additional 37%).[656]

Another estimate indicated that certified palm oil from Indonesia could reach an additional price benefit of 25% compared to non-certified palm oil. Similarly, it was found that in the context of the IUU Regulation, fish product that were certified reached a higher price than those not certified. [657]

It is not easy to extrapolate these individual estimates to derive a global economic benefit value however it can be safely assumed that the costs of certification can be, to some extent, mitigated by the additional price that the market is willing to pay for certified products.

For those companies that already have sustainable supply chain practices, the implementation of the option is expected to have very limited impacts as the products would all get certification in a very straightforward way. As such, it is expected to not disrupt trade flows.

For operators and traders that are trading or placing on the market products that are not meeting the requirements of the deforestation free definition, there would be a need to source and secure an alternative product that meets the requirement. It is likely that this product would be more expensive which could affect the operating costs. However, it is also likely that the additional costs would be passed down onto the customers and that the operating margins would not be meaningfully affected, or only for a short period.

Related to the price premium, certified products will have a wider market access which should provide additional incentive for complying with the deforestation free requirements, at least for those producers that rely on EU as a market to place products on.

The extent to which this impact is relevant varies a lot based on the commodities and products considered, but for example for cocoa a very large share (80%) of the production ends on the EU market. As such, cocoa producing countries will have a strong interest in setting a mandatory public certification scheme to facilitate their products being placed on EU market.

Sectoral competitiveness

The use of certification is expected to include agricultural practices that increase the yields and performance while reducing the need for encroaching on forest land. As such the certification will incentivise better farming practices and support long term agricultural activities.

[653] Targeted interviews

[655] https://www.mpocc.org.my/mspo-figures-faqs
[656] https://wwf.panda.org/wwf_news/?250330/FSC-certification-yields-financial-benefits-for-tropical-forest-businesses-shows-new-WWF-report
[657] IUU Watch

Impact on consumers

The price premium that is likely to manifest for certified commodities and products is likely to be passed on to consumers, leading to an increase in price of commodities and products placed on the EU market.

8.7.4 Social impacts

The use of public certification is expected to strengthen the overall legislative framework for surrounding land tenure and land exploitation, increase transparency and knowledge of farming communities, in particular of sustainable practices. Impacts on employment can also be expected.

Governance, participation and good administration

Finally, the option would address some of the common challenges associated with private certification schemes (e.g., fragmented ownership of the land, implementation made at national level, clear criteria that are applicable globally and identical for all supply chain, and independent audits through implementation by national authorities.

Employment

In addition to the impacts identified under Option 1, additional jobs from the mandatory public certification are likely to be created at EU and global level in order to: set up the public certification scheme (global level), monitor the scheme against the deforestation free criteria (EU level), implementation and enforcement of the options. The number of jobs created would depend on the number of scheme that need to be monitored but also the scope to which the regulation applies.

8.8 Option 4 – DDS combined with labelling

8.8.1 Overview of policy option and key impacts

Option 4 consists of a **mandatory labelling requirement based on an improved due diligence system (DDS)** (i.e., Option 1), which relies on a deforestation-free definition. The requirement results in labels signalling compliance of a given product with due diligence obligations and deforestation-free criteria, as set out in the regulation. All obligations stemming from the DDS as described under Option 1 also apply to Option 4. However, in addition to Option 1, **based on the positive outcome of the due diligence process**, a corresponding label will be given to the product being placed on the EU market. The mandatory label will provide consumers with information on whether products are linked to deforestation and/or forest degradation through the supply chains they are derived from.

A mandatory label relies upon consumer awareness and preferences for deforestation-free alternatives to drive consumption changes and therefore environmental change, and it is recognised that their **scale of impact can be limited** compared to other options. However, given that the label will be linked to the DDS, significant costs of compliance will be incurred through due diligence and **additional costs** (in comparison to Option 1) will largely be associated with adding the label to products and inspecting labelling compliance. The assumptions made to costs associated with Option 4 are presented in the assumptions section and the results the following subsections.

This section presents the main expected impacts from the implementation of this policy option and elaborates on the causal links between the implementation of the actions and their expected effect. We provide an overview of relevant **quantitative and qualitative evidence** to substantiate this analysis, including stakeholder feedback.

8.8.2 Environmental impacts

Note that environmental impacts relevant for all options are described in more detail in Section 8.2.

The combined action of DD and mandatory labelling is not expected to deliver additional environmental benefits in comparison to Option 1, because a positive DD outcome in Option 1 is mandatory for market access and the labelling component of Option 4 constitutes a means of communicating compliance with DD obligations and deforestation-free criteria. The labelling aspect may produce minor shifts in consumer behaviour between products deriving from supply chains that are not in scope to products deriving from supply chains that are in scope (e.g., peanut butter including palm oil vs peanut butter including other oils). However, this depends on how close product alternatives are. More generally, labels are considered to have a limited impact on consumption patterns and their effect depends on a variety of factors (e.g., trust of label, consumer awareness about the label, sustainability preferences). This reflects evidence in literature and confirmed by expert opinion and consultation (described further below) that mandatory labelling is likely to produce only small changes to consumption patterns and thereby changes to deforestation and forest degradation. As an example, a study by Hainmueller et al. looked into consumer demand for products with the Fair Trade label and found that the sales of the two most popular coffees rose by almost 10% when they carried a Fair Trade label[658] as compared to a generic placebo label.[659] This effect can be expected if there are close product alternatives, but not if product alternatives differ significantly. However, it is not possible to estimate how many products would be 'very close' alternatives and the extent to which consumers are willing to make small compromises in their purchasing preferences (in favour of the 'deforestation-free' label).

The overall goal of environmental labels and declarations is to **stimulate potential for market-driven continuous environmental improvement**, through the communication of verifiable and accurate information on environmental aspects.[660] Research confirms that mandatory labels can influence consumer behaviour[661], but that the scale of behaviour change inspired by the labels is reported to be **limited**.[662, 663] This was supported by expert opinion[664] and during the stakeholder consultation, with workshop participants noting that while a useful mechanism, mandatory labelling alone would be insufficient to deliver anticipated outcomes and that it would be best considered in combination with other measures (such as due diligence, as per this option).[665] The European Parliament's report takes the view that labelling is not sufficient to halt deforestation on its own: "third-party certification and labels alone are not effective in preventing forest and ecosystem-risk commodities and products from entering the Union internal market; […] third-party certification can only be complementary to, but cannot replace, operators and traders' thorough mandatory due diligence processes".[666] It can be expected that mandatory labelling will have a stronger (positive) environmental impact in comparison to a voluntary system (in the case of Option 4, by providing a stronger incentive for businesses), but a smaller environmental impact than other measures such as benchmarking and country carding.

DD, in combination with labelling (visible to consumers), could provide an **incentive for economic operators and traders** placing products on the EU market to improve the sustainability (in terms of impacts on forests) of their supply chains. When looking at the EU Ecolabel experience (albeit voluntary),

[658] The Fair Trade label is a comparable example to a potential 'deforestation-free' label, because deforestation relates more to ethics than, for example, consumer health. However, the label is voluntary and limited in scope (i.e., only relates to coffee). The findings of this research are aligned with findings in the European sphere, showing that consumers in the EU are willing to make choices based on ethical motives (https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/659295/EPRS_BRI(2020)659295_EN.pdf). The Hainmueller et al. study also showed that demand for lower-priced coffee was more elastic than that for higher-priced coffee.

[659] https://www.researchgate.net/publication/281890516_Consumer_Demand_for_Fair_Trade_Evidence_from_a_Multistore_Field_Experiment

[660] https://ec.europa.eu/environment/industry/retail/pdf/labelling_issue%20paper_final.pdf

[661] Shangguan et al., 2019, https://pubmed.ncbi.nlm.nih.gov/30573335/

[662] Ikonen et al., 2019, https://link.springer.com/article/10.1007/s11747-019-00663-9

[663] DG SANCO, 2006, Labelling: competitiveness, consumer information and better regulation for the EU, https://ec.europa.eu/food/sites/food/files/safety/docs/labelling-nutrition_better-reg_cons-summary.pdf

[664] https://www.europarl.europa.eu/doceo/document/A-9-2020-0179_EN.html

[665] This was reflected in the consultation with stakeholders that took place on October 2nd, 2020.

[666] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

approximately 42% of licence holders reported that the label helped them in setting targets for environmental improvements to their products/services, as a result of a better and deeper knowledge of the environmental impact of their products/services.[667] There is also some evidence showing that energy labelling requirements led to an increase in the number of products in higher efficiency classes, suggesting that labelling had a positive effect on energy savings.[668] In a mandatory labelling scheme, firms are obliged to label their products, thereby motivating them to improve the sustainability of their supply chains. Voluntary labelling does not always allow that because firms have no incentive to voluntarily eco-label products with negative environmental consequences (or firms will opt for lower-integrity labels).[669,670]

In the present context, products will have to communicate their compliance with deforestation-free criteria, meaning that consumers will be informed about the impact of their purchasing decisions and the fact that the products they purchase have undergone DD. As such, **environmental impacts are identical to those in Option 1 since Option 1 obligations are mandatory for market access and mandatory labelling requirements serve an educational and awareness-raising purpose.**

8.8.3 Economic impacts, including administrative burden

Operating costs or administrative burden of economic operators and traders and conduct of business (labelling costs)

A mandatory label will produce an increase in operational costs for operators and traders placing products on the EU market or traders (i.e., labelling costs). Specifically, regarding the introduction of deforestation-free labelling, in their position paper, some business associations[671] stated that this kind of scheme would create undue administrative burden on account of the complexity of the process, especially in the context of finished products. According to one respondent to the OPC, labelling requirements can be more or less costly depending on the detailed set-up and mandatory registration of detailed information. To limit these kinds of burdens, any new label should be applicable to **new products** being placed on the market as opposed to products already placed on the market. Some **flexibility** should also be given to businesses to amend their packaging at a time when they normally amend/revise/re-design their packaging, so as not to influence packaging that has already been printed. An Australian study on "country of origin" labelling assumed an average (re)labelling cycle of approximately four years (although this is likely to be shorter for small companies).[672] The study notes that relabelling cycles can vary significantly from company to company, depending on their size and products – some can relabel every three months, while others every 10 years. The process of labelling involves various steps (e.g., graphic design, prepress services, plate and cylinder graving, depleting existing inventories), and coordinating these steps can take time, particularly if a large number of products are affected.[673]

Labelling is not a new requirement for many economic operators and traders, as mandatory labelling is already common for many products (e.g., food products, household appliances, and cosmetics). As noted in an impact assessment on energy labelling requirements for lighting products, the costs of applying new rescaled energy labels to products are assumed to be negligible compared to the cost of manufacture, as energy labelling processes already exist for lighting products.[674]

[667] https://www.mdpi.com/2071-1050/9/5/751/htm
[668] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/922907/white-goods-consultation-stage-impact-assessment.pdf
[669] http://www.behaviourworksaustralia.org/wp-content/uploads/2020/08/Environmental-labelling_Rapid-review-BWA.pdf
[670] https://www-sciencedirect-com.eur.idm.oclc.org/science/article/pii/S0925527315003709
[671] FEDIOL and COCERAL
[672] https://ris.pmc.gov.au/sites/default/files/posts/2016/04/Country-of-Origin-Labelling-Decision-RIS-1.pdf
[673] https://www.foodrisk.org/files/labeling_cost_model.pdf
[674] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936235/lighting-consultation-impact-assessment.pdf

Administrative costs related to labelling obligations can include costs to assimilate/obtain relevant information to comply with labelling regulations, translations for labelling in different languages, redesign of the label and packaging, production of the printing plate, printing of the label, auditing, submitting information to the regulator, etc. A study on food labelling legislation estimated the administrative burden for businesses in the food and drink manufacturing industry to represent between 0.01% and 0.69% of industry turnover.[675] This upper and lower bound can be used to estimate labelling costs in Option 4, applying the same percentages to import values (as was done in Option 1). Based on the calculations presented in Table 8.36 below, total labelling costs could range **between EUR 6 million and EUR 417 million**.

Table 8.36 Labelling costs for businesses

	Value of imports (million EUR)	Costs of labelling lower estimate (million EUR)	Costs of labelling higher estimate (million EUR)
Wood	24,525	2.5	169.2
Beef	4,304	0.4	29.7
Cocoa	7,421	0.7	51.2
Coffee	8,061	0.8	55.6
Palm oil	5,013	0.5	34.6
Soy	11,133	1.1	76.8
Totals	60,457	6.0	417.2

Source: Import values extracted from Comext, average of 5 years (2015-2019).

Impact on SMEs

All impacts expected in Option 1 are applicable to Option 4. In addition, amongst the businesses that responded to the question on 'operational costs' in the public consultation (n=55), around 62% of businesses reported that a mandatory labelling scheme would result in no change or minor increases in their operational costs, while 22% considered that such a scheme would result in significant increases in their operational costs. Large companies (n=32) expected significant increases in operational costs in a larger proportion than micro companies (n=14) (31% vs 14%, respectively). Micro, small and medium-sized companies reported no expected change in operational costs in a higher proportion than large companies (21%, 25%, 20%, and 16%, respectively).

In other examples related to food regulation, SMEs considered traceability compliance, own compliance checks, and labelling as important burdens.[676] However, as stated above, burdens may be reduced if the set-up and registration of information related to the label can be simplified. Furthermore, flexibility should be given to businesses to amend their packaging during their usual labelling cycles. In the UK, a study found that close to 70% of companies use up their labels in 12 months, while the rest need more than 24 months to deplete their label stocks.[677] Small companies were found to use up their stocks over a longer period than large companies. If integrated into a company's labelling cycle (i.e., with an adequate grace period), labelling costs can be significantly lower.[678]

[675] https://ec.europa.eu/smart-regulation/impact/ia_carried_out/docs/ia_2008/sec_2008_0092_en.pdf
[676] https://ec.europa.eu/food/sites/food/files/gfl_fitc_comm_staff_work_doc_2018_part1_en.pdf
[677] https://www.rand.org/content/dam/rand/pubs/technical_reports/2008/RAND_TR522.pdf
[678] https://ec.europa.eu/smart-regulation/impact/ia_carried_out/docs/ia_2008/sec_2008_0092_en.pdf

Impact on third countries

All impacts expected in Option 1 are applicable to Option 4. Specific labelling costs for operators in third countries could not be distinguished from the total presented above.

Sectoral competitiveness

If labels are successful in influencing consumer behaviour, it is possible that companies placing products on the EU market may increase prices/margins for products that have a 'positive' label (i.e., no risk of deforestation and forest degradation). This has been the experience for bio-labelled products, as was pointed out by one OPC respondent, and for products labelled as 'organic'[679]. This may inspire competitors to ensure compliance with the deforestation-free label to compete with those economic operators and traders that already perform well. As noted above, DD, in combination with labelling, could provide an incentive for companies placing products on the EU market to improve the sustainability of their supply chains.

Higher prices on products with a 'deforestation-free' claim will have a positive impact on revenues for economic operators or traders, with an equivalent negative impact on operators or traders not achieving this standard. However, some product categories and variations will be more price-sensitive. Although labels can induce a shift in consumer demand towards products with a 'positive' label (particularly stemming from consumers that are more environmentally conscious), part of this effect can be reduced by potential price changes. Hainmueller et al. showed that the sales of the two most popular coffees rose by almost 10% when they carried a Fair Trade label as compared to a generic placebo label, and that the demand for lower-priced coffee was more elastic than that for higher-priced coffee.[680] Moreover, research suggests that consumers' willingness to pay price premiums for eco-labelled products is not a sufficient condition to generate a premium in the market.[681]

Overall, this impact is not expected to be significant since products on the EU market will have to comply with the deforestation-free criteria set out in the regulation and will carry a label confirming this.

Impact on SMEs

No specific differences on labelling impacts could be identified for SMEs in comparison to large companies.

Impact on third countries

This impact is relevant to companies in the EU and in third countries, however, it is difficult to estimate how and if this impact differs between the two.

Administrative burden for the EU and MSs

EU level

The EC would bear the costs of **developing the content of the label and the requirements for its use** (i.e., scope of commodities to be covered, label definitions, as well as issue EU-wide guidance on the use of the label to support implementation at MS level, possibly issuing harmonised pictograms to be used throughout Member States (e.g., size and design)[682]. As a means of comparison, the case of the EU Ecolabel shows an

[679] https://www.europarl.europa.eu/RegData/etudes/BRIE/2015/557009/EPRS_BRI%282015%29557009_EN.pdf

[680] https://www.researchgate.net/publication/281890516_Consumer_Demand_for_Fair_Trade_Evidence_from_a_Multistore_Field_Experiment

[681] https://www-sciencedirect-com.eur.idm.oclc.org/science/article/pii/S0925527315003709

[682] In early 2013, there was an initial attempt by the EU to harmonise sustainability claims on products. The Commission's Product Environmental Footprint (PEF) initiative developed a harmonised methodology to calculate the environmental impact of products. The pilot phase from 2013 to 2016 tested dairy products, olive oil, wine and pasta, and the initiative is now transitioning towards developing policies. The challenge for the EU now is to develop a labelling system that measures sustainability clearly and transparently.

average annual management cost to the European Commission of EUR 1.1 million, covering a system of 33 product groups, 2,000 licenses and 44,000 products for the EU Ecolabel.[683] Since the EU Ecolabel is a voluntary label and covers fewer products than would be covered under the present scheme, it is likely that the European Commission would face higher costs.

Member State level

Compliance checks

Member States would bear costs for **implementing and enforcing the legislation and ensuring that products are correctly labelled**. In Option 1, costs for public authorities were estimated at around EUR 15 million per year. In addition to these costs, MS authorities would need to ensure some labelling inspections.

In an attempt to find comparable evidence on inspection costs incurred through comparable (mandatory labelling schemes), several examples were considered. The impact assessment of the Energy Labelling Directive (2015) mentions that there are no precise figures on total MS expenditure on market surveillance, since only about half of the MS share information of available budgets.[684] In 2011, total MS expenditure was estimated at EUR 7-10 million, with annual budgets in MS ranging from EUR 1,200 (Luxembourg) to EUR 390,000 (Denmark), and teams ranging from less than 1 FTE (Cyprus, Czechia, France, Greece, Iceland, Ireland and Malta) to 10 FTE (Slovakia).[685] Across the EU, the study tentatively estimated around 80 FTE staff working on both Ecodesign and energy labelling compliance administration and around the same level involved in store inspections to ensure labelling compliance. The 2015 impact assessment also estimated a total of EUR 10 million spent on market surveillance (based on incomplete data collected from MSs).[686]

Experiences from other labelling schemes demonstrate that it is difficult to quantify inspection costs and to reliably extrapolate the figures to the EU as a whole. The example of the energy labelling scheme demonstrates that MSs follow different approaches to their inspections (e.g., visual inspections, laboratory tests, documentary checks) and incur varying costs. A study by the European Court of Auditors also explains that the number of products inspected each year ranged from fewer than 20 to more than 100,000 per year per MS.[687]

It can be assumed that in addition to the DD enforcement costs estimated in Option 1, additional resources would be needed to ensure labelling compliance in Option 4. The aforementioned study on energy labelling assumed a similar number of FTE staff needed both for compliance administration and for in-store inspections (i.e. around 80 FTE each).[688] In the absence of better data and due to the fact that more products would be covered under the present scheme compared to the energy labelling and Ecodesign schemes, we can assume a range of **100 to 200 FTE staff** needed to ensure compliance with labelling requirements (across all MSs), in addition to resource needs under Option 1. Assuming a cost of EUR 40,000/FTE (as in Option 1), the additional costs incurred in Option 4 represent between **EUR 4 million and EUR 8 million** at EU level per year (or an additional €148,148 and €296,296 per MS, per year, on average).

Education

Public authorities could also be required to **communicate on the new label** to support education of the general public. No estimates could be made as to the extent of these costs for Option 4. However, evidence of a national information and education campaign on a mandatory labelling change from Australia was estimated

[683] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1505209798054&uri=CELEX:52017DC0355
[684] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015SC0139&from=EN
[685] https://www.clasp.ngo/research/all/enforcement-of-energy-efficiency-regulations-for-energy-consuming-equipment-findings-from-a-new-european-study/
[686] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015SC0139&from=EN
[687] https://www.eca.europa.eu/Lists/ECADocuments/SR20_01/SR_Ecodesign_and_energy_labels_EN.pdf
[688] https://www.clasp.ngo/research/all/enforcement-of-energy-efficiency-regulations-for-energy-consuming-equipment-findings-from-a-new-european-study/

at approximately EUR 10 million for a one-year information campaign.[689] This cost is expected to vary across MS. Although the label is expected to increase consumer awareness about the impact of their purchasing decisions and understanding of traceability, the cost-benefit ratio of implementing expensive educational campaigns about the label may not be favourable (as it would be in a case where consumers have more options between labelled and non-labelled products). It is thus difficult to foresee what educational expenses will be considered necessary by MS.

8.8.4 Social impacts

Consumer engagement and awareness (relevant to EU consumers)

Option 4 will increase consumer awareness of the relationship between the products they consume and deforestation/forest degradation, particularly as a result of the labelling component of the option. According to a study by DG SANTE, labelling regulations allow consumer access and understanding of traceability.[690] However, even in this case, there was some scepticism from stakeholders regarding the effectiveness of product labelling on reducing deforestation rates. Stakeholders argued that product labelling has had very limited impact on consumption patterns, and that competing and overwhelming quantities of information make labelling an ineffective strategy to making supply chains more sustainable (please see impact below).[691]

Under Option 4, consumers in the EU will be exposed to a new label, which will serve as an educational tool, **raising awareness** of the environmental impact (on forests) of consumer choices. Under the premise that consumers will trust the label and the standard on which it is based, this kind of tool will allow consumers to confidently 'vote with their wallets' (i.e., on the environmental impact-related characteristics of products[692]). During an EU consultation on the potential future use of the Product and Organisation Environmental Footprint methods, a large share of the citizens consulted (96%) agreed that they prefer buying products that perform well in terms of their impact on the environment.[693] According to a Eurobarometer study, consumers feel that they would benefit from more information about the environmental impacts of the products they purchase.[694]

Some labels (e.g. the energy efficiency label for household appliances) have demonstrated to be effective and helpful in driving consumer choices, particularly when they contain information about the eco-claims being made rather than simple icons or graphics suggesting eco-friendly qualities.[695] According to a Special Eurobarometer study, the energy efficiency label is recognised by 93% of consumers and 79% consider it when they are buying energy efficient products.[696] The energy-class scheme was also highlighted as useful labelling example in the present public consultation.

One stakeholder noted that greater awareness of deforestation and forest degradation impacts can influence consumer purchasing decisions to a high extent.[697]

Consumer confusion (relevant to EU consumers)

Despite the need to be more well-informed, labels can cause confusion. Consumers are already **overwhelmed by choices**, so labels add a layer of complexity to their choices. Due to the number of labels

[689] https://ris.pmc.gov.au/sites/default/files/posts/2016/04/Country-of-Origin-Labelling-Decision-RIS-1.pdf using an exchange rate of 1.5 from EUR to AUD
[690] https://ec.europa.eu/food/sites/food/files/gfl_fitc_comm_staff_work_doc_2018_part1_en.pdf
[691] As part of targeted interviews
[692] https://ec.europa.eu/environment/industry/retail/pdf/labelling_issue%20paper_final.pdf
[693] https://ec.europa.eu/environment/eussd/smgp/pdf/EF_stakeholdercons19.pdf
[694] https://ec.europa.eu/commfrontoffice/publicopinion/flash/fl_367_en.pdf
[695] https://www.tandfonline.com/doi/full/10.1080/00913367.2013.834803#.U7VkMfaVTe4
[696] https://ec.europa.eu/info/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/energy-label-and-ecodesign/about_en
[697] From RTRS interview.

that already exist (or their complexity), labels can lead to confusion[698,699,700] – a risk that was brought up several times in the public and targeted stakeholder consultations.

The risk can be mitigated if consumers are aware of the label, understand its implications, and consider the problem of deforestation and forest degradation as important. Research also shows that the use of labels is dependent upon motivation, understanding, and purchasing contexts.[701,702] When awareness about a label is low, even consumers with positive attitudes towards sustainability do not use it as a cue in their purchasing choices.[703]

In this option, due to the fact that all products and commodities in scope will be subject to the mandatory label (if the DD outcome is positive), there is a risk that consumers may consider products and commodities not in scope to be associated to deforestation and/or forest degradation since they will not have the same label. As such, labelling needs to be clear and easy to understand, to ensure that consumers understand its purpose. This was also brought up by the European Court of Auditors in a study on energy labelling.[704]

8.9 Option 5 – IUU-like

Overview of policy option

The description of the policy option is presented in section 7.8.

While there are no international treaties to facilitate the acceptance of the legislation (unlike for IUU) there are a range of international forum and processes either directly or indirectly related to deforestation and forest degradation that could be used as a base for the policy. There are however two key distinctions to be made from the IUU legislation: fishing is an area of EU exclusive competence, which is not the case for forest policies, and the supply chain of products and commodities are more complicated, than the fish product supply chains which makes it more challenging to design an effective IUU like legislation.

8.9.1 Environmental impacts

Quality of natural resources

The implementation of the option is expected that products and commodities placed on the EU market will comply with the deforestation-free definition. This, in turn, means that EU supply chain will favour sustainable sourcing for products and commodities as operators and traders placing products in the EU market will seek to source products in compliance with the deforestation-free definition.

This option will materialise in two different ways:

- replacing current operators and traders' suppliers in the supply chain with other suppliers that provide products and commodities meeting the deforestation-free definition; or
- adjusting the production practices of suppliers to be compliant with the deforestation-free definition.

698 https://ec.europa.eu/info/publications/voluntary-food-labelling-schemes-study_en
699 https://www.theguardian.com/sustainable-business/eco-labels-sustainability-trust-corporate-government
700 https://www.intechopen.com/books/adiposity-epidemiology-and-treatment-modalities/nutrition-labelling-educational-tool-for-reducing-risks-of-obesity-related-non-communicable-diseases
701 https://www.sciencedirect.com/science/article/pii/S0306919213001796
702 https://www.sciencedirect.com/science/article/abs/pii/S0959652604002586
703 https://www.mdpi.com/2071-1050/11/24/7240
704 https://www.eca.europa.eu/Lists/ECADocuments/SR20_01/SR_Ecodesign_and_energy_labels_EN.pdf

Both approaches will optimally lead to the substitution of the products placed in the EU market, with publicly certified products produced with processes compliant with the deforestation-free definition.[705]

Therefore, this policy option, assuming an effective implementation, will lead to the reduction of deforestation for which products related to the EU supply chains are responsible.

The implementation of the policy option is expected to reduce the deforestation associated with products placed on the EU market due to the implementation of the prohibition associated with the deforestation free definition. As such, products that do not meet the requirements of the definition cannot be certified, and in turn products without a valid certification cannot be placed on the EU market.

It is expected that an IUU like policy should be able to cover the majority of the relevant products, however the policy option's effectiveness in delivering this impact will also be somewhat mitigated by other factors. Parameters affecting the effectiveness of the policy option relate to the corruption levels in trade partner countries as well as by the way the deforestation free concept is defined. Finally, the timing of entry into force of the relevant legislation will affect the overall potential of the policy option. The initiative can be expected, to enter into force three years after a proposal is agreed upon. This means that the entry into force of the regulation can be placed around 2025 and a couple of years will be required to reach its maximum effectiveness as operators and traders and Competent Authorities adjust their approaches to be able to more effectively perform their duties in the context of the new requirements.

The baseline assessment of the embodied deforestation for which EU consumption of the commodities in scope is responsible can be seen in Section 7.3. There the potential maximum effectiveness of any initiative in this field is estimated to a total volume of preventable forest deforestation of 248,467 ha annually. As identified in the EUTR and FLEGT Fitness Check study, however, corruption at the producing country, can be a major factor for reducing the effectiveness of the regulation by enabling the leakage of non-eligible products and their placement on the EU market fraudulently. Policy option 5 is assessed only qualitatively due to the lack of precise information on the effectiveness of the EU rules to combat illegal, unreported and unregulated fishing (IUU), on which the system is based. However, the effectiveness is expected to gradually increase as mechanisms are implemented, in particular the country carding and benchmarking systems. Information on effectiveness of the IUU Regulation hints to it being seen by both competent authorities, the EU and NGOs as a success even though no actual quantification in the reduction of illegal fish products in the EU could be identified.

Other environmental impacts include to the improvement of the forest management at a national and global level, the improvement of the understanding and sharing of practices in particular through the implementation of the benchmarking system and the generation of information associated.

The extent by which deforestation will be reduced will vary by commodities.

Biodiversity

The reduction of deforestation estimated as a result of this policy option will lead to improved preservation of the natural habitats of (endangered) flora and fauna species. This impact will occur due to the fact natural habitat preservation often leads to a decrease in biodiversity loss[706] in line with the findings presented earlier in Section 8.2.1.

[705] Considering the assumption that placing deforestation-free products in the EU market will not substitute the placement to other markets currently supplied with such deforestation-free products, leading to the placement of more products related to high-risk of deforestation in these markets.

[706] https://www.iucn.org/commissions/world-commission-protected-areas/our-work/biodiversity-and-protected-areas#:~:text=The%20creation%20of%20protected%20area,biodiversity%20loss%20continues%20to%20increase.

Climate

Reduced deforestation will lead to an improved capacity of CO_2 capture. The value of protecting forests in tackling climate change has long been recognised by the scientific community[707].

Under Option 5, it is estimated that the measure will be able to prevent CO2 emissions, however these cannot be quantified. .

Sustainable production and consumption

Operators and traders placing products in the EU market will need to change the ways they operate and source products and commodities to ensure they are deforestation-free. This will result in turn in more environmentally-friendly products being placed and consumed in the EU market and a more traceable record of suppliers and customers.

The extent to which the supply chains will be affected depends to a larger extent on the current availability of commodities and products that can be considered as sustainable (i.e., as a proxy to estimate the share of products that would meet the requirements of the deforestation free criteria). More information on this impact is included in the section below.

8.9.2 Economic impacts, including administrative burden

Operating costs and conduct of business

The administrative burden for the policy option can be distinguished between the different components of the policy option, in particular the benchmarking system, the country carding system, and the certification requirement.

Benchmarking system

The benchmarking system would be established by the European Commission and implemented by a dedicated body. The benchmarking would be set for a combination of a country and commodity. For products, the benchmarking of the commodity included in the product would apply. If a product includes several commodities, the most stringent benchmarking rating would apply. The criteria covered in the benchmarking would influence to some extent the costs of deriving the information for those benchmarks.

Possible criteria include:

- Level of deforestation, forest degradation, and degradation. This information could be based on existing reporting and tools (e.g., FAO Forest Resource Assessment, Global Forest Watch). As such retrieving this information is likely to be efficient.
- Level of production of commodities and products under the scope in the relevant country, subnational region or areas, and their impact on deforestation and forest degradation. This information would be based on national industrial data, exports and imports data. While most of it should be readily available, it might need some expert support to combine the different data and provide an accurate picture of the production status.
- Trade flows of commodities and products, within and to the EU. This information would be based on existing COMTRADE, COMEXT and other EU databases. While this data is readily available, it might need some expert support to combine the different datasets and provide an

[707] https://www.lse.ac.uk/granthaminstitute/explainers/whats-redd-and-will-it-help-tackle-climate-change/

accurate picture of the trade flows status, in particular when considering re-exports and intra-EU movements.

- Availability of the legislative framework to prevent deforestation and forest degradation. This information would be based on research on the existing framework of the country. This would require additional information collection.
- Existence of a public mandatory certification scheme. This information would be based on research on the existing legislative framework, including the existence of a public mandatory certification scheme if the country. This would entail reviewing the standards considered and ascertaining the extent to which they meet the requirements of the deforestation free criteria. This would require additional information collection. This would require additional information collection.
- Evidence of implementation of steps to prevent and reduce deforestation and forest degradation, for example information related to agricultural practices for the specific commodity considered. This would require additional information collection.

Overall, small studies would be required to support the definition of the benchmark for the countries. Support would be needed to ensure the benchmark rating remains up to date.

The outcome of the benchmarking would support the implementation of other parts of the policy option, in particular, the verification of certification. For example, Competent Authorities in EU Member States would use the outcome of the benchmarking to support their inspection and verification activities.

Cost of benchmarking for the 136 countries of relevance would be:

Benchmarking – desk-based assessment of up to 136 countries	Year 1: €1,025,712 Subsequently annually: €598,264

Country carding

Mimicking the IUU, under this option the Commission would be in charge of implementing a carding system. Under this system, a country will be allocated a 'coloured card' based on its performance. The performance would be assessed through a desk-based analysis and country visit. As such the benchmarking would be a precursor to a more in-depth assessment conducted as part of the country carding.

The Commission would start by a review of a range of sources, including a risk assessment based on trade volumes with the EU, information from operators and traders, and information reported / acquired on specific countries by stakeholders. Before a country visit a questionnaire would be sent to the country asking for information about size of the producing companies, how many are monitored, and the local legislation. If a country does not cooperate or provides unsatisfactory responses, a yellow card could be considered. During the country visit, the Commission would verify the accuracy of what was reported by the country. A harmonised approach to the assessment would require an official grid against which to conduct the assessment. Observation notes would then be prepared and shared at the end of the visit. A mission report would then be submitted, which would include recommendations. Countries (EU and non-EU) identified as having inadequate measures in place to prevent and deter activities associated with deforestation and/or forest degradation may be issued with a formal warning (e.g., yellow card) to improve. If they fail to do so, they will face having their products banned from the EU market (red card). Yellow cards would be issued by the Commission: they would not have legal consequences but rather, trigger a dialogue process between the country and the Commission. Red cards would be proposed by the Commission, approved by the Council and would include further measures to incentivise compliance with deforestation and forest degradation recommendations. Alternative ways of issuing red cards should be considered, however considering that forestry is a shared competence, it is likely that a ban decision would require the involvement of Member States.

The yellow card would not have any effect other than "naming and shaming". On the back of a yellow card, a remedial Action Plan would be decided with the relevant country. The Action Plan would not be an official document, but rather a roadmap between the Commission and the country to support continued dialogue and progress. Reviews would be undertaken at agreed time. A red card would be sought if no progress is observed following review. A red card could lead to a ban of placing on the EU markets commodities or products from the country concerned.

The costs involved with the country carding system include staff costs to undertake assessment and monitoring of the action plans and country visits. The European Commission will be required to make visits to producer countries to facilitate data collection for the benchmarking criteria.

The costs of these visits may be comparable to the similar visits made under the IUU or the FATF. For the FATF, the FY2020 budget for travel was €1,641,873.[708]

For the IUU, 2.7 missions are undertaken per year, per country, on average although the associated cost of these missions is not known. Based on similar assumptions, the estimated cost of the country visit is presented below.

Country carding – site visit	Annually (€): 75,600

Stakeholders raised some limitations with the country carding system which could affect its effectiveness. Firstly, the country carding includes some political dimension in particular as part of the red card process, which might render some actions more difficult. Then, it is expected that the dialogue would be less effective with countries not trading with the EU as countries not trading with the EU would not risk losing out on trade with the EU. Another challenge raised by stakeholders relates to the fact that the carding system shifts focus on countries rather than operators and traders' liability. Stakeholders also indicated that focusing on sub-national level could be more suitable[709].

On the other hand, stakeholders indicated that the carding system can help reducing the risk of leakages and addressing indirect suppliers as it encourages national or subnational efforts to address deforestation, as well as supports existing jurisdictional approaches[710]. It is also seen as feasible from an advocacy perspective, medium feasible for the institutional complexity and highly feasible in terms of costs[711]. This is further supported by evidence from the IUU experience showed willingness to engage even from countries not trading with the EU in order to not jeopardise future possible exchanges. Indeed, case studies conducted on the impact of the country carding process concluded on success for several countries, including South Korea, the Philippines, Belize, Cambodia, Fiji, Guinea, Panama, Sri Lanka, Togo and Vanuatu. Research concluded that on the back of yellow and red cards, most of the countries showed as commitment to improve their management and control systems and a willingness to cooperate closely with the EU.[712]

A review of the effectiveness of the country carding system highlighted that being coupled with financial and technical assistance from the EU (provided under separate EU funded programmes) was found to be a positive factor supporting the success of the country carding process. [713]

[708] https://www.fatf-gafi.org/media/fatf/documents/brochuresannualreports/FATF-annual-report-2019-2020.pdf
[709] Nathalie Walker, Emma Grier and Barbara Bramble (2020). Deforestation and forest degradation – reducing the impact of products placed on the EU market: developing EU measures modelled after the IUU Regulation. National Wildlife Federation.
[710] Nathalie Walker, Emma Grier and Barbara Bramble (2020). Deforestation and forest degradation – reducing the impact of products placed on the EU market: developing EU measures modelled after the IUU Regulation. National Wildlife Federation.
[711] Simon L Bagera; Persson, U Martinb; Reisa, Tiago N P (2020). Reducing commodity-driven tropical deforestation: Political feasibility and 'theories of change' for EU policy options
[712] IUU Watch, 2015 EU Regulation to combat illegal fishing Third country carding process yellow and red-carding process is encouraging fisheries reforms and must be maintained HOW DOES THE CARDING PROCESS WORK?
[713] IUU Watch, 2015 EU Regulation to combat illegal fishing Third country carding process yellow and red-carding process is encouraging fisheries reforms and must be maintained HOW DOES THE CARDING PROCESS WORK?

Certification

The certification considered under this option is mandatory public certification. As such the information presented under option 3 with regards to costs of certification are relevant to this section.

As a summary, mandatory public certification can be an effective way to incentivise the switch toward more sustainable and environmentally friendly practices.

Costs include the mandatory public certification system set up, individual farmers and producers certification process and monitoring of the certification outcome through certificates.

Costs for setting up mandatory public certification system vary greatly. According to feedback received from NGOs, certifications are very expensive for smallholders. Furthermore, manufacturers organisations expressed concerned on reporting requirements. An overly complex and burdensome framework of mandatory tools could become a procedural burden resulting in administrative costs, litigation costs and it would decrease the attention on core activities which could potentially lead to negative impact on company performance. More information on costs of certification is presented under Option 3.

Member States Competent Authorities have underlined as part of the OPC that the administrative burden for business and government agencies is high. As a matter of fact, EU Institutions indicated that going through certificates to verify compliance is being reported as being very time consuming by operators and traders.

The views from the stakeholders related to the possible efforts required for verifying certificates are confirmed in a review of the effectiveness of the catch certificate system (i.e., the mandatory public certification equivalent under the IUU Regulation). It included key recommendations to further modernise and support the implementation which might be useful inputs for the Option itself. In particular, it was recommended to consider using digital certificates through a common IT system, standardise the certificates as much as possible to facilitate automated checks, use system to assists authorities in cross checking some of the data included.[714]

Costs of supporting the monitoring of the certification process is established through inspection. Under the IUU system, the implementation of the certification requirement is supported by an IT system, developed in 2016, and costing **300,000 euro per year**. The use of an electronic system was widely supported by stakeholders, in order to facilitate the verification of those certificate and avoids the draw backs of paper certificates.

Training expenses need to be added in the Commission balance for regular training to Member States. No information was identified on likely costs of these.

List of contravening operators and traders

Under the IUU Regulation, a list of contravening operators and traders is being maintained by the Regional Fisheries Management Organisations, and a global list is maintained by a Norwegian organisation.[715]

As part of the option, it could be foreseen that EU Member States are in charge of maintain a list of contravening operators and traders identified in their Member State and to share this information with the European Commission so that a global EU list can be established,

In a paper by Bager et al. (2020), the development of a list of supply-chain operators and traders not conforming to sustainable criteria scored 'high feasibility' for institutional complexity and cost, when assessing its political feasibility. The policy scored a 'high feasibility' overall. The development of a list of suppliers who demonstrate and adhere to best practices for sustainability was also analysed, scoring 'medium feasibility' overall.

[714] EJF, OCeana, Pew and WWF, 2016, Modernisation of the EU IUU Regulation Catch Certificate System
[715] https://www.tm-tracking.org/ and https://www.iuu-vessels.org/

Overall, it is expected that the cost of such feature would be relatively low, and rest mainly in the information collection and collation infrastructures.

Penalty system

The Option includes a penalty system that would be put in place to deter and punish operators and traders that place on the EU market commodities or products that do not meet the requirements of the deforestation free definition. Stakeholders indicated that the system should support, as far as possible, harmonised level of fines throughout the EU, and that in addition to fines, it should include the possibility to confiscate goods that do not comply with the requirements. Conversely, other stakeholders indicated that penalty systems were not supported. This was also highlighted by the European Parliament in 2014 as part of a review of the IUU Regulation which notes that different levels of fines were applied across the EU which may cause discrimination and unfair competition in the fisheries sector.[716] The Parliament recommended exchange of information to be set up to develop a common sanction schedule and enhance the transparency in out of court settlements.

No indication of the costs of setting such a penalty system has been identified, however it is likely to be similar to enforcement costs for other similar requirements. The revenues from such penalty system could generate additional revenues to be allocated by Member States as suitable.

Economic impact on SMEs

As already indicated, SMEs could be affected disproportionately by a mandatory public certification requirement, in particular. In addition to potential impacts on small holders producers (described further under Option 3), according to manufacturer organisations, operators and traders may find it difficult to find suitable suppliers, as a result of this policy option. This is particularly true for SMEs as they have limited resources but also depending on the type of commodities. For example, commodities whose production is concentrated in one region (e.g., cocoa). As a result, a legislation including Option 5 could provide specific support for SMEs. A possible mitigation of such impact would be to provide simplified certification for SMEs, a similar approach has been adopted under the IUU Regulation and found to be useful.

Another impact to consider is that the selling price of certified products will increase together with the costs of certifications. Thus, revenues do not necessarily increase. The increase in price will be also due to a diminishing supply, as suppliers that do not comply with the regulation will not be allowed to access the EU market[717].

Trade implications

According to businesses dealing with commodities under scope, banning commodities and possibly derived products through a deforestation-free certification system may have serious supply consequences in some cases where a country produces a big proportion of the global production of a commodity. It may have limited effect in some cases where the EU is not a key importer.

A possible direct economic loss can be estimated based on the value of imports for specific commodities and from specific countries.

A possible mitigation of this impact, as was done for the IUU Regulation was that in preparation of the entry into force of the Regulation, countries were asked to notify the European Commission of a range of information requested in the legislation that was deemed as the basis to ensure the requirements of the catch certificate could be met. This constituted a first selection and prevented any block in trade when the

[716] European Parliament, 2014, ILLEGAL, UNREPORTED AND UNREGULATED FISHING SANCTIONS IN THE EU
[717] Oceanic Développement, Poseidon Aquatic Resource Management Ltd and MegaPesca Lda (2007). Etude de l'impact des mesures commerciales considérées dans le paquet INN en cours d'élaboration par la Commission.

IUU entered into force. Preventing blockages in trade has been raised by stakeholders as a very important aspect to consider.

Another challenge, associated with the prohibition attached to the requirements of the deforestation free definition, is the potential lack of alternative suppliers. An overview of the situation relative to each of the main commodities and the available production at global level considered to be sustainable is presented in Section 8.5.

The economic implications of a ban on some commodities and possibly, on their derived products, largely depend on the substitutability of those products in consumption (and if there are global sustainable producers), and on the ability of producers to shift planting/production decisions. As such the trade implications of this policy option could be significant, in particular if there is not enough production that meets the deforestation free criteria, the EU could face a discontinuity in supply of some commodities and products. The impacts of a disrupted supply of some commodities could be very large for some specific sector.

For example, the cocoa industry in EU consumes 45% of global cocoa beans, processes and re-export a very large share of this. A total of 3.7 million tonnes of chocolate were produced in 2019 in the EU with Germany, Italy and France being the main producers, accounting together for almost two-thirds (64%) of the total production. They were followed by the Netherlands with 9%, Belgium and Poland with 7% each.[718] Ivory Coast is one of the main source of cocoa from the EU, with 29% of the imports coming from this country. In turn the EU receives 70% of the country's cocoa production.[719] However it is estimated that up to 40% of the cocoa grown in Ivory Coast is illegal and from protected area.[720] As such it could be expected that with this option, a share of the cacao traditionally purchased would not meet the certification standards.

Overall, the cocoa industry is providing employment to 14 million person globally. [721]

Sectoral competitiveness

Certifications attract costs for producers, which can be disproportionately high for smallholders. This might in turn affect competitiveness of the activities for the producer of the commodities and products.

The competition will favour those companies that already put in place measure to control the origin of the commodities and that already adopted deforestation-free commitments.

Impact on consumers

The impact on consumers could materialise in different ways (and for different commodities and products). First there could be an increase in price for the certified commodities and products (certification being mandatory for the product to be placed on the EU market). It has been seen under the IUU system that certificates create a dual market in the world and derived products without certificate would become less valuable. Thus, a guarantee for certified products does upwardly affect the price. As shown under Option 3, certified commodities often attract a premium price which can be 25-37% higher than the price of the uncertified equivalent. It is likely that this increase in price of the commodities and products would be further passed on to the consumers.

Secondly, the consumers could experience a reduced choice or available of some products in particular for those where there is not sufficient production of commodities and products that meet requirements for certification. In some instances, this could lead to the unavailability of products.

[718] Eurostat, https://ec.europa.eu/eurostat/en/web/products-eurostat-news/-/ddn-20200831-1
[719] 2020, Cocoa Barometer
[720] https://www.sciencedirect.com/science/article/pii/S1573521415000160, https://amp.theguardian.com/environment/2019/oct/16/ivory-coast-law-could-see-chocolate-industry-wipe-out-protected-forests
[721] European Parliament, Cocoa in figures,

Functioning of the internal market

The application of the requirements throughout the EU would ensure that the internal market is facing the same situation, however there could be inequality in the ability for some EU countries in affording more expensive commodities and products. There could also be some inequality on the setting of fines as indicated in earlier section.

Administrative burden

EU level

The country carding system requires the European Commission to perform one to two missions per year, per country, in addition to technical meetings in Brussels. Whether the card is a yellow or red card, the visit will demand more or less time. Even after the cards are lifted, monitoring continues. According to EU previous experience on the IUU, around ten desk officers will be necessary to deal with countries and EU Member States. There would be always at least two persons in missions to ensure decisions are balanced. On return, a full report to the country with recommendations is made.

Member State level

To implement the IUU Regulation, within Member States, 474 people have been allocated new roles and responsibilities relating to the control of catch certifications (averaging around 18 people per Member State).[722] It was also reported that 24 Member States had either created or updated existing national laws to implement IUU Regulation or issued administrative guides to assist in applying the Regulation.[723]

Under the IUU Regulation, Member States also submitted assistance requests to the Commission, with it shown that response time for assistance requests from the Commission often exceeded above two weeks, and Member States responded to each other within 1-2 days.[724]

It is expected that Option 5 would not lead to a significant administrative burden at MS level. However, a way to further support this could be to for the EU to co-finance up to 10% of activities undertaken at MS level to implement the new requirements during the initial phase of the implementation of the legislation (e.g., co-financing was provided to Member States for 100% of activities undertaken at MS level for the first two years of implementation of the IUU).

See below for estimate of employment costs in Member States.

Third countries

According to businesses dealing with commodities under scope, banning commodities and possibly derived products through deforestation-free certification system may affect rural communities' livelihoods, especially when smallholders are important in terms of the production of the specific crop.

Most of the economic benefits will be experienced by third countries, in particular those whose commodities and products are able to meet the deforestation free requirements and for which access to the EU market will be guaranteed. It is also expected that the impetus provided by the legislation to adopt more sustainable practices in relation to forestry would lead to additional employment and the development of a range of expert knowledge that will be valuable.

[722] https://ec.europa.eu/fisheries/sites/fisheries/files/iuu_regulation_final-report_en.pdf
[723] https://ec.europa.eu/fisheries/sites/fisheries/files/iuu_regulation_final-report_en.pdf
[724] https://ec.europa.eu/fisheries/sites/fisheries/files/iuu_regulation_final-report_en.pdf

8.9.3 Social impacts

In a political feasibility assessment undertaken by Bager et al. (2020), the development of a list of supply-chain operators and traders not conforming to sustainable criteria scored 'low' for advocacy and 'high feasibility' for institutional complexity and cost. Bager et al. (2020) also assessed the development of a list of suppliers who demonstrate and adhere to best practices for sustainability. This scored 'medium feasibility' overall, having scored 'low' for advocacy and 'high feasibility' for institutional complexity and cost.

Governance, participation and good administration

The implementation of the policy option is expected to support the development of governance, encourage participation and good administration of environmental challenges.

One of the key strengths of the IUU Regulation system is the fact that it sets a framework for improvement of practices. The literature reviewed on the IUU Regulation is consistently praising the enabling conditions of the legislation, in particular in improving transparency, monitoring and prosecution of offences at global level which have translated into actual environmental protection.[725]

Employment

The hiring of staff to the EU would be necessary to administer the benchmarking and country carding system. The IUU system required 10 FTE. It is likely that option 5 would require more staff, considering the wider scope of commodities and products considered. An annual cost of €900,000 covering 15 FTE is assumed[726].

At Member State level, 26 Member States had around 474 people allocated to new roles and responsibilities relating to control of catch certifications.[727] It is expected that more staff members would be needed to control the certifications for commodities and products. An annual costs of €42,660,000 would cover 711 FTE staff in charge of implementing the legislation, in particular the certification aspect at MS level.

Impact on employment for the industries related to commodities and products could be potentially important, in particular if supply of commodities is disrupted and prevent EU industries to operate. This is particularly relevant for raw commodities, but also to some extent for products.

[725] Environmental Justice Foundation, https://ejfoundation.org/news-media/a-decade-of-the-eus-regulation-on-illegal-fishing-real-world-progress
[726] Assuming 1 FTE = €60,000
[727] https://ec.europa.eu/fisheries/sites/fisheries/files/iuu_regulation_final-report_en.pdf

9. How do the options compare?

As elaborated in the previous chapter, the proposed policy options contained therein have different economic, environmental and social impacts. An overall comparison of the impacts is summarised in below.

This chapter includes the following three tables:

#	Title	Content
1	Overview of options	This table will present the several measures, a short summary of the key mechanisms, the expected effectiveness, efficiency, etc. This table highlights similarities and differences between the options.
2	Overview of costs	Overview of direct/indirect costs, frequency (one-off/recurrent), per stakeholder (e.g., citizen, business, EU administrations, third countries)
3	Overview of benefits	Overview of environmental, economic, and social benefits.

Both quantitative and qualitative information can be found in the tables. Where it was not possible to quantify the impacts, this is noted. If some categories of impacts do not apply, it is shown as 'non applicable'

Table 9.1 Overview of options

	Policy options				
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**
Main instruments(s)	**Improved due diligence system**	**Improved due diligence system with benchmarking system and list of contravening operators and traders**	**Improved due diligence system with mandatory public certification**	**Improved due diligence system with mandatory labelling**	**Deforestation-free requirement with benchmarking system, penalties for non-compliant operators and traders, list of contravening operators and traders, mandatory public certification and country carding system**
Overview of key mechanisms	• Mandatory due diligence system (DDS) approach to ensure that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation. • Operators and traders and traders exercise a DDS. • DDS relies on the establishment of a definition for 'deforestation-free' and a set of underlying criteria. • Enforcement is carried out by competent authorities.	• A two-tiered Due Diligence System, like **Option 1** also applies, but with incremental levels of requirements (simplified DDS compared to option 1 or enhanced DDS as in option 1), determined by the benchmarking system. • Benchmarking against set criteria (associated with deforestation and forest degradation by commodity and country of origin) will determine a country's position as 'high-risk' (enhanced DDS) or 'low-risk' (simplified DDS). The legislator will set thresholds to benchmark	• A two-tiered Due Diligence System, like **Option 1** also applies, but with incremental levels of requirements (simplified DDS compared to option 1 or enhanced DDS as in option 1), determined by the availability of mandatory public certification. • Mandatory public certification system demonstrates that a commodity or product has not contributed to deforestation or forest degradation. • EU MS and third countries set up mandatory public	• A Due Diligence System like **Option 1** also applies. • Following a positive outcome of the DDS process, a mandatory label will be given to the product being placed on the EU market, indicating that the commodity or product complies with deforestation-free criteria.	• In-depth benchmarking system (based on **Option 2)** (but without **Option 1**). • Country carding system informed by the benchmarking: assessment of EU and non-EU countries: countries with inadequate measures in place to prevent deforestation and/or forest degradation may be issued with a formal warning (yellow card) to improve; otherwise, their products may be banned from the EU market (red card). • Mandatory public certification system – see **Option 3**. • List of operators and traders contravening the requirements, when infringement is notified by country. • Penalties for contravening operators and traders.

	Policy options				
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**
		against and the European Commission set up and update the benchmarking tool. • List of operators and traders contravening the requirements, when infringement is notified by country.	certification systems to assess and certify products destined for the EU market. • Public certification system to be recognised by EU. • Operators and traders can use certification system to demonstrate compliance during their own DDS.		
Overall support from consultations[728]	• **69%** of respondents to question 3.6 in OPC thought Mandatory Due Diligence was a suitable measure. • Most interviewees agreed that a DDS was a suitable measure.	• As for **Option 1, 69%** of respondents to question 3.6 in OPC thought Mandatory Due Diligence was a suitable measure. • **55%** of respondents to question 3.6 in OPC thought Benchmarking was a suitable measure.	• As for **Option 1, 69%** of respondents to question 3.6 in OPC thought Mandatory Due Diligence was a suitable measure. • **68%** of respondents to question 3.6 in OPC thought Mandatory Public Certification was a	• As for **Option 1, 69%** of respondents to question 3.6 in OPC thought Mandatory Due Diligence was a suitable measure. • **68%** of respondents to question 3.6 in OPC thought Mandatory Labelling was a suitable measure. • **Most interviewees** were not in favour of a mandatory labelling.	• As for **Option 2, 55%** of respondents to question 3.6 in OPC thought Benchmarking was a suitable measure. • As for **Option 3, 68%** of respondents to question 3.6 in OPC thought Mandatory Public Certification was a suitable measure. • In addition, **89%** of respondents to question 3.6 in OPC thought a Deforestation-free Requirement was a suitable measure.

[728] Measures were not further defined within the OPC and respondents to the OPC were only presented generic measures without details.

	Policy options				
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**
			suitable measure.		
Potential number of companies impacted	All operators and traders, regardless of legal form, size or complexity of value chain nor their base or origin. Approx. 100,000 transboundary (both intra-EU and extra-EU) and up to 1.3m domestic (i.e., trading within one country) operators and traders, active in broader relevant economic sectors.	All operators and traders, regardless of legal form, size or complexity of value chain nor their base or origin. Approx. 100,000 transboundary (both intra-EU and extra-EU) and up to 1.3m domestic (i.e., trading within one country) operators and traders, active in broader relevant economic sectors.	All operators and traders, regardless of legal form, size or complexity of value chain nor their base or origin. Approx. 100,000 transboundary (both intra-EU and extra-EU) and up to 1.3m domestic (i.e., trading within one country) operators and traders, active in broader relevant economic sectors.	All operators and traders, regardless of legal form, size or complexity of value chain nor their base or origin. Approx. 100,000 transboundary (both intra-EU and extra-EU) and up to 1.3m domestic (i.e., trading within one country) operators and traders, active in broader relevant economic sectors.	All operators and traders, regardless of legal form, size or complexity of value chain nor their base or origin. Approx. 100,000 transboundary (both intra-EU and extra-EU) and up to 1.3m domestic (i.e., trading within one country) operators and traders, active in broader relevant economic sectors.
Expected effectiveness	**Effectiveness: --** • Improved DDS regime could lead to a near full coverage over time of the products placed on the EU market under the scope of the DDS. • Incorporates the learning from the fitness check of the EUTR and FLEGT Regulation to improve the	**Effectiveness: ++** • Increased effectiveness compared to option 1, due to benchmarking system and list of contravening operators and traders. Information from the benchmarking is generated at EU level, which facilitates the implementation and	**Effectiveness: ++** • Increased effectiveness compared to Option 1 due to mandatory public certification, which improves and verifies the accuracy of information made available in the DDS. • Reduced effectiveness compared to	**Effectiveness: --** • Similar as Option 1. • The mandatory label does not improve the effectiveness of the option, but it brings additional benefits of information on compliance to consumers. • Option 4 is assumed to achieve a reduction of 30% of deforestation driven by EU consumption of commodities and products.	**Effectiveness: +++** • Effectiveness of option 5 will be based on the effectiveness of the benchmark (in option 2) and the mandatory public certification (in option 3). • The effectiveness is assessed only qualitatively because of the lack of precise information on the effectiveness of the EU rules to combat illegal, unreported and unregulated fishing (IUU), on which the system is based.

	Policy options				
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**
	DDS already in place under EUTR. • Effectiveness depends on the capacity of companies to implement the DDS requirements, and the accuracy of information feeding the DDS. • Option 1 is assumed to achieve a reduction of 30% of deforestation driven by EU consumption of commodities and products.	enforcement across and within Member States. • Option 2 is assumed to achieve a reduction of 45% of deforestation driven by EU consumption of commodities and products.	Option 2 due to expected low level of uptake and recognition of the certification schemes. • Option 3 is assumed to achieve a reduction of 40% of deforestation driven by EU consumption of commodities and products.		
Expected efficiency	**Efficiency: --** • Based on tables 2 and 3: medium.	**Efficiency: ++** • Based on tables 2 and 3: high. • Benchmarking allows for increased benefits from the tiered approach proportionate to risk, hence decreasing the costs for simplified DDS.	**Efficiency: ++** • Based on tables 2 and 3: high. • Mandatory public certification allows for increased benefits from the tiered approach proportionate to risk, hence decreasing the costs for simplified DDS.	**Efficiency: ---** • Based on tables 2 and 3: low. • Additional costs of labelling not bringing additional benefits.	**Efficiency: ++** • Based on tables 2 and 3: high. • Range of tools under the option expected to be cost-efficient, without administrative burden of DDS.

	Policy options				
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**
Key cost components	• Industry: Administrative costs for compliance with DDS requirements. • Industry: Cost of producing with production practices compliant with the deforestation-free definition and costs of recording and providing such information. • MS: Costs of implementation and enforcement by Member States. • EU: EU-level coordination costs (e.g., guidance, holding expert groups meeting, IT cost for database).	• Costs from **Option 1.** • EU: Costs associated with setting up the benchmarking criteria, platform and compiling information received (including maintaining the list of contravening operators and traders). • EU: regular monitoring and update of the benchmarking.	• Costs from **Option 1.** • EU: Costs of setting up and running the recognition of the mandatory public certification, and monitoring. • Industry: costs of gaining certification. • MS and third countries: costs of setting up a mandatary public certification system.	• Costs from **Option 1** • Industry: costs of labelling • MS: costs of labelling inspection • EU: EU-level guidance on labelling and dissemination/communication around label.	• EU: Costs of setting up and running the recognition of the mandatory public certification and country carding process • EU: Costs associated with setting up the benchmarking criteria, platform and compiling information received (including maintaining the list of contravening operators and traders) (higher than benchmarking in option 2, given the enhanced features) • EU: regular monitoring and update of the benchmarking. • Industry: costs of gaining certification. • MS and third countries: costs of setting up a mandatary public certification system.
Key categories of benefits (regardless of magnitude of impact)	• Prevention of deforestation and forest degradation. • Reduced contribution towards climate change.	• Same as Option 1. • Improved knowledge and monitoring data. • Harmonised approach of DDS at EU level.	• Same as Option 1. • Better access to market for countries with a mandatory public certification scheme.	• Same as Option 1. • Label will serve as an educational tool, raising awareness of the environmental impact (on forests) of consumer.	• Prevention of deforestation and forest degradation. • Reduced contribution towards climate change. • Improvements in biodiversity; improvements in soil, water and air quality. • Improvements in sustainable production and awareness raising.

	Policy options				
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**
	• Improvements in biodiversity; improvements in soil, water and air quality. • Improvements in sustainable production and awareness raising. • Capacity building in administration and governance. • Employment benefits	• Reduced burden based on proportionate tiered approach of DDS.	• Reduced burden based on proportionate tiered approach of DDS.		• Capacity building in administration and governance. • Employment benefits • Improved knowledge and monitoring data. Better access to market for countries with a mandatory public certification scheme.
Impacts on SMEs	**Impact: --** • No differentiation in requirements based on the size of company. • Costs to comply with DDS requirements may be high for SMEs. • Dedicated support for SMEs (e.g., guidance)	**Impact: ++** • Costs to comply with DDS requirements may be high for SMEs. • Dedicated support for SMEs (e.g., guidance) • The two-tiered approach allows SMEs placing products derived from low-risk supply chains (commodity/country of origin) to benefit from lower costs in the simplified DDS.	**Impact: ++** • Costs to comply with DDS requirements may be high for SMEs. • Dedicated support for SMEs (e.g., guidance) • The two-tiered approach allows SMEs placing certified products (from the mandatory public certification scheme) to benefit from lower costs in the simplified DDS. • SMEs benefit from financial support	**Impact: ---** • Costs to comply with DDS requirements may be high for SMEs. • Dedicated support for SMEs (e.g., guidance). As option 1, with additional burden of labelling regardless of size of enterprise.	**Impact: ++** • The option allows SMEs placing certified products (from the mandatory public certification scheme) to benefit from lower costs from a simplified certification process. • SMEs benefit from financial support in gaining certification through public programmes (e.g., grants).

	Policy options				
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**
			in gaining certification through public programmes (e.g., grants).		
Impacts on third countries	**Impact: --** • Industry: producers with sustainable practice in third countries may be discriminated if they are located in a higher risk country. • Industry: producers/farmers must have the capacity to fulfil environmental criteria as set out by the standard (which may be more challenging smallholders and farmers). • Government: potential costs for the national governments of third countries that participate in a knowledge sharing and administrative	**Impact: --** • Industry: producers with sustainable practice in third countries may be discriminated if they are located in a higher risk country. • Industry: producers/farmers must have the capacity to fulfil environmental criteria as set out by the standard (which may be more challenging smallholders and farmers). • Government: potential costs for the national governments of third countries that participate in a knowledge sharing and administrative platform with the EU. **Impact: ++**	**Impact: --** • Industry: producers with sustainable practice in third countries may be discriminated if they are located in a higher risk country. • Industry: producers/farmers must have the capacity to fulfil environmental criteria as set out by the standard (which may be more challenging smallholders and farmers). • Government: potential costs for the national governments of third countries that participate in a knowledge sharing and administrative	**Impact: --** • Industry: producers with sustainable practice in third countries may be discriminated if they are located in a higher risk country. • Industry: producers/farmers must have the capacity to fulfil environmental criteria as set out by the standard (which may be more challenging smallholders and farmers). • Government: potential costs for the national governments of third countries that participate in a knowledge sharing and administrative platform with the EU.	**Impact: --** • Industry: producers with sustainable practice in third countries are discriminated if they are located in a higher risk country. • Industry: producers/farmers must have the capacity to fulfil environmental criteria as set out by the standard (which may be more challenging smallholders and farmers). • Government: potential costs for the national governments of third countries that participate in a knowledge sharing and administrative platform with the EU. • Government: costs of setting up and maintaining a mandatory public certification system. • Industry: cost associated with gaining certification, but also the costs associated with production methods needed to meet the requirement of the certification. **Impact: ++** • Industry: increased demand from EU market for products and commodities originating from countries with low risk in the benchmarking. • Industry: potential price premium for (publicly) certified products.

	Policy options				
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**
	platform with the EU.	• Industry: increased demand from EU market for products and commodities originating from countries with low risk in the benchmarking.	platform with the EU. • Government: costs of setting up and maintaining a mandatory public certification system. • Industry: cost associated with gaining certification, but also the costs associated with production methods needed to meet the requirement of the certification. **Impact: ++** • Industry: potential price premium for (publicly) certified products.		
Potential differences in trade impacts	• Decrease in products placed on the EU market that have been imported from "high-risk" producers – shift to "low-risk" producers. • Operators and traders not	• See **Option 1**	• See **Option 1** • Certified products can have a wider market access.	• See **Option 1**	• Banning commodities and possibly derived products may have serious supply consequences where a country produces a big proportion of the global production of a commodity. • Potential lack of alternative suppliers following a ban. • Potential trade disruption. • Economic implications of a ban on some commodities etc., largely depend on their substitutability in consumption.

	Policy options				
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**
	complying with the deforestation-free definition production practices may re-orientate their production towards third countries without similar requirements. • Potential risks of leakage. • Potential need for a compensation mechanism to allow suppliers to reintegrate with supply chains.				

Table 9.2 Overview of costs

Overview of costs									
Affected demographic:		**Citizens/Consumers**		**Businesses**		**EU administrations**		**Third countries**	
Frequency of cost:		**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**
Option 1	Direct costs	N/A	N/A	Cost of setting up a due diligence system.	Costs of DDS compliance € 1,000-15,000 per annum per company (€10,000 best estimate) **Total**: €139 to €1,881 million. Costs of product certification for producers (not mandatory under **Option 1**). Additional costs for sourcing commodities. Potential disproportionate costs to SMEs.	**EU level** - Cost of initial implementation (e.g., developing guidance to MS and operators and traders) Costs for setting up IT infrastructure (1-2 million)	**MS level** - Increased administrative burden to enforce and report to the COM on implementation (€670,000 Euro per annum per MS – total €18 million). **EU level** - Increased administrative costs (supporting implementation of regulation such as the development of supporting maps for this measure, guidance document on DDS for MS and operators and traders, assessment of producing countries and support to MS enforcement).	N/A	Costs of production increased for compliance with deforestation-free definition (not mandatory). Administrative costs related collecting and providing information to feed into the DDS. Cost of knowledge sharing and administrative platform participation with the EU.

Overview of costs									
Affected demographic:		**Citizens/Consumers**		**Businesses**		**EU administrations**		**Third countries**	
Frequency of cost:		**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**
							Cost of maintenance for IT infrastructure € (€150,000 per annum). Cost of operating expert groups (€30,000 per annum)		
	Indirect costs	N/A	Possible small increase in price of commodities as costs are passed from operators and traders complying with DDS to consumers.	N/A	Additional costs on producers passed to operators and traders.	N/A	N/A	N/A	Costs of DDS requirements and environmental compliance could be carried down supply chain.
Option 2	Direct costs	N/A	N/A	See **Option 1**	Costs of DDS compliance 'low risk' € 500 - 5 000 per annum per company. Costs of DDS compliance 'high risk' €1,000 – 10,000. **Total**: €125 million to €1,693 million.	See **Option 1** **EU level** – setting up benchmarking platform (assumed to make use of same IT architecture): Year 1 (including set up) €336,876 Cost for set up and maintenance of list of contravening operators and	See **Option 1** **EU level** - Updating benchmarking criteria, maintaining platform on producer countries, obtaining information from third countries. Year 2 and thereafter: €168,438	N/A	See **Option 1** Providing information on criteria for benchmarking: expected to be low burden.

Overview of costs									
Affected demographic:		**Citizens/Consumers**		**Businesses**		**EU administrations**		**Third countries**	
Frequency of cost:		**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**
						traders – assumed to make use of same IT architecture. No additional cost			
	Indirect costs	N/A	Similar to **Option 1**, but reduced cost to consumers as less operators and traders will be requested to undergo an enhanced DDS	N/A	Similar to **Option 1,** but costs to SMEs might be reduced if they are using supply chains "low risk" countries / commodities.	N/A	**MS level** - Reduced costs of implementation due to benchmarking being conducted at EU level.	N/A	See **Option 1** Reduced costs of implementation due to benchmarking being conducted at EU level.
Option 3	Direct costs	N/A	N/A	See **Option 1** Costs associated with the certification process such as the fees paid to certifiers to conduct initial assessments and subsequent audits. Costs vary based on country and commodities. Average of €33.9/ha	Costs of DDS compliance 'low risk' € 500 - 5 000 per annum per company. Costs of DDS compliance 'high risk' €1,000 – 10,000 **Total**: €133 million – 1,806 million. Costs of achieving certification for all of the plantations would be €186 million of set up	See **Option 1** **MS level -** Cost of setting up public mandatory system: €1.2 million per country **EU level** - Costs of setting up body for recognition of certification: €1.6 million for first two years	See **Option 1** **MS level** - Costs of enforcement by MS (and/or independent bodies). Costs of reporting on certification schemes - €100,000 - €1,000,000 per country **EU level** – operation costs for EU agency - €376,4621	See **Option 1** Public: Cost of setting up public mandatory system: €1.2 million per country	See **Option 1** Industry: Costs associated with the certification process such as the fees paid to certifiers to conduct initial assessments and subsequent audits. Costs vary based on country and commodities. Average of €33.9/ha. Public: Costs of reporting on certification schemes -

Overview of costs								
Affected demographic:		**Citizens/Consumers**		**Businesses**		**EU administrations**		**Third countries**	
Frequency of cost:		**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**
					costs and €55.8 million annual costs.				€100,000 - €1,000,000 per country
	Indirect costs	N/A	See **Option 1** Potentially reduced choice of products.	See **Option 1**	See **Option 1**	N/A	**MS level** - Reduced costs of implementation due to recognition being conducted at EU level.	N/A	See **Option 1**
Option 4	N/A	Consumer confusion due to the number of existing labels on products. Can be partly mitigated if trust and awareness of the label is high and the label is clear.	N/A	See **Option 1.** Increase in operational costs for operators and traders (monitoring and auditing the use of the labelling system, and the cost of adding the label to products). Potential administrative burdens to operators and traders due to complexity of the labelling process. **Labelling costs** are expected to	See **Option 1.**	See **Option 1.** EU level - Costs of implementation of labelling for EU (developing the content of the label and the requirements for its use and guidance).	See **Option 1.** In addition to Option 1, MS level costs: **costs of enforcement/ compliance checks** and communication **for MS.** Between €4 million to €8 million per year (in total across all MS) for ensuring labelling compliance. MS authorities will be entrusted to implement and enforce the legislation and ensure that	See **Option 1. Part of the labelling costs may be incurred by economic operators and traders in third countries importing into the EU**, additional to DD costs (cannot be distinguished from the total)**.**	Direct costs

Overview of costs									
Affected demographic:		**Citizens/Consumers**		**Businesses**		**EU administrations**		**Third countries**	
Frequency of cost:		**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**
				range between €6 million to €417 million. Parts of the costs will recur, but to a small extent, since most enterprises will already be printing packaging with other labels.			products are correctly labelled.		
	N/A	See **Option 1** Potential increase in prices/margins due to labelling costs. Additional consumer confusion can arise from similar products not in the scope of the regulation and not labelled as 'deforestation-free'.	See **Option 1.**	See **Option 1.**	N/A	N/A	N/A	See **Option 1.**	Indirect costs
Option 5	Direct costs	N/A	N/A	Costs associated with the certification process such as the fees paid to certifiers to	Costs of implementation, maintaining certification, obtaining certificate and	**MS level -** Cost of setting up public mandatory system: €1.2 million per country)	**MS level** - Costs of enforcement by MS (and/or independent bodies).	**Public**: Cost of setting up public mandatory system: €1.2 million per country)	**Public**: Providing information on criteria for benchmarking / country carding

Overview of costs								
Affected demographic:	**Citizens/Consumers**		**Businesses**		**EU administrations**		**Third countries**	
Frequency of cost:	**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**
			conduct initial assessments and subsequent audits. Costs vary based on country and commodities. Average of €33.9/ha	providing documentation (particularly on SMEs).	**EU level** - Costs of setting up body for recognition of certification: €1.6 million for first two years. **EU level** - Costs of supporting systems for benchmarking Year 1 (including set up) €336,876 **EU level** – Setting up IT platform. Costs for setting up IT infrastructure (1-2 million) **EU level** - Cost for set up and maintenance of list of contravening operators and traders – assumed to make use of same IT architecture. No additional cost	**EU level** - Updating benchmarking criteria, maintaining platform on producer countries, obtaining information from third countries. Year 2 and thereafter: €168,438. **EU level** - Costs of implementing and monitoring a country carding system to EU. Staff costs: €900,000 per year Expenses: **EU level** - Cost of maintenance for IT infrastructure € (€150,000 per annum). **MS level** – Implementation and enforcement costs €28 Million per annum		**Industry**: Costs associated with the certification process such as the fees paid to certifiers to conduct initial assessments and subsequent audits. **Public**: Costs of issuing certification **Public**: Costs of reporting on certification schemes - €100,000 - €1,000,000 per country

Overview of costs									
Affected demographic:		**Citizens/Consumers**		**Businesses**		**EU administrations**		**Third countries**	
Frequency of cost:		**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**	**One-off**	**Recurrent**
							Annual costs of €42,600,00 would cover 711 FTE staff in charge of implementing the legislation, in particular the certification aspect at MS level. **MS level**: Costs of reporting on certification schemes - €100,000 - €1,000,000 per country		
	Indirect costs	N/A	Potentially reduced choice of products.	N/A	N/A	N/A	**EU level** - Managing disputes.	N/A	Impacts from changes in trade

Table 9.3 Overview of benefits

	Overview of benefits				
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**
Environmental	• Avoided at least 74.5 kha of annual deforestation prevented in 2030 (30% effective in reducing EU-caused deforestation) • Reduced contribution to climate change by at least 32.7 $MtCO_2$ emissions per year in 2030 - equivalent to €1.4-3.2 billion (30% effective in reducing EU-caused deforestation-related emissions) • Improvements to soil, water, air, soil quality. And biodiversity • Increased sustainable production and awareness raising	• Avoided at least 111 kha of annual deforestation prevented in 2030 (45% effective in reducing EU-caused deforestation) • Reduced contribution to climate change by at least 49 Mt CO_2 emissions per year in 2030 - equivalent to €4.9 billion (45 % effective in reducing EU-caused deforestation-related emissions) • Improvements to soil, water, air, soil quality. And biodiversity • Increased sustainable production and awareness raising	• Avoided at least 99,386 ha of annual deforestation prevented in 2030 (40% effective in reducing EU-caused deforestation) • Reduced contribution to climate change by at least 43.6 Mt CO_2 emissions per year in 2030 - equivalent to €4.3 billion (40% effective in reducing EU-caused deforestation-related emissions) • Improvements to soil, water, air, soil quality. And biodiversity • Increased sustainable production and awareness raising	• Avoided at least 74.5 kha of annual deforestation prevented in 2030 (30% effective in reducing EU-caused deforestation) • Reduced contribution to climate change by at least 32.7 Mt CO_2 emissions per year in 2030 - equivalent to €1.4-3.2 billion (30% effective in reducing EU-caused deforestation-related emissions) • Improvements to soil, water, air, soil quality. And biodiversity • Increased sustainable production and awareness raising	• Reduced contribution to EU-driven deforestation, Reduced contribution to climate change by reducing EU-caused deforestation-related emissions • Improvements to soil, water, air, soil quality. And biodiversity • Increased sustainable production and awareness raising
Economic	• Producers in 'low-risk' countries may see an increase in trade. • Positive impact on operators and traders producing the commodities that are compliant with the deforestation-free definition. • Option could generate an improved level	• 'Low-risk' DDS provides lower costs for compliance compared to **Option**. • Producers under 'low-risk' DDS may see an increase in trade. • Positive impact on competition • Reduced implementation costs for MS by conducting	• See **Option 1** • Certification benefits smallholders: it can improve knowledge on sustainable practices, protection of their rights including land and use rights, higher yields and income, ongoing technical support by the certification body, and access to markets that	• See **Option 1**. • Labelling is an existing approach used elsewhere. • Potential improvement in sector competitiveness through higher perceived quality/sustainability of products.	• Positive impact on operators and traders producing the commodities that are compliant with the deforestation-free definition. • Option could generate an improved level playing field for the EU market.

Overview of benefits

	Option 1	Option 2	Option 3	Option 4	Option 5
	playing field for the EU market. • Could lead to improved enforcement practices and effectiveness across EU Member States.	benchmarking at EU level • Harmonised approach at benchmarking as conducted at EU level	require such certification. • Minimal impacts on trade are expected.		• Better access to market for countries with a mandatory public certification scheme. • Premium price for producers
Social	• Improved governance. • Potential for increased employment in operators and traders applying low-risk production processes.	• See **Option 1** • Best practices can be identified through benchmarking. • Information availability from benchmarking may facilitate innovation and research.	• See **Option 1** • Better access to market for countries with a mandatory public certification scheme. • Reduced burden based on proportionate tiered approach of DDS.	• See **Option 1** • Consumer engagement and awareness-raising (relevant to EU consumers).	• Capacity building in administration and governance. • Employment benefits • Improved knowledge and monitoring data. • Information availability from benchmarking may facilitate innovation and research.

10. The preferred option

Option 2 (**benchmarking system combined with mandatory due diligence**) appears to be the most viable option. This option includes other elements building on the experiences from the IUU and FATF. According to the estimated effectiveness of the preferred option, Option 2 is assumed to achieve a reduction of 45% of deforestation driven by EU consumption of commodities and products.

Key elements of this option are further described under section 7, and further summarised below:

Table 10.1 Summary of the preferred option

Elements of option 2	Description
Key mechanisms	• A **mandatory due diligence system** to ensure that certain commodities and derived products placed on the EU market do not come from supply chains associated with deforestation and/or forest degradation. Operators (i.e., those who place products on the EU market) would implement a Due Diligence System (DDS) to minimise the risk of placing products coming from supply chains associated with deforestation and/or forest degradation on the EU market. This DDS would be based on a definition for 'deforestation-free', covering also forest degradation. • Subsequently, commodities and derived products harvested and/or produced in a way that is not in accordance with 'deforestation-free' criteria and with the laws of the countries of origin must not be placed on the EU market will be **prohibited**. • The option will include a **progressive product scope** covering a number of commodities and derived products, which is subject to revision. The progressive scope is suited to successive updates, reflecting the dynamism of the consumption and trade markets; in addition, the progressive scope is able to acknowledge changes in situation at global level and react / anticipate risk of leakages in other biomes
Additional risk-based elements	• A **mechanism to differentiate between levels of risk** in specific countries, establishing different groups of countries, which would lead to different levels of due diligence obligations to be applied by the operators in each case. Countries could be assessed to represent a low risk of deforestation and forest degradation associated with the products that are in scope of the regulation. The assessments would be regularly updated and based the latest available information (from all relevant stakeholders, within the EU and globally) and scientific data, building, in part, on the example of country overviews existing under the EUTR. This element allows sufficient flexibility to enable mitigation of possible economic impacts for SMEs, smallholders farmers in producing countries and for third countries' economies, as recommended in the European Parliament's resolution. • Publishing a **list of contravening operators**.

The table below provides an overview of benefits from option 2, in comparison to other options considered in this assessment.

Table 10.2 Benefits over other options

In comparison with:	Benefits from option 2
Option 1	Higher effectiveness for option 2, due to the benchmarking and list of contravening operators, which facilitate implementation and enforcement. Higher efficiency for option 2, due to increased benefits from a tiered-approach and decreased costs through a simplified due diligence system. The additional risk-based elements (from the benchmarking) will lower compliance costs for operators and public authorities in the EU compared to due diligence as described under option 1 only, while providing incentives for partner countries to move in the right direction.

In comparison with:	Benefits from option 2
	The two-tiered approach in Option 2 allows SMEs placing products derived from low-risk supply chains (commodity/country of origin) to benefit from lower costs in the simplified DDS, compared to Option 1.
Option 3	Higher effectiveness for option 2, given the expected low level of uptake and recognition of certification schemes.
Option 4	Higher effectiveness for option 2, given the additional costs from labelling that are not proportionately compensated by benefits. In particular, mandatory labelling does not add value, as only commodities and products that meet the established criteria are allowed to be placed on the market anyway. A label therefore would not add any additional information value as a product is either accepted or not on the market under the regulation; at the same time it is likely to increase costs for operators at all stages of the value chain, costs which may ultimately be shouldered by the consumer without giving the latter better assurances on the deforestation-free character of a commodity or product.
Option 5	While options 2 and 5 have broadly comparable effectiveness and efficiency, banning commodities and possibly derived products under option 5 may have serious supply consequences where a country produces a big proportion of the global production of a commodity. A potential lack of alternative suppliers following a ban may take place.

To have a real impact, the preferred option must be accompanied with other measures identified in the Communication on Stepping up EU Action to Protect and Restore the World's Forests, in particular: 1) working in partnership with producer countries, crucial to covers aspects related to root causes of deforestation, such as governance, the fight against corruption and law enforcement, and to be accompanied by adequate packages of support; and 2) strengthening international cooperation, especially with other major consumer countries, to ensure adoption of similar measures to avoid products coming from supply chains associated with deforestation and forest degradation being placed on the market, to minimise leakage.

11. How would the actual impacts be monitored and evaluated?

Satellite imagery and geospatial data from remote sensing methods are the tool generally used to monitor deforestation.

Tools identified are summarised in the table below. For degradation, there are many possible criteria to monitor and many different indicators can be used. The table only includes those criteria identified by the FAO as quantifiable, which are in relation to thematic elements associated with Sustainable Forest Management.[729] These include: forest biological diversity; biomass, growing stock and carbon; productive functions; and protective functions. These are outlined in an FAO paper 'Assessing forest degradation: Towards the development of globally applicable guidelines'.[730]

Table 11.1 Overview of existing tools for monitoring deforestation and degradation

Name of the tool	Geographic Coverage	Data since?	Type of information
FAO Forest Resource Assessment	Global – data reported at national level	1990 (varies depending on type on information required)	Land use change Forest coverage Growing stock Biomass stock Carbon stock
Global Forest Watch (Hansen et al. 2013)	Global – 30 x 30 metre resolution	2001 (2001-2010 and 2011-2019 methodologies differ)	Tree cover Canopy density
TRASE	Global – country, sub-national and commodity	Varies by commodity and country selection	Key commodities Supply chain mapping National exports
Agroideal	Global – select countries (Brazil, Argentina, and Paraguay), sub-national and commodity	2008	Soy and beef Deforestation
System for Earth Observation Data Access, Processing and Analysis for Land Monitoring (SEPAL)	Global – sub-national level	Historical satellite data available. Specific dates not identified	Satellite data from a range of sources Land use and cover Forest cover
Real Time Deforestation Detection System (DETER)	Brazil (Amazon)	2004	Forest cover (detects deforestation larger than 25 hectares from satellite imagery)
Copernicus services	Global – sub-national level	Many datasets available	Satellite data (can be used to obtain many information requirements)

729 http://www.fao.org/3/i2479e/i2479e00.pdf
730 http://www.fao.org/3/i2479e/i2479e00.pdf

Name of the tool	Geographic Coverage	Data since?	Type of information
Landsat imagery	Global – sub-national level	1972 (several Landsat missions	Satellite data (can be used to obtain many information requirements)
Terra-I	Global – sub-national level. 250m resolution	2004	Land cover/vegetation change
Global Risk Assessment Services (GRAS)	Global – sub-national level	2000	Land use
Norway's International Climate and Forest Initiative	Global – tropical forests, <5m resolution	2015	Satellite data
High Carbon Stock Approach (HCSA)	Various areas at sub-national level	Varies by area	Carbon value Biodiversity value
High Conservation Value (HCV)	Various levels	Varies by area	Biological, ecological, social or cultural values.

Approaches that look in more detail at the composition and condition of a forest include the High Carbon Stock (HSC) approach and High Conservation Value (HCV) approach. These approaches are expanded on in the Appendix. These approaches require on-the-ground assessments by experts and cannot be remotely identified. Remote sensing can also be used to collect data on possible biodiversity indicators, such as ecosystem state (resilience), fragmentation and ecosystem diversity, as well as ground-based methods for other indicators (such as for soil erosion).[731]

Several data sources will likely need to be consulted and additional monitoring undertaken to identify compliance with the above recommended 'deforestation-free' definition. Remote sensing methods combined with some on-the-ground validation/confirmation may be required in relation to identifying plantation areas and in some cases identifying whether a forest is 'natural' as well as the type of deforestation, which could first be identified by remote sensing.

Identifying plantations through existing satellite imagery is challenging. Whilst recent research has been undertaken to identify plantations (for example, the World Resource Institute has identified known tree plantations in the GFW Hansen et al. (2013) dataset and the Copernicus satellite has been used to identify plantations and various stages of the deforestation process in 2019[732]), such methods are neither yet widely used nor adopted. This poses a challenge for implementing and monitoring the recommended definition.

As the FAO FRA data is at a national level, additional information would need to be obtained at a sub-national level **to account for the different commodity supply chains** it would be applied to. Sub-national information is considered necessary as this definition is likely be applied to supply chains and for multiple commodities, of which one country may produce several. Remote sensing would be the primary method for data collection at a sub-national level.

Information on **tree canopy** can be obtained from GFW. However, GFW focuses on a tree cover definition, whereas the recommended definition is a land-use definition. There are also implications for monitoring, as the GFW dataset (Hansen et al. 2013) defines "tree cover" as all vegetation above 5 metres in height, whereas the recommended definition uses a minimum threshold of 2m in tree height. This recommendation of 2m is

[731] http://www.fao.org/3/i2479e/i2479e00.pdf

[732] Copernicus. (no date). *Palm oil plantations.* [online]. Available from: https://www.copernicus.eu/en/media/images/palm-oil-plantations [Accessed 11 November 2020].

to ensure the inclusion of Mediterranean forests, which are often below the 5m threshold in the FAO definition. This divergence from the FAO definition of 5m is a limitation with regards to data availability.

Applying a range of 2-5 metres as a threshold will (likely) result in differences in what is considered deforestation by countries, and therefore likely result in different criteria being applied to different countries. This has implications for monitoring and enforcement, where different countries' report on different criteria. Care will need to be taken when comparing countries against one another, where a different range of values have been reported on.

Degradation is more difficult to measure than deforestation. There is no internationally agreed definition and the type of data collected by countries varies depending on how they define and which criteria they use to monitor forest degradation (if at all). For example, the FRA does not ask for information based on a pre-defined definition, rather it requests information based on how that country measures forest degradation.[733] A dataset equivalent to the Hansen et al. 2013 dataset has not been identified. There are also many different indicators that could be used to define degradation and to monitor forest condition. Examples of indicators include a loss of biomass, carbon content, biodiversity, ecosystems etc.

[733] FAO 2020. Global Forest Resources Assessment 2020: Main report. Rome, Italy.

Appendix A Detailed development of deforestation free definition

The FAO define 'forest' and 'deforestation' in the Forest Resource Assessment[1] as:

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

Deforestation: *'The conversion of forest to other land use independently whether human-induced or not.'*

Explanatory notes:

1. *Includes permanent reduction of the tree canopy cover below the minimum 10 percent threshold.*
2. *It includes areas of forest converted to agriculture, pasture, water reservoirs, mining and urban areas.*
3. *The term specifically excludes areas where the trees have been removed as a result of harvesting or logging, and where the forest is expected to regenerate naturally or with the aid of silvicultural measures.*
4. *The term also includes areas where, for example, the impact of disturbance, over-utilization or changing environmental conditions affects the forest to an extent that it cannot sustain a canopy cover above the 10 percent threshold.*

The recommendation excludes the FAO definition on its own, because of its limitations on height thresholds being unsuitable for the EU forest landscape as well as some plantations being included in the definition of 'forest'.

What are the existing definitions?

The terms of 'deforestation free', 'zero deforestation, 'zero gross deforestation' and 'zero net deforestation' are related but are distinct terms that are often used interchangeably with 'deforestation-free'.[2]

To define 'deforestation-free' one needs to first define 'deforestation' and to define 'deforestation', one must also define a 'forest' and what a 'forest' constitutes. The table below presents the definitions from international organisations. Almost all international concepts relating to deforestation and commitments made by European companies are based on the FAO definitions of forest and deforestation.[3]

Table A. 1 List of reviewed key existing definitions from international organisations

Source	Definition	Description
	Deforestation	*"The clearing of forests by people and the land converted to another use, such as agriculture and infrastructure"*

[1] FAO (2018). http://www.fao.org/3/I8661EN/i8661en.pdf
[2] FAO. (2017). *Zero deforestation initiatives and their impacts on commodity supply chains: discussion paper prepared for the 57th Session of the FAO Advisory Committee on Sustainable Forest-based Industries.* http://www.fao.org/3/a-i6857e.pdf
[3] WWF (2016): https://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/WWF-Study_Deforestation-Free_Supply_Chains.pdf

Source	Definition	Description
European Commission study[4]	Forest	*"Land spanning more than 0.5 hectares with trees higher than 5 m and a canopy cover of more than 10% (land-cover criteria), or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use (land-use criteria)."* (FAO definition)
	Gross deforestation	*"Gross deforestation includes all land use conversions from forest land to non-forest land over a given time period."* Land-use approach rather than a land-cover approach.
	Net deforestation	*"Net changes in forest area between two time points in a particular geographic region (usually a country)."* (FAO FRA)
FAO	Deforestation	*"The conversion of forest to other land use independently whether human-induced or not"*
	Forest	*"Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use."*[5]
Intergovernmental Panel on Climate Change	Deforestation	*"Conversion of forest to non-forest'*
	Forest	*"A vegetation type dominated by trees"*
UNFCCC	Deforestation	*""Deforestation" is the direct human-induced conversion of forested land to non-forested land"*
	Forest	*""Forest" is a minimum area of land of 0.05–1.0 hectare with tree crown cover (or equivalent stocking level) of more than 10–30 per cent with trees with the potential to reach a minimum height of 2–5 metres at maturity in situ. A forest may consist either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10–30 per cent or tree height of 2–5 metres are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as harvesting or natural causes but which are expected to revert to forest"*

Under the Reducing Emissions from Deforestation and forest Degradation (REDD+) mechanism degradation is defined as a 'forest that has been reduced below its natural capacity, but not below the 10% crown cover threshold that qualifies as deforestation'.[6] Terms including 'mosaic deforestation', 'planned deforestation' and 'avoided deforestation' are also presented in relation to REDD+.

Private organisations, certification systems and NGOs, amongst others, also utilise their own definitions to achieve their specific aims. Table A.2 outlines the key definitions reviewed for these organisations.

Table A.2 List of key existing definitions reviewed

Source	Definition	Description	Aims associated with the definition
Accountability Framework Initiative (AFi)	No deforestation (synonymous with	*"Commodity production, sourcing, or financial investments that do not cause or contribute to deforestation"*	To create a common approach for ethical supply chains in agriculture and forestry.

[4] European Commission. (2013). *The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation. Final report.* https://ec.europa.eu/environment/forests/pdf/1.%20Report%20analysis%20of%20impact.pdf

[5] FAO. (2018). *Global Forest Resources Assessment 2020. Terms and Definitions*. http://www.fao.org/3/I8661EN/i8661en.pdf

[6] UN-REDD Programme Collaborative Workspace. (2018). *REDD+ Glossary.* [online]. Available from: https://www.unredd.net/knowledge/glossary.html [Accessed 16 October 2020].

Source	Definition	Description	Aims associated with the definition
	'deforestation-free')	*"No-deforestation refers to no gross deforestation of natural forests"*	For companies and other stakeholders to set, implement and monitor commitments.[7]
	Deforestation	*"Loss of natural forest as a result of: i) conversion to agriculture or other non-forest land use; ii) conversion to a tree plantation; or iii) severe and sustained degradation."*	No-deforestation supply commitments.
World Wildlife Fund for Nature (WWF)	Zero net deforestation	*"[…] some forest loss could be offset by forest restoration. Zero net deforestation is not synonymous with a total prohibition on forest clearing. Rather, it leaves room for change in the configuration of the land-use mosaic, provided the net quantity, quality and carbon density of forests is maintained"* *"zero net deforestation is not achieved through the conversion of primary or natural forests into fast growing plantations"*	Jurisdictional, but also relevant to supply chains.[8]
	Deforestation	*"the conversion of natural forested areas (e.g. primary or secondary natural forests) into agricultural production areas, tree plantations or other land use forms. Managed selective logging (including replanting or biological regrowth) of forests is not classified as deforestation."* *"Deforestation is the conversion of forest to another land use or the long-term reduction of tree canopy cover below the 10% threshold"*	Supply chain commitments.
Round Table for Sustainable Palm Oil (RSPO)	Deforestation	Adopts the AFi definition.	To certify sustainable palm oil products.[9]
Consumer Goods Forum	Zero net deforestation	Follows the WWF definition of zero net deforestation.	To drive the implementation of sustainable value chains throughout the consumer goods industry, such as soy.[10]
New York Declaration on Forests	Deforestation	*"The conversion of forest to other land use or the permanent reduction of the tree canopy cover below a defined minimum canopy cover threshold."* (2019) *"loss of natural forest as a result*	Voluntary declaration

[7] Accountability Framework initiative (AFi). (2020). *Terms and Definitions.* https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf

[8] World Wildlife Fund for Nature (WWF). (2009). *Zero Net Deforestation by 2020 – A WWF Briefing Paper.* https://d3bzkjkd62gi12.cloudfront.net/downloads/wwf_2020_zero_net_deforest_brief.pdf. Endorsed by the Consumer Goods Forum, see:

[9] AFi. (2020). *Operational Guidance on Applying the Definitions Related to Deforestation, Conversion, and Protection of Ecosystems. https://s30882.pcdn.co/wp-content/uploads/2020/09/OG_Applying_Definitions-2020-5.pdf*; Roundtable on Sustainable Palm Oil (RSPO). (2018). *Principles and Criteria for the production of sustainable palm oil 2018.* https://ga.rspo.org/ga15/Resolutions/RSPO_P&C_2018.pdf

[10] The Consumer Goods Forum. (2016). *The Sustainable Soy Sourcing Guidelines: Second Edition.* https://www.theconsumergoodsforum.com/wp-content/uploads/2017/10/201605-CGF-Sustainable-Soy-Sourcing-Guidelines-Second-Edition.pdf

Source	Definition	Description	Aims associated with the definition
		of conversion to agriculture or other non-forest land use; conversion to a tree plantation; or severe and sustained degradation" Based on the AFi definition (2020)[11]	
Round Table on Responsible Soy Association (RTRS)	Zero deforestation and Zero conversion	*"No conversion of any natural land, steep slopes and areas designated by law to serve the purpose of native conservation and/or cultural and social protection."* Forest: *"Areas of native vegetation of 1ha or more with canopy cover of more than 35 % and where some trees (at least 10 trees per hectare) reach 10m in height (or are able to reach these thresholds in situ (i.e. In that soil/climate combination)"*	

Definitions were also reviewed from organisations concerned with a focus on Sustainable Forest Management (SFM) systems covered by voluntary sustainability standards and certification organisations such as:

- The Programme for the Endorsement of Forest Certification (PEFC)[12] and the Forest Stewardship Council (FSC).[13] These certification systems do not provide definitions for 'zero deforestation' or its synonyms, although PEFC adopt the UN definition of what a forest constitutes, with ranges provided in its Sustainable Forest Management Requirements.[14] This is because these certification systems focus on wood from forests that does not convert forest to another land use. Certification schemes include rules on how to manage forests of High Conservation Value (HCV).
- The FSC does not allow deforestation to take place in its certified areas, with forest cover, structure, function, biodiversity and productivity maintenance highlighted as requirements, which include the consideration of high conservation value (HCV) forests.[15] The FSC does not provide quantitative thresholds for these elements, as it encourages the development of national standards and accounting for local conditions.[16]
- ISO 14055-1:2017(en) on environmental management, adopted the definition of 'deforestation' from the UNFCCC, as 'direct human-induced conversion of forest land to non-forest land', with the definitions of 'forest' coming from an FAO definition.[17]

Stakeholders involved in the targeted consultation expressed a willingness for existing, internationally recognised definitions to be used or to be built upon in the proposed legislation. New definitions or

[11] Fishman (2014) https://forestdeclaration.org/images/uploads/resource/2020NYDFReport.pdf
[12] PEFC. (2020). *PEFC Worldwide.* [online]. Available at: https://www.pefc.org/ [Accessed 16 October 2020].
[13] Forest Stewardship Council (FSC). (2020). *Forest Stewardship Council: Home.* [online]. Available at: https://fsc.org/en [Accessed 16 October 2020}.
[14] PEFC. (2018). *Sustainable Forest Management – Requirements.* https://cdn.pefc.org/pefc.org/media/2019-01/b296ddcb-5f6b-42d8-bc98-5db98f62203e/6c7c212a-c37c-59ee-a2ca-b8c91c8beb93.pdf
[15] FSC. (no date). *Deforestation, high conservation value forests and intact forest landscapes.* [online]. Available at: https://fsc.org/en/deforestation-hcv-ifl [Accessed 16 October 2020].
[16] FSC-UK. (2018). *What standard is used?* [online]. Available at: https://www.fsc-uk.org/en-uk/business-area/fsc-certificate-types/forest-management-fm-certification/what-standard-is-used [Accessed 16 October 2020].
[17] ISO. (2017). *ISO 14055-1:2017(en) Environmental management – Guidelines for establishing good practices for combatting land degradation and desertification – Part 1: Good practices framework.* https://www.iso.org/obp/ui/#iso:std:iso:14055:-1:ed-1:v1:en

standards were not favoured. For example, the AFi definition has already gained consensus amongst many stakeholders through a process of discussion. Building on existing definitions may also gain political acceptance, and would align with existing initiatives, frameworks and standards relating to deforestation-free supply chains. It was thought that the protection of community and indigenous rights should be included in the legislation, with associated definitions also set out in the AFi.[18]

Stakeholders also reported that different definitions of 'deforestation-free' supply chains may be required for different commodities or the specific tools used in the legislation. Although other stakeholders disagreed with this approach citing the need for definitions to be harmonised and assist in providing a level playing field between sectors. Definitions must be clear for the forest type and the role plantations have in the definition. Also, if a higher ambition definition is selected, biodiversity loss would need to be included. This is reflected in our recommendations.

What are the criteria and elements that can be considered?

While there are already a number of definitions outlined above that can provide a starting point for developing a definition of deforestation free for the purpose of the future EU intervention, it is important to consider the individual key elements stemming from these sources that can be used to build a new definition. These elements are summarised in the table below and mapped against the existing definitions which help provide a measure of the level of acceptance of the criteria.

[18] For example, see "Operation Guidance on Remediation and Access to Remedy". https://s30882.pcdn.co/wp-content/uploads/2020/09/OG_Remediation_Access_Remedy-2020-5.pdf

Table A.3 Overview of possible criteria to be used in the definition of "Deforestation"

Source	Term	Nature of the forest		Conversion[19]	Degradation	Net or gross?	Legality	Forest Structure		
		Loss of any/unspecified forest	***Loss of natural forest***	***Conversion***	***Include degradation***	***Forest loss can be offset by restoration***	***Include legality (legal or not)***	***Reduction of tree/canopy cover***	***Minimum tree/canopy cover threshold***	***Minimum area threshold***
FAO – Forest Resources Assessment 2020	Deforestation	X		X	X (in terms of sustaining canopy cover, land area)			X	X	X
UNFCCC – 2005	Deforestation	X		X	X (in terms of sustaining crown cover, land area)			X	X	X
IPCC 2019: Annex I: Glossary In: Climate Change and Land: an IPCC special report	Deforestation	X		X						
Accountability Framework	Deforestation		X	X	X	Gross		X	X	X
EEA (2017)	Deforestation	X								
Global Forest Watch	Deforestation	N/A	N/A	N/A	N/A	Gross	N/A	N/A	N/A	N/A
IEEP (2020)	Deforestation	X		X						

[19] Conversion may relate to a change from one state to another.

Source	Term	Nature of the forest		Conversion[19]	Degradation	Net or gross?	Legality	Forest Structure		
New York Declaration on Forests[20]	Deforestation	X	X	X	X			X	X	X
Rainforest Alliance	Deforestation		X	X		Gross				X
WWF (2016)	Deforestation		X	X						
WWF (2008): (endorsed by the Consumer Goods Forum (2016))	Zero net deforestation		X	X		Net		X	X	

[20] Note that the Goals 3 & 4 Progress Report refer to the Accountability Framework Initiative definition of 'deforestation': https://forestdeclaration.org/images/uploads/resource/2020NYDFReport.pdf

Forest structure

Gadow et al. (2012) report that "Forest structure usually refers to the way in which the attributes of trees are distributed within a forest ecosystem".[21] Forest structure forms the basis of a definition of 'forest' and may include quantitative and/or qualitative elements. Forest structure needs to be included so that the definition of 'forest', and therefore the conversion of which areas would be considered as 'deforestation', is clear. Without a definition of the forest structure, it would not be known what size an area can be before it is considered forest, as well as the type of vegetation (e.g. trees) present.

- The FAO defines a forest as being more than 0.5 hectares, with trees higher than 5 metres and a canopy cover of more than 10% (or trees able to reach these *in situ*).[22] The definitions used by other organisations are often based on this FAO definition.
- The UNFCCC provides ranges in its definition of a forest, which parties to the Kyoto Protocol can apply based on their local context.[23] Ranges include a minimum land area of 0.05-1.0 hectares with tree crown cover (or equivalent stocking level) of more than 10-30% with trees having the potential to reach a minimum height of 2-5 metres at maturity, *in situ*.[24]

Private initiatives have also provided definitions of forest structure. The Round Table on Responsible Soy Association (RTRS) define a forest as a native forest, where native vegetation must cover more than 1 hectare and a canopy cover of above 35%, with some trees (at least 10 per hectare) of least 10 metres in height (or able to reach this size *in situ*).[25] This definition excludes some of the areas where soy farming activities are conducted in Brazil.[26] If the cultivated land before cultivation was not considered to be a forest, the agricultural activity cannot be associated with deforestation. This shows the importance of defining clearly what a forest is in the context of the impact assessment.

It is suggested that the definition of 'deforestation-free' focuses on land use, rather than tree cover. A change in tree cover alone may not necessarily mean deforestation and may represent harvesting, fire, disease or storm damage, amongst other factors (as cautioned by Global Forest Watch in their 'Tree cover loss' dataset by Hansen et al. 2013).[27] Rather, a land-use approach focuses on the use of the land (i.e. agriculture, forest or other). However, and contrary to the FAO definition, it should be considered whether a change in land use from natural forest to plantation forest could be considered as deforestation.

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[21] Gadow, K. v., Zhang, C.Y., Wehenkel, C., Pommerening, A., Corral-Rivas, J., Korol, M., Myklush, S., Ying Hui, G., Kiviste, A. and Hai Zhao, X. (2012). Forest Structure and Diversity. In: Pukkala, T. and von Gadow, K. (eds.). *Continuous Cover Forestry, Managing Forest Ecosystems* 23, DOI 10.1007/978-94-007-2202-6 2. Pp.29-83. http://www.pommerening.org/wiki/images/4/4d/Fulltext_Chapter_2.pdf

[22] FAO. (2018). *Global Forest Resources Assessment 2020. Terms and Definitions*. http://www.fao.org/3/I8661EN/i8661en.pdf

[23] United Nations Framework Convention on Climate Change (UNFCCC). (2005). *Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005. Addendum. Part Two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol and its first session.* https://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf

[24] UNFCCC. (2005). *Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005. Addendum. Part Two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol and its first session.* https://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf

[25] Round Table on Responsible Soy Association (RTRS). (2017). *RTRS Standard for Responsible Soy Production Version 3.1.* https://responsiblesoy.org/wp-content/uploads/2019/08/RTRS%20Standard%20Responsible%20Soy%20production%20V3.1%20ING-LOW.pdf

[26] Pasiecznik, Nick and Herman Savenije (eds.). (2017). Zero deforestation: A commitment to change. Wageningen, the Netherlands: Tropenbos International. http://www.etfrn.org/file.php/415/etfrn-news-58.pdf

[27] Hansen M C et al 2013 High-resolution global maps of 21stcentury forest cover change Science 342 850–3

'Nature' of the forest

In a definition of 'deforestation-free', specifying the nature of a forest is important to identify what is included and what is excluded from the definition. If unspecified, there is the risk that primary, native, natural, plantation or wood harvesting forests will be treated the same. If plantations and primary forest were to be granted the same level of protection, conversion between the two types of forest would be allowable. This would not achieve the objectives of addressing deforestation and forest degradation.

Overview of the 'nature' of a forest in existing definitions

Existing definitions of 'deforestation-free' and 'deforestation' apply different terms relating to a forest's nature. These include:

- A **'Comprehensive analysis of the impact of EU consumption on deforestation'** study funded by the European Commission (2013) uses definitions that do not distinguish between forest type (e.g. natural, native, etc.). The FAO definition of 'forest' is used, and 'deforestation' is any clearing and conversion of a forest by people.[28] Where a natural disaster destroys a forest that cannot regenerate naturally, and no replanting is undertaken, this counts as deforestation.

  Palm oil plantations are not considered forests due to their agricultural use, as are other crops such as cocoa, coffee and tea. However, conversion between primary forests, naturally regenerated forests and planted forests is not considered deforestation (as in the FAO definition). Rubber plantations are considered forests and therefore conversion to rubber plantations is not considered deforestation.

- The **European Parliament** resolution of 22 October 2020 requires definitions to support the preservation of '… natural forests and ecosystems, including in particular primary and regenerated forests, and prevent their replacement with forests and ecosystems derived from human activities, such as tree plantations'.[29] The EU Biodiversity Strategy requires the protection of the EU's remaining primary and old-growth forests, with it considered important to advocate this globally.[30]

- **FAO definition of 'deforestation'**: This definition does not distinguish between forest type and is focused on land-use. It does not include land that is mainly used for agricultural or urban use.[31] Young trees and areas that are temporarily unstocked due to clear-cutting used in forest management, or due to natural disasters, are included where they are expected to regenerate within 5 years.

  The definition is based on the FAO definition of 'forest'. Rubber, cork oak and Christmas tree plantations are included in the definition of 'forest'. This means that any conversion to these plantations will not be considered 'deforestation'. For example, if natural, native or primary forest were converted to a rubber plantation, this would not be considered 'deforestation' under the FAO definition.

[28] European Commission. (2013). *The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation. Final report.* https://ec.europa.eu/environment/forests/pdf/1.%20Report%20analysis%20of%20impact.pdf

[29] European Parliament. (2020) *Deforestation: European Parliament resolution of 22 October 2020 with recommendations to the Commission on an EU legal framework to halt and reverse EU-driven global deforestation (2020/2006(INL)).* [online]. Available from: https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.pdf [Accessed 4 November 2020].

[30] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1590574123338&uri=CELEX:52020DC0380

[31] FAO. (2018). *Global Forest Resources Assessment 2020. Terms and Definitions*. http://www.fao.org/3/I8661EN/i8661en.pdf

Oil palm plantations and other tree stands in agricultural production systems as well as the removal of trees due to harvesting or logging (providing that logged areas start regenerating within 5 years) are excluded from the FAO definition of 'deforestation'.

- **UNFCCC definition of 'deforestation':** This definition is linked to the UNFCCC definition of 'forest'. No reference is made to natural, native or primary forests. Annex B parties to the Kyoto Protocol, however, are required to provide annual information on the area of natural forests converted to planted forests as an information item.

  Young natural stands and plantations yet to reach a crown density of 10–30 per cent or tree height of 2–5 metres are included. Temporarily unstocked areas from harvesting or natural causes, but are expected to revert to forest are included.[32] This means that any conversion to these types of forest would not be considered 'deforestation' under the UNFCCC definition.

Private initiatives also distinguish the 'nature' of the forest included in definitions. These include:

- **AFi definition of 'no deforestation'**: This definition distinguishes between natural forests and tree plantations, with no gross deforestation of natural forests.[33] The Accountability Framework (2020) report that this allows for comparisons to be made between forest monitoring by governments and supply chain commitments where human-induced conversion of natural forests is the focus.[34]

  In this definition, a natural forest is a forest that is a natural ecosystem. This includes primary forests; regenerated (second-growth) forests; managed natural forests; and forests that have been partially degraded by anthropogenic or natural causes.[35]

Some definitions go beyond the 'nature' of a forest and include detailed assessments of forest composition. The **High Carbon Stock (HCS) approach** does this by reflecting that the level of carbon and biodiversity stored in an area of land can vary depending on the type of vegetation cover.[36] The approach identifies areas of High Carbon Stock, with a threshold between natural forest and degraded land defined by using six different vegetation classifications and includes findings from an High Conservation Value (HCV) assessment (discussed later on in this section).[37] As reported by Nanni et al. (2020), the HCS approach distinguishes between different types of forest and other value areas, based on their carbon and biodiversity value.[38] The European Parliament Resolution recommends that the Commission's legislative proposal should contain

[32] UNFCCC. (2005). *Report of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on its first session, held at Montreal from 28 November to 10 December 2005. Addendum. Part Two: Action taken by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol and its first session.* https://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf

[33] Accountability Framework initiative (AFi). (2020). *Terms and Definitions.* https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf

[34] Accountability Framework initiative (AFi). (2020). *Terms and Definitions.* https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf

[35] Accountability Framework initiative (AFi). (2020). *Terms and Definitions.* https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf

[36] High Carbon Stock. (no date). *The High Carbon Stock Approach.* [online]. Available from: http://highcarbonstock.org/the-high-carbon-stock-approach/#:~:text=The%20High%20Carbon%20Stock%20(HCS,values%20that%20may%20be%20developed.&text=The%20amount%20of%20carbon%20and,the%20type%20of%20vegetative%20cover [Accessed 16 October 2020].

[37] Proforest. (2014). *A technical comparison of the HCV and HCS approaches.* [online]. Available at: https://proforest.net/en/files/hcv-and-hcs-compared.pdf [Accessed 16 October 2020].

[38] Nanni, S., Allen, B., Riera, A., Treharne, R., Meredith, S. and Bowyer C. (2020). *Discussion paper on the determination of sustainability criteria for deforestation, degradation and conversion-free, and human rights compliant agriculture and forestry commodities and products to be placed on the EU market.* London: Institute for European Environmental Policy (IEEP). https://ieep.eu/uploads/articles/attachments/e3e76069-2d2c-4089-a69e-5f47517dcc2e/IEEP%20discussion%20paper%20on%20deforestation.pdf?v=63751237156

definitions of 'forest', 'natural forest', amongst other definitions, with the FAO, European Environmental Agency, AFi or HSC approach providing suitable definitions.

Results from the OPC indicate that 92.3% of respondents (1014 of 1099) thought that it was "very important" (scoring 5 out of 5) that primary forests defined as "naturally regenerated forest of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed" should be prioritised by the measures to minimise environmental damages from deforestation and forest degradation. The OPC also reported that 50.3% of respondents (544 of 1081) thought it "very important" (scoring of 5) that other naturally regenerated forest be prioritised, and 37.3% (403 of 1081) scoring 4 of 5 in terms of importance. In the OPC, 42.9% (450 of 1049) thought it was important to prioritise plantations, scoring it either 4 or 5 in terms of importance. 21.5% of respondents (225 of 1049) indicated that it was not important to prioritise plantations, providing a rating of 1 or 2 on the five-point scale.

In the OPC, respondents were also asked whether they thought that forest clearances in one location could be compensated by tree planting in another location for the purpose of assessing whether a product is deforestation free. 3.65% (41 of 1123) responded 'yes', 32.8% (368 of 1123) responded 'Only to some extent', 10.8% (121 of 1123) responded 'Only for specific types of forests' and 50.1% (562 of 1123) responded 'No'. Remaining responses were 'I don't know'. This presents an additional reason for using gross deforestation.

There was considerable discussion from stakeholders both in the OPC and the interviews that the scope should expand beyond forests to include the protection of other ecosystems, such as wetlands, mangroves and savannahs. This could perhaps be not encompassed by the 'deforestation-free' definition, but included in a definition of 'degradation', moving beyond 'forest degradation' only. Wetlands are not explicitly included in definitions relating to the FAO FRA or the AFi. However, the AFi definitions of 'conversion' and 'degradation' relate to ecosystems more widely:

- Conversion: "Change of a natural ecosystem to another land use or profound change in a natural ecosystem's species composition, structure, or function", regardless of legality.
- Degradation: "Changes within a natural ecosystem that significantly and negatively affect its species composition, structure, and/or function and reduce the ecosystem's capacity to supply products, support biodiversity, and/or deliver ecosystem services".

Stakeholders from the target interviews also made frequent reference to including ecosystems in the definition, in particular to avoid leakage. This could be done by using the HCS or HCV approaches to identify and classify ecosystems, which should not then be converted under the definition. Challenges of these approaches being incorporated into the definition are presented below.

Challenges with 'Nature of the forest' criteria

There are challenges in determining whether a forest type should be included in a definition of 'deforestation-free', and if so, which forest type and how broad the definition should be. Not including a forest type would result in all forests under the definition of 'forest' being treated the same.

Competent authorities and companies would need to assess whether a product is 'deforestation-free'. Whilst tree cover can be measured and converted to a forest by imagery analysis in line with an adopted definition of 'forest', a satellite image of a primary forest and plantation may look very similar. The high-resolution global maps used by GFW[39] are reported to have poor differentiation between native forests and plantations by Tropek et al. (2014 in Tropek et al. 2017).[40] If the definition were to not include plantations (such as

[39] Hansen M C et al 2013 High-resolution global maps of 21stcentury forest cover change Science 342 850–3

[40] Tropek R, Sedlá ek O, Beck J, Keil P, Musilová Z, Šímová I and Storch D 2014 Comment on 'High-resolution global maps of 21st-century forest cover change' Science 344 981 in Austin, K., González-Roglich, M., Schaffer-Smith, D., M Schwantes, M. and Swenson, J. (2017). "Trends in size of tropical deforestation events signal increasing dominance of industrial-scale drivers". Environmental Research Letters, 12(5), 054009.

rubber), further analysis would need to be undertaken of the information produced by GFW, with a visual interpretation needing to take place.[41]

Whilst HCS can be implemented by plantation companies and manufacturers at a more localised level with respect to operations and supply chains and in fragmented landscapes,[42] at a European Union level intended for multiple countries, and for smallholder producer level it is perhaps too complex. Its inclusion would require natural forest to be identified as well as each of the different vegetation cover classifications. Updates would need to be undertaken at regular periods for the same area. With difficulty distinguishing between primary forest and forest plantations,[43] or commodity based shred and agroforestry systems (common in some timber, coffee, cocoa and some oil palm production systems) using remote or satellite imagery, it is unlikely to be feasible to include the HCS approach in a first definition. Furthermore, HCV and HCS methodologies are reported to require on-the-ground assessments carried out by experts and cannot be remotely identified.

The inclusion of other ecosystems (e.g. wetlands and savannahs) into the definition of 'deforestation free' also presents a challenge. Besides possible additional costs to monitor and implement the definition in relation to these ecosystems, fitting these ecosystems within a 'deforestation free' definition increases the definition's complexity. However, if certain natural ecosystems such as mangroves, wetlands and savannahs adhere to the determined definition of 'forest', then these will be included in any 'deforestation-free' definition.

Also, whilst mangrove and wetlands maps exist, a dataset equivalent to Hansen et al. (2013) for forests could not be identified for other ecosystems. However, by excluding other natural ecosystems from the definition, there is the risk of leakage, where conversion of natural ecosystems which are not forests, takes place (e.g. see a report by WWF; Pacheco et al. 2021).[44] This was also highlighted by many stakeholders during the consultation process.

Whilst focusing on a 'natural forest' definition, it is important to note that planted forests may be planted with native species and have the ability to harbour carbon stocks as well as hosting some level of biodiversity.[45] However, this is extremely context specific and relies on factors such as the kinds of species planted, their location and the type of system the planted forest is replacing (e.g. whether this is agricultural land or natural forest). This is particularly relevant where planted forests have replaced an area which has been deforested before and therefore only improve the land-are from the perspective of reforestation.[46] As monitoring and data availability improve, it may be possible to include reforestation and afforestation techniques and adopt a net deforestation-free definition, to allow such techniques to be recognised and incentivised, ensuring they take place with the right context. Compensation through restoration and other available measures for companies, is recommended as a next step to the deforestation-free definition.[47]

[41] Based on an interview with the Joint Research Centre, carried out on 3 November 2020.
[42] High Carbon Stock. (no date). *The High Carbon Stock Approach.* [online]. Available from: http://highcarbonstock.org/the-high-carbon-stock-approach/#:~:text=The%20High%20Carbon%20Stock%20(HCS,values%20that%20may%20be%20developed.&text=The%20first%20four%20classes%20are%20considered%20potential%20High%20Carbon%20Stock%20forests [Accessed 16 October 2020].
[43] Based on an interview with the Joint Research Centre, carried out on 3 November 2020.
[44] https://www.wwf.ch/sites/default/files/doc-2021-01/Deforestation%20fronts%20-%20drivers%20and%20responses%20in%20a%20changing%20world%20-%20full%20report.pdf
[45] http://www.fao.org/3/ae347e/AE347E02.htm
[46] Expert opinion.
[47] Based on expert opinion.

Conversion

This section explores to what extent 'allowable' conversion may take place within a definition of 'deforestation-free'. If some conversion was allowable, then some areas of forest would be allowed to be deforested under certain circumstances.

Overview of conversion in existing definitions

In the FAO FRA (2020) definition, 'deforestation' is any conversion of forest to other land use, whether human-induced or not.[48] Definitions also define conversion for sourcing, financial investments and commodity production to not be allowed and therefore to be considered as 'deforestation' (e.g. see AFi definition).[49]

The following definitions include some level of allowable conversion of forest to another land use:

- The **Accountability Framework** allows minimal levels of conversion to facilitate optimal conservation and production outcomes in their adopted definition of 'deforestation-free', relating to gross deforestation.[50] Conversion not allowed includes conversion to agriculture, non-forest land-use and conversion to tree plantations.[51]
- The **WWF** (2008) definition of 'zero net deforestation',[52] which is also endorsed by the Consumer Goods Forum (2016),[53] recognises that "in some circumstances, conversion of forests in one site may contribute to the sustainable development and conservation of the wider landscape".

Challenges with conversion criteria

What is included in allowable conversion varies by definition and can include specifics depending on what the land is then used for. It may also depend on the nature of the forest being converted, for example whether it is natural, native or of high conservation value.

As in the AFi definition of 'no-conversion' and 'minimal level of deforestation or conversion', allowable conversion may be where the conversion will enable "optimal conservation and production outcomes" and where "a small amount of deforestation or conversion that is negligible in the context of a given site".[54]

If any conversion of a forest area was considered as 'deforestation', issues may arise relating to development efforts being hindered in some countries (e.g. see Crespo Cuaresma, et al. 2017),[55] particularly where other

[48] FAO. (2018). *Global Forest Resources Assessment 2020. Terms and Definitions*. http://www.fao.org/3/I8661EN/i8661en.pdf

[49] AFi. (2020). *Terms and Definitions.* https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf

[50] AFi. (2020). *Terms and Definitions.* https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf

[51] AFi. (2019). *Operational Guidance on Applying the Definitions Related to Deforestation, Conversion, and Protection of Ecosystems.* https://s30882.pcdn.co/wp-content/uploads/2020/09/OG_Applying_Definitions-2020-5.pdf

[52] World Wildlife Fund for Nature (WWF). (2009). *Zero Net Deforestation by 2020 – A WWF Briefing Paper.* https://d3bzkjkd62gi12.cloudfront.net/downloads/wwf_2020_zero_net_deforest_brief.pdf.

[53] The Consumer Goods Forum. (2016). *The Sustainable Soy Sourcing Guidelines: Second Edition.* https://www.theconsumergoodsforum.com/wp-content/uploads/2017/10/201605-CGF-Sustainable-Soy-Sourcing-Guidelines-Second-Edition.pdf

[54] AFi. (2020). *Terms and Definitions.* https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf

[55] https://iiasa.ac.at/web/home/about/news/170116-forest-dev.html#:~:text=Economic%20growth%20in%20poor%20countries,which%20is%20published%20by%20Nature.&text=For%20wealthier%20countries%2C%20however%2C%20the%20correlation%20disappeared.

countries have already cleared forests to promote economic growth prior to the cut-off date. Conversion for subsistence by indigenous populations would not be allowed, even if it were to provide social and economic benefits (for example, roads to schools being built). This may reduce political feasibility of implementing 'deforestation-free' (Fishman, 2014),[56] particularly if assessed at a national level. Furthermore, countries with low enforcement ability may be unable to prevent some conversion. It has been suggested that in such cases, it would be preferable to guide conversion to already degraded forests and protect the more valuable forests (Fishman, 2014).[57] Here, the HCV and HCS approaches could be utilised to identify such areas available for conversion.

A way to mitigate conversion is to build in mechanisms, requirements and incentives for address or require afforestation, reforestation or restoration. As highlighted by several sources (e.g. see Ingram et al. 2020; Barr and Sayer, 2012; and Schroth et al. 2016), this raises political issues and the need for choices [58,59,60] about who, where and when afforestation, reforestation or restoration should occur in relation to converted forest land.

As a first level, it is recommended that 'deforestation' include any conversion of forest to another land use (FAO and UNFCCC). At the next level, this could be further specified to be only human-induced conversion and even further complexity could be added to the definition by allowing minimal human-induced conversion for sustainable development and wider conversation (as done in by the AFi).

Degradation

Some definitions incorporate degradation into existing definitions of deforestation, whereas others clearly state the difference between deforestation and forest degradation. The term "degradation" describes the process of change in forest condition, i.e. when forest is remaining as forest, but its condition has changed, e.g. by having less biomass, species, diversity, and/or ecosystem services. This may take place with or without a loss of forest cover.

- The **FAO** defines degradation as: "changes within the forest which negatively affect the structure or function of the stand or site, and thereby lower the capacity to supply products and/or services".
- The **IPCC** define degradation as: "a direct human induced loss of forest values (particularly carbon), likely to be characterized by a reduction of tree cover", focusing on carbon.[61]
- The **Renewable Energy Directive (RED II)** requires biofuels, bioliquids and biomass fuels to not be made from raw materials obtained from land with high biodiversity value, namely primary forest and other wooded land, where 'there is no clearly visible indication of human activity and the ecological processes are not significantly disturbed' or high biodiverse forests and other wooded land which is species rich and not degraded. Areas designated for nature

[56] https://theforestsdialogue.org/sites/default/files/files/Understaning%20Deforestation-Free_background_Final%20(1).pdf
[57] https://theforestsdialogue.org/sites/default/files/files/Understaning%20Deforestation-Free_background_Final%20(1).pdf
[58] Ingram, V., J. Behagel, A. Mammadova and X. Verschuur (2020). The outcomes of deforestation-free commodity value chain approaches. Wageningen. The Netherlands, Forest and Nature Conservation Policy Group, Wageningen University and Research.
[59] Barr, C.M. and Sayer, J.A., 2012. The political economy of reforestation and forest restoration in Asia–Pacific: Critical issues for REDD+. Biological conservation, 154, pp.9-19.
[60] Schroth, G., Garcia, E., Griscom, B.W., Teixeira, W.G. and Barros, L.P., 2016. Commodity production as restoration driver in the Brazilian Amazon? Pasture re-agro-forestation with cocoa (Theobroma cacao) in southern Para. Sustainability Science, 11(2), pp.277-293.
[61] https://wwfint.awsassets.panda.org/downloads/wwf_2020_zero_net_deforest_brief.pdf

protection purposes or the protection of rare, threatened or endangered ecosystems or species can also not be used.[62]

- The **United Nations Convention to Combat Desertification (UNCCD)** Land Degradation Neutrality target is defined as "A state whereby the amount and quality of land resources, necessary to support ecosystem functions and services and enhance food security, remains stable or increases within specified temporal and spatial scales and ecosystems".[63] The framework for reporting on Sustainable Development Goal 15.3 includes land productivity, carbon stocks above/below ground and land cover and land cover change as sub-indicators, with data coming from multiple sources such as the FAO and the Global Environment Facility.[64]

In the Tropics, the drivers of deforestation are in most cases related to the production of agricultural commodities, whereas the drivers of degradation are related to logging for timber and for wood energy (fuel wood and charcoal).[65] By excluding 'degradation' from the 'deforestation' definition, there is the risk that the drivers of degradation (mainly related to logging for timber and for wood energy) are excluded from the assessment.

The loss of species is also assessed through the HCV approach (discussed previously). With particular relevance to degradation are HCV 3 (rare ecosystems/habitats) and HCV 4 (critical ecosystem services). The HCV approach is further outlined in next sections.

Overview of degradation in existing definitions

Some level of degradation may be included in definitions as a threshold in canopy cover (Nanni et al. 2020) or minimum vegetation height (detailed in the Forest Structure section), but forest degradation is not explicitly referred to. On the other hand, the Accountability Framework clearly state 'deforestation' to include severe and sustained degradation[66] and the WWF also treat deforestation and forest degradation independently. REDD+ also separates 'deforestation' from 'degradation'.

This has implications regarding how detailed degradation should be when included in the definition of 'deforestation-free'. The inclusion of quantitative detail on land-cover and canopy-cover only, as in the FAO and UNFCCC definitions, means that detail is not captured on forest condition. However, detailed assessments of a forest's condition, such as species, diversity and ecosystem services require more detailed monitoring and enforcement.

The issue of fragmentation is also important at ecosystem or landscape scale as commodity driven deforestation can lead to fragmentation (Broadbent et al. 2018)[67] but is not explicit in many definitions of degradation, except HCS. It has also been reported that plantations present significantly degraded soil quality compared to natural forests, suggesting that plantations "do not have the same function of maintaining soil fertility as compared to natural forests" (Liao et al. 2012 in JRC, 2021[68]). This further develops the criteria of degradation and goes beyond many existing definitions of degradation.

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[62] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001&from=EN
[63] https://www.unccd.int/actions/achieving-land-degradation-neutrality
[64] https://knowledge.unccd.int/topics/sustainable-development-goals-sdgs; https://www.thegef.org/topics/land-degradation
[65] Hosonuma, N., Herold, M., De Sy, V., De Fries, R.S., Brockhaus, M., Verchot, L., Angelsen, A., Romijn, E. 2012. An assessment of deforestation and forest degradation drivers in developing countries. Environmental Research Letters 7,
[66] AFi. (2020). *Operational Guidance on Applying the Definitions Related to Deforestation, Conversion, and Protection of Ecosystems.* https://s30882.pcdn.co/wp-content/uploads/2020/09/OG_Applying_Definitions-2020-5.pdf
[67] Broadbent, E.N., Asner, G.P., Keller, M., Knapp, D.E., Oliveira, P.J. and Silva, J.N., 2008. Forest fragmentation and edge effects from deforestation and selective logging in the Brazilian Amazon. Biological conservation, 141(7), pp.1745-1757. Skole, D. and Tucker, C., 1993. Tropical deforestation and habitat fragmentation in the Amazon: satellite data from 1978 to 1988. Science, 260(5116), pp.1905-1910.
[68] https://publications.jrc.ec.europa.eu/repository/bitstream/JRC122719/jrc-forest-bioenergy-study-2021-final_online.pdf

The EU Taxonomy Act requires that specific economic activities do not involve the degradation of land with high carbon stock, including wetlands, peatland and continuously forested areas. This forms part of the requirements under 'Does no significant harm' (DNSH) for the activities of 'Afforestation', the 'Rehabilitation and restoration of forests, including reforestation and natural forest regeneration after an extreme event', 'Forest management' and 'Conservation forestry'.[69] Soil degradation and erosion are also included in the classification of climate-related hazards to be taken into account in the climate risk and vulnerability assessment undertaken as part of the Delegated Act.

Challenges with degradation criteria

Degradation focuses on forest condition. With this comes challenges in both identifying and monitoring forest condition using available and accessible information, such as satellite imagery. HCV and HCS methodologies require on-the-ground assessments carried out by experts and cannot be remotely identified. This impacts the ability to monitor changes in these areas (Carlson et al. 2018 in Garrett et al. 2019).[70]

Assessing forest degradation is more challenging than assessing deforestation (e.g. see Herold et al. 2011).[71] The FAO provides a range of options and approaches to assess forest degradation as part of a movement towards developing globally applicable guidelines.[72] Focusing on biological and physical effects, the indicators of forest degradation include growing stock and biomass; biodiversity; production of forest goods; and soil erosion.[73]

Research is also being undertaken to identify suitable methods for assessing forest degradation. A recent article in July 2020,[74] used satellite data to observe an increase in forest area harvested over Europe, using data from GFW. Another recent paper and research funded by the European Commission 'Horizon 2020 Program' has also investigated the ability to provide tools for monitoring land degradation (including forest) at a national level.[75]

There was some conflict of opinion in the targeted stakeholder consultation of including degradation in the 'deforestation-free' definition. Some stakeholders thought it a requirement to include degradation in the definition, with others pointing towards the implementability issues and the ability to monitor degradation as reasons for its exclusion. Other stakeholders suggested that both degradation and deforestation should be

[69] https://eur-lex.europa.eu/resource.html?uri=cellar:d84ec73c-c773-11eb-a925-01aa75ed71a1.0021.02/DOC_3&format=PDF; https://eur-lex.europa.eu/resource.html?uri=cellar:d84ec73c-c773-11eb-a925-01aa75ed71a1.0021.02/DOC_2&format=PDF

[70] Carlson et al. (2018) in Garrett, R.D., Levy, S., Carlson, K.M., Gardner, T.A., Godar, J., Clapp, J., Dauvergne, P., Heilmayr, R., le Polain de Waroux, Y., Ayre, B., Barr, R., Døvreh, B., Gibbs, H.K., Hall, S., Lake, S., Milder, J.C., Rausch, L.L., Rivero, R., Rueda, X., Sarsfield, R., Soares-Filho, R. and Villoria, N. (2019). "Criteria for effective zero-deforestation commitments". *Global Environmental Change,* 54(2019) 135-147. https://www.research-collection.ethz.ch/bitstream/handle/20.500.11850/359672/1-s2.0-S0959378018306654-main.pdf?sequence=2&isAllowed=y

[71] Herold, M., Roman-Cuesta, R.M., Mollicone, D., Hirata, Y., Van Laake, P., Asner, G.P., Souza, C., Skutsch, M., Avitabile, V., Macdicken, K. 2011. Options for monitoring and estimating historical carbon emissions from forest degradation in the context of REDD+. Carbon Balance and Management 6, 13.

[72] FAO. (2011). *Assessing forest degradation: Towards the development of globally applicable guidelines.* http://www.fao.org/3/a-i2479e.pdf

[73] FAO. (2011). *Assessing forest degradation: Towards the development of globally applicable guidelines.* http://www.fao.org/3/a-i2479e.pdf

[74] Ceccherini, G., Duveiller, G., Grassi, Giacomo, Lemoine, G., Avitabile, V., Pilli, Roberto and Cescatti, A. (2020). "Abrupt increase in harvested forest area over Europe after 2015". *Nature.* 583 (July 2020), pp.72. It is noted that this article is expecting a critical response and that it has caused considerable discussion.

[75] Giulianai, G., Chatenoux, B., Benvenuti, A., Lacroix, P., Santoro, M. and Mazzetti, P. (2020). "Monitoring land degradation at national level using satellite Earth Observation time-series data to support SDG15 – exploring the potential of data cube". *Big Earth Data.* 4(1), pp.3-22. https://www.tandfonline.com/doi/pdf/10.1080/20964471.2020.1711633?needAccess=true

included, but that these definitions be kept separate and each clearly and separately defined. The AFi includes forest degradation in its definition of 'no-deforestation' and the framework is used by many initiatives. The FAO definition of 'deforestation' was also cited. Implementing the concepts and definitions in the AFi was reported to be difficult, but workable for companies.

Expert opinion recommends that degradation is kept separate from any definition of 'deforestation', with a product then instead required to be 'deforestation and degradation free'. This is because:

- Degradation requires forest condition to be monitored, which is a more intensive requirement for companies.
- Degradation requires clear criteria/indicators on what constitutes degradation; whether it is the loss of biomass, carbon content, biodiversity, ecosystem services etc.
- Degradation requires contextual factors to be taken into account, such as population pressure. There is also the potential for degraded forests to be restored and if a forest is under sustainable forest management regimes, it could be expected to cover.
- Only some commodities and/or products are likely to come from degraded land, rather than deforested land.[76] For example, small-scale timber extraction for energy in Africa is mainly associated with forest degradation, and not deforestation. On the other hand, large-scale illegal logging which leads to forest degradation is often followed by forest clearing, and therefore, deforestation. [77] In general, deforestation tends to be preceded by forest fragmentation which can lead to forest degradation.[78]

The recommended definition focuses on deforestation and to include degradation in detail (such as the HCV and HCS approaches) would be next level. However, by incorporating quantitative minimum thresholds for canopy cover or height, degradation is partially accounted for in the definition of 'deforestation-free'.

Net and gross deforestation

Zero-deforestation commitments may be imprecise in determining whether a definition relates to gross or net deforestation. The two definitions are very different and have implications for the feasibility and stringency of a commitment.[79]

Overview of net and gross deforestation

Feedback from the stakeholder workshops included the importance of distinguishing whether it is net or gross deforestation being included in the definition. These include the following:

- Gross deforestation generally refers to total amount of tree cover loss, without deducting offsets through afforestation and other means. Zero gross deforestation therefore means putting an end to forest loss entirely. This means that the definition of 'forest' is key in defining what constitutes deforestation and when forest area has been lost.[80]

[76] Based on expert opinion.
[77] https://www.wwf.ch/sites/default/files/doc-2021-01/Deforestation%20fronts%20-%20drivers%20and%20responses%20in%20a%20changing%20world%20-%20full%20report.pdf
[78] IPCC (2019) in https://www.wwf.ch/sites/default/files/doc-2021-01/Deforestation%20fronts%20-%20drivers%20and%20responses%20in%20a%20changing%20world%20-%20full%20report.pdf
[79] http://www.fao.org/3/i9927en/I9927EN.pdf
[80] Pasiecznik, Nick and Herman Savenije (eds.). (2017). Zero deforestation: A commitment to change. Wageningen, the Netherlands: Tropenbos International. http://www.etfrn.org/file.php/415/etfrn-news-58.pdf

- Net deforestation takes into account both losses from deforestation as well as gains and offsets from forest regeneration and restoration elsewhere, sometimes over a given timeframe and specific to a geographic area.[81]

Gross deforestation and net deforestation concepts can be applied to pledges at supply chain level or jurisdictional level. Table A.4 provides a summary of key commitments using either net or gross deforestation in their definitions.

Table A.4 Overview of gross and net deforestation in existing definitions

Source[8283]	Gross or net deforestation
Accountability Framework Initiative	Zero gross deforestation
Banking Environment Initiative	Zero net deforestation
Brazilian Cattle Agreement	Zero gross deforestation
Brazilian Soy Moratorium	Zero gross deforestation
British Columbia, Canada	Zero net deforestation
Consumer Goods Forum	Zero net deforestation
High Carbon Stock Approach	Zero gross deforestation
Indonesian Palm Oil Pledge	Zero gross deforestation *(HCS approach has been used to define and implement deforestation where forest area is defined as having a carbon stock of more than 35 tons of carbon per hectare)*
New York Declaration on Forests	Zero net deforestation
Soft Commodities Compact	Zero net deforestation
Tropical Forest Alliance	Zero net deforestation
WWF	Zero net deforestation

The main methodology for measuring gross deforestation is the assessment of satellite imagery within a defined period. Analysis of pixels can identify the conversion of forest to non-forest land. Further analysis is required if intentional clearing or natural disturbances need to be identified.[84] It is also possible to map separately tree plantations from natural forests through the imagery. WWF (2016) summarised the following concepts based on either net or gross deforestation:

[81] For example, see Accountability Framework: https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf. The link also provides a definition for 'restoration' as "The process of assisting the recovery of an ecosystem, and its associated conservation values, that has been degraded, damaged or destroyed… The term "restoration" is also used in the context of remediation of human rights harms, for which restoration may come in many forms (e.g., restoration of benefits, employment, or access to lands)."
[82] Pynton (2014) in Dermawan, A. and Hospes, O. (2018). "When the State Brings Itself Back into GVC: The Base of the Indonesian Palm Oil Pledge. *Global Policy*. 9 (S2). https://doi.org/10.1111/1758-5899.12619
[83] Pasiecznik, Nick and Herman Savenije (eds.). (2017). Zero deforestation: A commitment to change. Wageningen, the Netherlands: Tropenbos International. http://www.etfrn.org/file.php/415/etfrn-news-58.pdf
[84] WWF (2016)

Table A.5 Summary of concepts for net and gross deforestation

Net deforestation	Gross deforestation
Cover bigger areas, at a landscape, regional or national level	Cover smaller clearly defined areas, management units
Show gains and losses of forest cover	Use satellite images / real-time data within a specified time frame
Are often not based on real-time data but a process over time	Can distinguish between technical clearing and natural disturbance
Can include the classification of tree plantations as reforestation or afforestation	Can differentiate between natural forest and plantations

Source: WWF (2016)

Challenges with net and gross criteria

Zero net deforestation receives the most support amongst recent pledges (FAO, 2018).[85] However, there are issues concerning what types of forest should be allowed to be converted, as well as what types of new forest (if any) are sufficient to compensate the loss. Whether timber plantations should be allowed to replace natural forests needs to be decided (as previously discussed) and has been criticised (see[86]). If deforestation of a carbon and biodiversity rich forest is compensated by afforestation in a different location, the amounts of carbon and biodiversity will still be lost. The AFi report that there are few models for actors to effectively restore forests, which suggests that in practice, a 'no net approach' for commitment targets is likely to be insufficient.[87]

The AFi consider the net approach to be impracticable for supply chains, where companies do not have fixed land areas.[88] The monitoring of net-deforestation may also be challenging, as information regarding regeneration projects (along with which, comes an additional set of definitions which will need to be defined) will need to be known. Data availability and methods to measure net deforestation are considered difficult, particularly for some countries which do not have such specific data.[89]

Zero gross deforestation is considered the "least ambiguous term" (Fishman, 2014) by the Forests Dialogue and a more transparent criterium, as net deforestation rates conceal the scale of total deforestation. However, key criteria must still be defined. These include a definition of 'forest', a baseline date, a date for compliance, forest structure, as well as other characteristics.[90] However, zero gross deforestation faces criticism where it does not allow flexibility in land-use planning, as it requires that no forest can experience deforestation, regardless of national or regional development requirements.[91] There is also the critique that zero gross deforestation is potentially hypocritical to prevent developing countries to clear forests for economic growth, as other developed countries have previously done (Fishman, 2014).[92]

The decision to specify gross deforestation or net deforestation in the 'deforestation-free' supply chain definition is a political decision and should take into consideration the specific objectives of the legislation. To assess net deforestation, only two-time points need to be established and the total forest extent. In

[85] http://www.fao.org/3/i9927en/I9927EN.pdf
[86]
[87] AFi. (2020). *Operational Guidance on Applying the Definitions Related to Deforestation, Conversion, and Protection of Ecosystems.* https://s30882.pcdn.co/wp-content/uploads/2020/09/OG_Applying_Definitions-2020-5.pdf
[88] AFi. (2020). *Operational Guidance on Applying the Definitions Related to Deforestation, Conversion, and Protection of Ecosystems.* https://s30882.pcdn.co/wp-content/uploads/2020/09/OG_Applying_Definitions-2020-5.pdf
[89] Expert opinion.
[90] http://www.fao.org/3/i9927en/I9927EN.pdf
[91] http://www.fao.org/3/i9927en/I9927EN.pdf
[92] Fishman (2014)

contrast, gross deforestation requires knowledge and monitoring of specific forest areas. The definition needs to be accessible, and simple to implement, and allow countries to easily participate. Gross deforestation can perhaps be considered as a starting-point, and as greater data availability and tools to measure net deforestation become apparent over the coming years, the transition to a more detailed definition which links deforestation and afforestation activities.

Social criteria

Some definitions go beyond forest characteristics and incorporate social criteria. Incorporating social criteria provides a more detailed definition, with the possibility to include factors relating to human rights, economic development and the needs and rights of indigenous people.

The European Parliament resolution of 22 October 2020[93] calls for the Commission's definitions to take into account a wide range of criteria, including to "… aim at ensuring that the adoption of Union measures to protect the world's forests might result in the problem of conversion and degradation being shifted onto other natural ecosystems that are as important as natural forests for biodiversity, climate and human rights protection"[94] (e.g. wetlands).

It was also frequently reported in the stakeholder consultation that human rights should be included in the definition of 'deforestation-free'. It was communicated that supply-chains should incorporate the rights of local populations and indigenous peoples, as well as consider the issues of secure ownership and tenure rights.

The social criteria are relevant, however DG JUST's initiative on sustainable corporate governance will be the primary instrument to cover human rights and social issues.[95] As these criteria are already covered in a related EU intervention, it would not be efficient to also cover them through this instrument. This would duplicate efforts, potentially raise costs but also increase the complexity of the EU intervention considered here.

Overview of social criteria

The most notable example of this is the High Conservation Value (HCV) approach. As Nanni et al. (2020) highlight, the HCV approach is already incorporated into initiatives and certification schemes, and amongst other concepts, could be used as a definitional basis for sustainability criteria.[96] The HCV approach is designed to maintain or enhance environmental or social values in production landscapes, with six values. The first four values cover environmental criteria, and HCV 5 and HCV 6 cover social criteria:

- species diversity (HCV 1).
- landscape-level ecosystems (HCV 2).
- rare ecosystems/habitats (HCV 3).
- critical ecosystem services (HCV 4).

[93] European Parliament. (2020) *Deforestation: European Parliament resolution of 22 October 2020 with recommendations to the Commission on an EU legal framework to halt and reverse EU-driven global deforestation (2020/2006(INL)).* [online]. Available from: https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.pdf [Accessed 4 November 2020].
[94] European Parliament. (2020) *Deforestation: European Parliament resolution of 22 October 2020 with recommendations to the Commission on an EU legal framework to halt and reverse EU-driven global deforestation (2020/2006(INL)).* [online]. Available from: https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.pdf [Accessed 4 November 2020].
[95] European Commission. (2020). *Sustainable Corporate Governance.* [online]. Available from: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12548-Sustainable-corporate-governance [Accessed 5 November 2020].
[96] IEEP.

- community livelihood needs (HCV 5).
- cultural values (HCV 6).[97]

Through HCV assessments, it is determined whether the HCVs are present and if so, where they are located and if they are fragmented. From the assessment, management and monitoring measures are then recommended to ensure that the HCVs identified are then maintained or enhanced.[98] As highlighted by Proforest (2014), the HCV approach is not designed to prevent deforestation specifically but considers and maintains environmental and social values of importance at national, regional global level (HCVs 1-4) or locally (HCVs 5&6)[99].

Other existing indicators relating to human rights include the Human Freedom Index,[100] which uses indicators of personal and economic freedom. However, the index does not make specific reference to human rights in relation to agriculture, land tenure rights, forests or land use.[101]

Challenges with social criteria

Incorporating social metrics into a definition of 'deforestation-free' add a further level of complexity to the definition, with social and human rights being integrated with the physical condition of a forest. HCV approaches require on-the-ground assessments, carried out by experts and cannot be remotely identified, which would likely increase costs considerably. It is also understood that the incorporation of the HCV approach makes the definition more complex and therefore more challenging and more costly to measure, or report with accuracy or confidence.[102]

The definition should support the use of the HCV approach; however, it will not make this a mandatory criterion.

Cut-off date

It is necessary to put in place dates to evaluate whether there has been permissive deforestation since that specified point in time. A cut-off date renders compliance or non-compliance with commitments and is considered essential for enabling commitments related to deforestation-free and conversion-free supply chains to be precise, actionable and monitorable.[103,104]

As part of the 'cut-off date' framework, baselines (or base years) are used to measure land use change by providing a baseline from which land-use change can be compared (WWF, 2016). The use of cut-off dates provides clear signals to suppliers and also helps to facilitate monitoring. (Accountability Framework,

[97] Proforest. (2014). *A technical comparison of the HCV and HCS approaches.* [online]. Available at: https://proforest.net/en/files/hcv-and-hcs-compared.pdf [Accessed 16 October 2020].
[98] Proforest. (2014). *A technical comparison of the HCV and HCS approaches.* [online]. Available at: https://proforest.net/en/files/hcv-and-hcs-compared.pdf [Accessed 16 October 2020].
[99] Proforest. (2014). *A technical comparison of the HCV and HCS approaches.* [online]. Available at: https://proforest.net/en/files/hcv-and-hcs-compared.pdf [Accessed 16 October 2020].
[100] CATO Institute. (2019). *Human Freedom Index.* [online]. Available from: https://www.cato.org/human-freedom-index-new [Accessed 4 November 2020].
[101] United Nations Human Rights Office of the High Commissioner (2012), *Human Rights Indicators: A Guide to Measurement and Implementation.* [online]. Available from: https://www.ohchr.org/Documents/Publications/Human_rights_indicators_en.pdf
[102] Based on correspondence with the Joint Research Centre
[103] AFi. (2020). *Operational Guidance on Cutoff Dates.* https://accountability-framework.org/contents-of-the-framework/cutoff-dates/
[104] WWF. (2016). *Deforestation-free supply chains. Concepts and Implications.* https://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/WWF-Study_Deforestation-Free_Supply_Chains.pdf

2020).[105] The role of cut-off dates was also discussed in the stakeholder consultation, with it considered an important issue.

Overview of cut-off date in existing definitions

Cut-off dates currently vary widely across voluntary sustainability initiatives (Ingram et al. 2020; Potts et al. 2014 in Garrett et al. 2019).[106,107] The table below provides an overview of the different cut-off dates. The options have political, technical, regulatory, and economic justifications.[108]

[105] AFi. (2020). *Operational Guidance on Cutoff Dates.* https://s30882.pcdn.co/wp-content/uploads/2020/09/OG_Cutoff_Dates-2020-5.pdf

[106] Potts et al., 2014 in Garrett et al. 2019

[107] Ingram et al 2020.

[108] Nanni, S., Allen, B., Riera, A., Treharne, R., Meredith, S. and Bowyer C. (2020). *Discussion paper on the determination of sustainability criteria for deforestation, degradation and conversion-free, and human rights compliant agriculture and forestry commodities and products to be placed on the EU market.* London: Institute for European Environmental Policy (IEEP). https://ieep.eu/uploads/articles/attachments/e3e76069-2d2c-4089-a69e-5f47517dcc2e/IEEP%20discussion%20paper%20on%20deforestation.pdf?v=63751237156

Table A.6 Overview of cut-off dates used by different organisations

Cut-off date	Justification	Source
1990	This is the year that the First Assessment Report (FAR)[109] of the Intergovernmental Panel on Climate Change (IPCC) was completed, which highlighted the importance of climate change, the global consequences and the requirement for international co-operation; it is the base year used for the first commitment period of the Kyoto Protocol, where commitments were made to reduce greenhouse gas (GHG) emissions to an average of 5% against 1990 levels[110]; and the base year used in the 2030 Climate and Energy framework by the European Commission, with a key target of cutting at least 40% in GHG emissions from 1990 levels.[111]	Nanni et al. (2020)
1994	FSC sets this cut-off date, where plantations converted from natural forest after November 1994 are not qualified for FSC certification.	Garret et al. 2019; WWF (2016); FSC (2012) ; Nanni et al. (2020)[112]
2005	This year would provide consistency with emission reductions approaches in the 2030 Climate and Energy framework, which includes the target to reduce GHG emissions by 43% for the Emissions Trading System (ETS) sector[113] and 30% by 2030 for the non-ETS sector, compared to 2005.[114] RSPO also set the cut-off date of 2005 where new plantings since cannot have replaced primary forest or any area which contains one or more HCVs. The Rainforest Alliance also do not allow high value ecosystems to have been converted since 2005 (if damaged between 1999 and 2005 a restoration plan must be put in place).	Nanni et al. (2020); WWF (2016); RSPO (2005)[115]; Smit et al. (2015)[116]
2008	This year would be consistent with the base year used for land use change set out in the RED. Other global certification schemes have also adopted this base year, including ISCC, Rainforest Alliance and the Soy Moratorium (forest clearing), amongst others. This date is also recommended by WWF.	Nanni et al. (2020); WWF (2016); Garrett, et al. 2019 European Parliament (2020)
2009	The RTRS does not allow areas to have been cleared or converted from May 2009. After June 2016, no conversion was allowed in any natural land. The Consumer Goods Forum also has a 2009 conversion cut-off date relating to HCV and HCS and production in these areas.	Garrett et al. 2019; WWF (2016); RTRS (2016)[117];

[109] See p.47: Intergovernmental Panel on Climate Change (IPCC). (1992). Climate Change: The 1990 and 1992 IPCC Assessments. IPCC First Assessment Report Overview and Policymaker Summaries and 1992 IPPC Supplement. Canada: IPCC. https://www.ipcc.ch/site/assets/uploads/2018/05/ipcc_90_92_assessments_far_full_report.pdf

[110] United Nations Climate Change. (2020). What is the Kyoto Protocol? Available from: https://unfccc.int/kyoto_protocol#:~:text=During%20the%20first%20commitment%20period,five%20percent%20against%201990%20levels [Accessed 16 October 2020].

[111] European Commission. (no date). 2030 climate & energy framework. [online]. Available from: https://ec.europa.eu/clima/policies/strategies/2030_en#:~:text=2030%20Climate%20and%20Energy%20Framework%20%2D%20existing%20ambition,32.5%25%20improvement%20in%20energy%20efficiency [Accessed 16 October 2020].

[112] Forest Stewardship Council (2012): FSC's® engagement with Plantations

[113] 'ETS' relates to Emissions Trading System. More information on this can be found here: https://ec.europa.eu/clima/policies/ets_en#tab-0-2

[114] European Council. (2014). European Council (23 and 24 October 2014) – Conclusions. ECO 169/14. https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/145397.pdf

[115] RSPO (2005): RSPO Principles and Criteria for Sustainable Palm Oil Production

[116] Smit, McNally, Gijsenbergh (2015): Implementing Deforestation-Free Supply Chains – Certification and Beyond, p. 6

[117] RTRS (2016): RTRS Standard Responsible Soy production Version 3.0

Cut-off date	Justification	Source
		Stanley et al. (2015)[118]
Up to 2015	The European Parliament has recently discussed a cut-off date that is in the past, but is no later than 2015, in relation to 'forest and ecosystem-risk commodities' placed on the Union market.[119] The HSCA Toolkit defines a cut-off date of 31 December 2015.	European Parliament (2020)
2020	Satellite data are available from this date and it coincides with the current evaluations and assessments being made of potential demand-side measures. The date of the European Parliament Resolution in 2020 is also an option,[120] from which companies could have acknowledged that measures would be implemented in the future. This would also help to prevent deforestation taking place between the European Parliament Resolution and the cut-off date.	This report
Future	Year of entry into force of a future EU regulatory framework to minimise deforestation. The baseline year would be the year that an EU regulatory approach enters into force.	Nanni et al. (2020)

Other sources identified include the AFi, which does specify a date but does provide operational guidance on cut-off dates for no-deforestation and no-conversion commitments.[121] These include sector-wide and company-specific cut-off dates that are applied for a particular commodity in a particular geographic area, with reference made to the relevance of seasonality and differences in the feasibility of monitoring land-cover over a year.[122] Mixed baselines for different company sizes and/or different commodities were discussed by several stakeholders in the consultation, however it was also highlighted that this could lead to fragmentation and a disruption of the level-playing field, as well as difficulties in implementing the regulation.

Challenges with cut-off dates

Views on suitable cut-off dates diverged a lot between stakeholder groups as well as within stakeholder groups, with some advocating for an earlier definition and others a preference for a past near-current date or one in the future. Overall, it was understood that data availability is key to determining a robust baseline and that this data availability is more apparent for later dates. Alignment with existing standards and initiatives is important.

There is some debate over whether cut-off dates should be in the past or future:

- References in Garrett et al. (2019) highlights that if set at a **future date**, there is the risk that there will be a surge in deforestation up until this cut-off date[123].

[118] 2 Stanley/ Roe/ Broadheads/ Parker (2015): The Potential of Voluntary Sustainability Initiatives to Reduce Emissions from Deforestation and Forest Degradation
[119] European Parliament. (2020). Report with recommendations to the Commission on an EU legal framework to halt and reverse EU-driven global deforestation (2020/2006(INL)).
[120] European Parliament. (2020). Report with recommendations to the Commission on an EU legal framework to halt and reverse EU-driven global deforestation (2020/2006(INL)).
[121] AFi. (2020). Operational Guidance on Cutoff Dates. https://s30882.pcdn.co/wp-content/uploads/2020/09/OG_Cutoff_Dates-2020-5.pdf
[122] AFi. (2020). Operational Guidance on Cutoff Dates. https://s30882.pcdn.co/wp-content/uploads/2020/09/OG_Cutoff_Dates-2020-5.pdf
[123] Carlson et al. 2018; Jopke and Schoneveld, 2018 in Garrett et al. 2019

A few stakeholders suggested the cut-off date be the year of entry into force of the legislation. However, most stakeholders warned against setting a cut-off date in the future, due to the risk that of increased deforestation by a deforestation 'rush'.

- The use of an **immediate cut-off date** may result in "amnesty" being offered for past deforestation and its legality, which could negatively impact some actors' motivations for conservation (references in Garrett et al. (2019)[124].

  Stakeholders in the targeted interviews saw benefits of a current or near-current cut-off date (e.g. 2020) include bringing all current production into compliance, and avoided the need to demonstrate who owned deforested land when deforestation took place in earlier years. The New York Declaration on Forests and UN Sustainable Development goals also project the global goal of halting deforestation by 2020. A cut-off date of 2020 would therefore be coherent.

  Expert opinion noted that a cut-off date would mean that producers already complying with existing voluntary sustainability standards with earlier cut-off dates (e.g. 2008) would still be in compliance, and could be seen as front-runners in complying with EU rules.

- **Cut-off dates that are too far in the past**, may make providing a transparent and reliable verification of land-use and declaring products as deforestation-free difficult, where compensation is not involved (WWF, 2016).[125]

  Several stakeholders indicated a preference for a cut-off date of 2008, in alignment with existing international and private commitments, including RED. Although others thought this date was too early, with one organisation considering this unfair for some sectors, and have a huge impact on producers.

  Other challenges reported by several stakeholders include considering the delay or 'lag period' between land clearance and commodity harvesting, the lifetime productivity of the commodity, as well as the delay between land clearance and export to the EU. Some commodities are harvested several years after they are planted, and the land clearance took place. This means that with a more recent cut-off date may still allow products from recently deforested land to be present on the market in several years' time. Allocating deforestation to a particular commodity was also raised as an issue, as there is a period of time between deforestation occurring and it being allocated to a commodity, known as the 'allocation period'. Such issues support the argument for a much earlier cut-off date than 2020.

  Stakeholders also raised the challenge of feasibility, where deforestation has already happened before many countries know about it, as well as satellite technology being unavailable or less detailed the further back the date is set. Therefore, setting a cut-off date of 5-10 years ago can be challenging for many countries, in terms of implementation. One stakeholder also highlighted that a cut-off date too far in the past would risk suddenly denying small producers access to the EU market and may also cause issues for smallholders in identifying the previous status of land, particularly for degradation. A definition too far in the past may not be inclusive. Another stakeholder reported that cut-off dates must be fair for small-holders and allow for their anticipation of measures. This would point towards later cut-off dates.

Once a reference date is established, it should be fixed without the possibility of it being changed. It is understood that the reference date relating to reforestation activities and the generation of carbon credits

[124] Pasiechznik and Savenike, 2017; Roriz et al. 2017 in Garrett et al. 2019
[125] WWF. (2016). *Deforestation-free supply chains. Concepts and Implications.* https://www.wwf.de/fileadmin/fm-wwf/Publikationen-PDF/WWF-Study_Deforestation-Free_Supply_Chains.pdf

under the Kyoto Protocol had been reviewed, but that such a change would have resulted in unacceptable incentives for deforestation.[126]

The cut-off date must be one where there is reliable and robust data available to enable an accurate assessment of compliance. The cut-off date is a policy choice, with the elements in the preceding paragraph and bullet points needing to be taken into account.

The following products are available to monitor deforestation against a cut-off date:

- The expected publication in October 2020 of high-resolution satellite images through **Norway's International Climate and Forest Initiative (NICFI).**[127] The publication of such information (often only accessible for private stakeholders) will include data dating back to 2015 and the images will be updated every month.
- **Global Forest Watch (GFW**),[128] which provides deforestation alerts as well as information on forest change, land cover, land use, climate and biodiversity by country available since 2001 to 2019. The GFW tool can also be used to investigate and monitor commodity production areas, with GFW Pro available for companies and financial institutions to monitor, demonstrate compliance with commitments and contribute to securely managing deforestation risk in commodity supply chains.[129]
  - A recent article utilised the data provided by GFW to assess forest harvests in Europe from 2000 to 2015, with the year 2000 justified on the basis of data availability.[130]
  - An article by the JRC, due to be published in the coming months, includes information on Landsat and also acknowledges the limited availability of data prior to 2000.[131] It is understood that whilst Landsat data can be used from 2000 onwards, the processing of satellite imagery available from GFW changed in 2015, with smaller practices being able to be visible.[132]
- **Landsat satellite imagery as well as the ESA Copernicus Sentinels** mission will further increase the availability of data to monitor forest management. As such, there is the potential for such products to be utilised to monitoring a definition of 'deforestation-free'.[133]
- **FAO's Global Forest Resources Assessment (FRA)**. Information is requested through questionnaires where data is mostly based on national forest inventories, with remote sensing

[126] Based on correspondence with the Joint Research Centre. Reference provided: https://science.sciencemag.org/content/299/5613/1669
[127] Norway's International Climate and Forest Initiative (NICFI). (2020). *New satellite images to allow anyone, anywhere, to monitor tropical deforestation.* [online]. Available from: https://www.nicfi.no/current/new-satellite-images-to-allow-anyone-anywhere-to-monitor-tropical-deforestation/ [Accessed 16 October 2020].
[128] Global Forest Watch. (no date). *Forest Monitoring Designed for Action.* [online]. Available from: https://www.globalforestwatch.org/ [Accessed 16 October 2020]. Note that according to the GFW website, GLAD alerts are only available for tropical forests only and from 1 Jan 2018 onwards (or dating back to 2015 for select countries in the Amazon and Congo Basins and insular South-East Asia).
[129] Global Forest Watch Pro. (no date). *Securely manage deforestation risk in commodity supply chains.* [online]. Available from: https://pro.globalforestwatch.org/ [Accessed 16 October 2020].
[130] Ceccherini, G., Duveiller, G., Grassi, Giacomo, Lemoine, G., Avitabile, V., Pilli, Roberto and Cescatti, A. (2020). "Abrupt increase in harvested forest area over Europe after 2015". *Nature.* 583 (July 2020), pp.72; Hansen MC et al, 2013 High-resolution global maps of 21st-century forest cover change. Science 342, 850–853 (2013). Doi:10.1126/science.1244693. It is noted that this paper will receive a critique and has caused some discussion.
[131] Vancutsem C et al, Long-term (1990-2019) monitoring of tropical moist forests dynamics. Science Advances. in press.
[132] Based on an interview with the Joint Research Centre, carried out on 3 November 2020.
[133] Based on an interview with the Joint Research Centre, carried out on 3 November 2020.
[133] Ceccherini, G., Duveiller, G., Grassi, Giacomo, Lemoine, G., Avitabile, V., Pilli, Roberto and Cescatti, A. (2020). "Abrupt increase in harvested forest area over Europe after 2015". *Nature.* 583 (July 2020), pp.72.

and other information systems alongside streamlined reporting and online tools to obtain information on countries' forests.[134]

- For FRA 2020, the assessments were based on country reports as well as remote sensing conducted by FAO alongside national focal points and regional partners. Its online reporting system has also been structured to be in line with reporting on the Sustainable Development Goals (in particular, SDG 15).[135]
- The FAO require the definition of 'degraded forest' to be defined by the country. Criteria used by countries to define degradation are summarised in the footnoted report.[136] For countries where there are no national forest inventories, it is understood that remote sensing has helped to measure deforestation and degradation.[137]
- Through an online platform, FAO provide free access to geospatial data from remote sensing.[138] It is reported that this platform has also been utilised to obtain data to report on sustainable forest management indicators across Europe, in collaboration with FOREST EUROPE and UNECE.[139]

Further products were also identified in the targeted stakeholder consultation. These include (but are not limited to) Terra – I by the International Center for Tropical Agriculture (CIAT); Global Risk Assessment Services (GRAS)[140]; Trase[141]; and Agroideal[142]. REDD+ and the FAO also support the national collection of data, with spatial data for deforestation and any changes typically collected and monitored through satellite data,[143] with information published on the results of REDD+ activities.[144] Brazil's DETER deforestation detection and monitoring system is available for both public and private actors to use, with real time deforestation detection.[145] However, whilst maps of deforestation are becoming sufficiently accurate, they are not yet combined with land registries which contributed to preventing the detection of those responsible for deforestation (Garrett et al. 2019).[146]

[134] FAO. (2018). *1948-2018: Seventy years of FAO's Global Forest Resource Assessment. Historical overview and future prospects.* http://www.fao.org/3/I8227EN/i8227en.pdf
[135] FAO. (2018). *1948-2018: Seventy years of FAO's Global Forest Resource Assessment. Historical overview and future prospects.* http://www.fao.org/3/I8227EN/i8227en.pdf
[136] http://www.fao.org/3/ca9825en/CA9825EN.pdf p.96
[137] Based on an interview with the Joint Research Centre, carried out on 3 November 2020.
[138] http://www.fao.org/3/ca9825en/CA9825EN.pdf
[139] http://www.fao.org/3/ca9825en/CA9825EN.pdf
[140] http://www.terra-i.org/terra-i.html and https://www.gras-system.org/
[141] TRASE. (no date). *Transparency for Sustainable Economics.* [online]. Available from: https://trase.earth/ [Accessed 16 October 2020].
[142] Agroideal. (no date). *Agroideal territorial intelligence.* [online]. Available from: https://agroideal.org/en/
[143] FAO. (no date). Available from: http://www.fao.org/redd/areas-of-work/national-forest-monitoring-system/en/
[144] UNFCCC. (no date). *Lima REDD+ Information Hub.* [online]. Available from: https://redd.unfccc.int/info-hub.html [Accessed 16 October 2020].
[145] Garrett, R.D., Levy, S., Carlson, K.M., Gardner, T.A., Godar, J., Clapp, J., Dauvergne, P., Heilmayr, R., le Polain de Waroux, Y., Ayre, B., Barr, R., Døvreh, B., Gibbs, H.K., Hall, S., Lake, S., Milder, J.C., Rausch, L.L., Rivero, R., Rueda, X., Sarsfield, R., Soares-Filho, R. and Villoria, N. (2019). "Criteria for effective zero-deforestation commitments". *Global Environmental Change,* 54(2019) 135-147. https://www.research-collection.ethz.ch/bitstream/handle/20.500.11850/359672/1-s2.0-S0959378018306654-main.pdf?sequence=2&isAllowed=y
[146] Garrett, R.D., Levy, S., Carlson, K.M., Gardner, T.A., Godar, J., Clapp, J., Dauvergne, P., Heilmayr, R., le Polain de Waroux, Y., Ayre, B., Barr, R., Døvreh, B., Gibbs, H.K., Hall, S., Lake, S., Milder, J.C., Rausch, L.L., Rivero, R., Rueda, X., Sarsfield, R., Soares-Filho, R. and Villoria, N. (2019). "Criteria for effective zero-deforestation commitments". *Global Environmental Change,* 54(2019) 135-147. https://www.research-collection.ethz.ch/bitstream/handle/20.500.11850/359672/1-s2.0-S0959378018306654-main.pdf?sequence=2&isAllowed=y

There are also challenges and uncertainties associated with remote sensing. For example, the time factor in tree loss and recovery where a short observation period may cause a misclassification of deforestation.[147] An observed change in land cover, may also not necessarily mean a change in land-use has occurred. Each dataset will have its own set of limitations. These may need to be further explored before a tool is considered appropriate to monitor deforestation and forest degradation against a cut-off date.

Our recommendations on a 'deforestation free' definition

Our recommendations

The recommendations take into account feedback from the Open Public Consultation, stakeholder meetings and targeted consultation interviews.

The Definition Options are:

- Definition Option 1: FAO definition
- Definition Option 2: AFi definition
- Definition Option 3: An improved definition based on the FAO, AFi and UNFCCC with the inclusion of degradation.

Definition Option 1 – FAO definition

This definition may be considered the simplest recommendation, where deforestation is the conversion of forest area to non-forest area. This is the FAO definition.

Forest: *"Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ."*

Explanatory notes of the FAO definition:

- *"Forest is determined both by the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 meters in situ.*
- *Includes areas with young trees that have not yet reached but which are expected to reach a canopy cover of 10 percent and tree height of 5 meters. It also includes areas that are temporarily unstocked due to clear-cutting as part of a forest management practice or natural disasters, and which are expected to be regenerated within 5 years. Local conditions may, in exceptional cases, justify that a longer time frame is used.*
- *Includes forest roads, firebreaks and other small open areas; forest in national parks, nature reserves and other protected areas such as those of specific environmental, scientific, historical, cultural or spiritual interest.*
- *Includes windbreaks, shelterbelts and corridors of trees with an area of more than 0.5 hectares and width of more than 20 meters.*
- *Includes abandoned shifting cultivation land with a regeneration of trees that have, or are expected to reach, a canopy cover of 10 percent and tree height of 5 meters.*
- *Includes areas with mangroves in tidal zones, regardless whether this area is classified as land area or not.*

[147] http://www.fao.org/3/ca9825en/CA9825EN.pdf

- *Includes rubber-wood, cork oak and Christmas tree plantations.*
- *Includes areas with bamboo and palms provided that land use, height and canopy cover criteria are met.*
- *Includes areas outside the legally designated forest land which meet the definition of "forest".*
- *Excludes tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations, olive orchards and agroforestry systems when crops are grown under tree cover."*[148]

Deforestation: *"permanent reduction of the tree canopy cover below the minimum 10 percent threshold"*

Explanatory notes of the FAO definition:

- *"Includes permanent reduction of the tree canopy cover below the minimum 10 percent threshold.*
- *It includes areas of forest converted to agriculture, pasture, water reservoirs, mining and urban areas.*
- *The term specifically excludes areas where the trees have been removed as a result of harvesting or logging, and where the forest is expected to regenerate naturally or with the aid of silvicultural measures.*
- *The term also includes areas where, for example, the impact of disturbance, over-utilization or changing environmental conditions affects the forest to an extent that it cannot sustain a canopy cover above the 10 percent threshold."*[149]

Table A.7 Definition Option 1 Pros and Cons

Pros	Cons
• **The FAO definition of deforestation is an internationally agreed definition.** • **Quantification provides detail for monitoring.** • **Conversion is included in relation to non-forest land and forest land.** • **FAO definition was recommended by stakeholders.** • **Many definitions build upon the FAO definition of 'forest'.** • **Whether deforestation is human-induced, and the legality of deforestation is not included. This reduces the monitoring burden.**	• No distinguishing between some plantations and natural forests. • Biodiversity and carbon stock value are not accounted for. • National and regional flexibility is not available with a single quantification of thresholds. • Does not address or require afforestation reforestation or restoration. • Degradation is not fully encompassed.

Implementing Definition Option 1

With quantification provided for what deforestation constitutes, all geographic areas and commodity supply chains can be assessed and monitored based on the same criteria. Satellite imagery and geospatial data from remote sensing methods are the tool generally used to monitor. Whilst the FAO FRA use this approach alongside questionnaires to obtain information at a national level, this definition would require information to be obtained at a sub-national level to account for the different commodity supply chains it would be applied to. Sub-national information is considered necessary as this definition is likely to be applied to supply

148 http://www.fao.org/3/I8661EN/i8661en.pdf
149 http://www.fao.org/3/I8661EN/i8661en.pdf

chains and for multiple commodities, of which one country may produce several. Remote sensing would be the primary method for data collection at a sub-national level.

Information on tree canopy can be obtained from GFW. However, GFW focuses on a tree cover definition, whereas this definition is a land-use definition. With Option 1 a relatively simple quantified definition of 'deforestation', it is expected that on-the-ground validation/confirmation would be minimal. National forest inventories could also be used, but with the recognition that areas would be evaluated at the sub-national level.

The FAO definition also includes 'the conversion of forest to other land use independently whether human-induced or not' which would lessen the burden on monitoring, as monitoring data would not be required to identify whether deforestation is human induced, or not. However, the FAO definition does explicitly exclude areas 'where trees have been removed as a result of harvesting or logging, and where the forest is expected to regenerate naturally or with the aid of silvicultural measures'.[150] This would require some additional investigation beyond satellite monitoring, at a national or sub-national level to determine which areas this would impact. With the AFi considering deforestation to occur regardless of its legality, this aspect would also not require monitoring should this definition be adopted.

Evaluation of Definition Option 1

Definition Option 1 is excluded because of its limitations on height thresholds being unsuitable for the EU forest landscape as well as some plantations being included in the definition of 'forest'.

Definition Option 2 – AFi definition

Definition Option 2 increases the level of complexity and follows the AFi definition. The FAO definition of 'forest' is applied, but deforestation applies specifically to 'natural' forests. This definition therefore does not consider any plantation to be 'forest'.

Forest: '*Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ'* (FAO)

Natural forest: a forest which is a natural ecosystem and includes: primary forests; regenerated (second-growth) forests; and managed natural forests.[151]

Deforestation: *'Loss of natural forest as a result of: i) conversion to agriculture or other non-forest land use; ii) conversion to a tree plantation; iii) severe and sustained degradation".*

The Accountability Framework initiative recommends that minimal conversion is allowed to facilitate optimal conservation and production outcomes (this would be beyond the definition's conversion of forest to non-forest land). [152] AFi define the minimal level of deforestation as:

"A small amount of deforestation or conversion that is negligible in the context of a given site because of its small area and because it does not significantly affect the conservation values of natural ecosystems or the services and values they provide to people."[153]

[150] FAO. (2018). *Global Forest Resources Assessment 2020. Terms and Definitions*. http://www.fao.org/3/I8661EN/i8661en.pdf
[151] Accountability Framework initiative (AFi). (2020). *Terms and Definitions.* https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf
[152]AFi. (2020). Terms and Definitions. https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf
[153] AFi. (2020). Terms and Definitions. https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf

As the AFi also states,[154] minimal levels of conversion must meet the following:

- *"Not exceed cumulative thresholds that are small both in absolute terms (e.g., no more than a few hectares) and relative to the area in question (e.g., no more than a small proportion of the site). Levels of conversion or deforestation should be assessed cumulatively over space and time; multiple small instances of conversion may lead to a producer being considered non-compliant with commitments.*
- *Not result in the loss of important biological, social, or cultural values, for instance as defined by the High Conservation Value framework.*
- *If not planned in advance (e.g., if resulting from unauthorised encroachment or other unforeseen activities), are addressed through effective actions to prevent repetition and to remediate harms and restore lost conservation values to the extent necessary."*

Further key elements of Option 2 include:

- The value of the HCV and HCS approaches as proxies for forest condition, and countries/areas which already use these could continue to do so. The HCV and HCS approaches would not be mandatory as they are costly and considered scientifically highly subjective by some. However, degradation would still need to be monitored.

Table A.8 Definition Option 2 Pros and Cons

Pros	Cons
• AFi adopts the FAO's quantified definition of 'forest', with further elaborations and clarifications. Inclusion of the FAO's quantified definition of 'deforestation' thus improves coherency in definitions applied at global level. In the stakeholder workshops, it was re-iterated that the AFi includes FAO definitions. • A quantified threshold assists with monitoring and enforcement practices as well as evaluating progress. Feedback from the stakeholder workshops included the need for criteria to be measurable and quantitative. • Degradation is further encompassed through the application of the HCS approach. • Allows for minimal levels of conversion and deforestation,[155] and is therefore also in line with other definitions, such as the WWF (2008) definition.[156] • Feedback from stakeholders included references made to the High Carbon Stock Approach (HCSA), the FAO definition and AFi.	• Incorporating the HCV framework will likely require on-the-ground assessments to take place, increasing the burden on assessment and monitoring. • Feedback from the stakeholder workshops indicated that forest degradation is difficult to measure and observe, with resources and specialties required. • Does not address or require afforestation reforestation or restoration. • There was some concern was expressed in the stakeholder workshop over the private initiative being chosen over those of an intergovernmental body. • Excluding plantations from the definition of 'forest' would allow the conversion of plantations to agricultural land. This trade off needs to be considered • Excluding plantations from the definition of 'forest' would exclude most of the EU forest area. This trade off needs to be considered.

[154] AFi. (2020). Terms and Definitions. https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf, p.15

[155] AFi. (2020). *Terms and Definitions.* https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf

[156] WWF. (2009). *Zero Net Deforestation by 2020 – A WWF Briefing Paper.* https://d3bzkjkd62gi12.cloudfront.net/downloads/wwf_2020_zero_net_deforest_brief.pdf; The Consumer Goods Forum. (2016). *The Sustainable Soy Sourcing Guidelines: Second Edition.* https://www.theconsumergoodsforum.com/wp-content/uploads/2017/10/201605-CGF-Sustainable-Soy-Sourcing-Guidelines-Second-Edition.pdf

Implementing Definition Option 2

The Global Forest Watch (GFW) tool may be able to be utilised to assist with such monitoring, with it already reporting tree cover loss with canopy density, with the option to select tree cover loss with >10% canopy density.[157] However, GFW focuses on tree cover, whereas the FAO FRA focuses on land-use. Information on tree canopy can be obtained from GFW.

Definition Option 2 is built on the FAO definition which includes 'the conversion of forest to other land use independently whether human-induced or not'. This lessens the burden of monitoring for this element. However, the FAO definition does explicitly exclude areas 'where trees have been removed as a result of harvesting or logging, and where the forest is expected to regenerate naturally or with the aid of silvicultural measures'.[158] This would require some additional investigation beyond satellite monitoring, at a national or sub-national level to determine which areas this would impact. Additional investigation beyond satellite monitoring may also be required to identify a 'natural' forest. With Option 2 considering deforestation to occur regardless of its legality, this aspect would also not require monitoring should this definition be adopted.

To obtain detail on minimal conversion, information at site level must be obtained and local context accounted for. This may need to incorporate the HCV framework, which may require on-the-ground assessments to take place, and monitoring beyond remote sensing. Deforestation at site level will need to be assessed over space and time, with the risk of producers making multiple small minimal conversions, which would be considered as non-compliant with deforestation-free supply chain commitments.[159]

Some on-the-ground validation/confirmation may be required in relation to identifying plantation areas and in some cases the nature of the deforestation identified by remote sensing (ie. whether the forest is a natural forest). Adopting guidance by the AFi, this could be done through interviews with key stakeholders, site visits, document reviews or on-the-ground mapping.[160] Whilst this may create an additional burden for some, there could be the option of 'validating' remote sensing and therefore assessing the likelihood that deforestation has been detected. A similar approach is taken for deforestation 'alert' systems on the GFW platform.

Evaluation of Definition Option 2

Definition Option 2 is excluded due to its limited range in height criteria, which do not suit the EU landscape.

Definition Option 3: FAO, AFi and UNFCCC definition

Option 3 builds upon the FAO definition with a few alterations and also includes elements from the AFi and UNFCCC. This definition applies to natural forests and plantations are excluded from the definition of forest.

Forest: *Land spanning more than 0.5 hectares with trees higher than 2-5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.*

Deforestation: *"Loss of natural forest as a result of: i) conversion to agriculture or other non-forest land use; ii) conversion to a tree plantation; or iii) severe and sustained degradation* (AFi).

[157] Global Forest Watch Pro. (no date). *Securely manage deforestation risk in commodity supply chains.* [online]. Available from: https://pro.globalforestwatch.org/ [Accessed 16 October 2020].
[158] FAO. (2018). *Global Forest Resources Assessment 2020. Terms and Definitions*. http://www.fao.org/3/I8661EN/i8661en.pdf
[159] AFi. (2020). *Terms and Definitions.* https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf
[160] AFi. (2020). *Operational Guidance on Applying the Definitions Related to Deforestation, Conversion, and Protection of Ecosystems.* https://s30882.pcdn.co/wp-content/uploads/2020/09/OG_Applying_Definitions-2020-5.pdf

Key elements of Option 3 include:

- The UNFCCC range of height threshold for 'forest' allows for some degree of accounting for local context and definitions and may be particularly useful where boreal or tropical forests are located.[161] This also adapts to the EU forest landscape.
- The UNFCCC definition of 'forest' be applied to natural forests only. This allows for some consideration of the biodiversity and carbon value of a forest.
- The value of the HCV and HCS approaches as proxies for forest condition, and countries/areas which already use these could continue to do so. However, the HCV and HCS approaches would not be mandatory as they are costly and considered scientifically highly subjective by some.

Table A.9 Definition Option 3: Pros and Cons

Pros	Cons
• The FAO definition of forest and deforestation is built upon. • A quantified threshold assists with monitoring and enforcement practices as well as evaluating progress. Feedback from the stakeholder workshops included the need for criteria to be measurable and quantitative. • Degradation is further encompassed through the application of the HCS approach • Feedback from stakeholders included references made to the High Carbon Stock Approach (HCSA), the FAO definition and AFi. These elements would be included in Option 3 definition of 'deforestation-free'. • Providing a range in the height threshold allows for flexibility at a national level. This is in line with the AFi and UNFCCC and allows national definitions to be included to some extent.[162] • Providing a range in height allows for other ecosystems to potentially be included in the definition of 'forest', such as mangroves and woodland.	• Incorporating the HCV framework will likely require on-the-ground assessments to take place, increasing the burden on assessment and monitoring • The risk of not making the HCV and HCS approaches mandatory is that those areas already using such approaches would not be positively distinguished compared to areas that do not use the approaches. • Does not address or require afforestation reforestation or restoration • Data availability to measure tree height of 2m may be limited. • Excluding plantations from the definition of 'forest' would allow the conversion of plantations to agricultural land. This trade-off needs to be considered. • Excluding plantations from the definition of 'forest' would exclude most of the EU forest area. This trade off needs to be considered.

Implementing Definition Option 3

As with Definition Option 1 and Option 2, information on tree canopy cover and density can be obtained from the GFW. However, information on land-use will need to be obtained by other means. As above, methods to distinguish between natural forests and plantations will also need to be used.

Option 3 includes a leeway for the tree height threshold. Whilst this allows for some alignment with national definitions, this may have implications for comparability between countries. There are also implications for the ability to use existing datasets in implementing and monitoring, as the GFW dataset (Hansen et al. 2013) defines "tree cover" as all vegetation above 5 metres in height, rather than 2 metres in height.

[161] Based on an interview with the Joint Research Centre, carried out on 3 November 2020.
[162] AFi. (2020). *Terms and Definitions.* https://accountability-framework.org/wp-content/uploads/2020/03/Definitions-Mar2020.pdf

Evaluation of Definition Option 3

Option 3 is the recommended definition.

Appendix B Detailed screening of measures

Deforestation free requirement or standard

Measure	**A deforestation-free standard that products (including commodities linked to deforestation and forest degradation) must comply with to be placed on the EU market (and a prohibition, in line with EU international commitments[163] relevant to sustainable forest management and governance, of the placing on the market of products that do not comply with the standard)**
Short description	Establishing a deforestation-free standard to make sure that products placed on the EU market comply with a set of requirements. More generally, a standard defines technical or quality requirements, guidelines, or characteristics with which current or future products or production processes may comply. Standards can also be a way to define a common terminology within a specific sector. Standards commonly result from the voluntary cooperation and knowledge-sharing between industry, public authorities, and other interested parties.[164,165,166] Standards were originally developed to ensure compatibility and interoperability of components, products and services.[167] EU standards are also used to ensure food and consumer safety and quality, as is the case with food safety requirements.[168] Other examples include minimum standards for eco-design, prohibiting products that do not comply with the standards to enter the EU market.[169]
Who	**The European Commission** in kickstarting the process to defining a standard, contributing to its development, and approving the standard. When it comes to the example of food safety standards, the European Food Safety Authority (EFSA) is responsible for the development of specific food safety legislation and the creation of a framework for official food controls. **A standardisation organisation**, such as the European Committee for Standardisation (CEN)[170], could provide the platform for the development of the deforestation-free standard and associated criteria. **Member States** (public authorities) in the implementation of this standard. This would include monitoring and compliance checks by a competent authority. **Economic operators** (businesses) placing products on the EU internal market would have to make sure their products, sourcing and production processes comply with the European standard. Standards would require a third-party body for auditing. **Third-party auditing body** to verify compliance with the requirements/guidelines of the standard. This question should be further explored: • How should enforcement take place at MS level? • Should third countries also be involved in implementing the measure under their jurisdiction (e.g. to verify producers comply with the standard prior to export)?

[163] Including for example NY Declaration on Forests, the CBD Action Plan on Customary Sustainable Use, UN Framework Convention on Climate Change (incl. the Paris Agreement), and UN Sustainable Development Goals.
[164] European Committee for Standardisation (2020), European Standards, https://www.cen.eu/work/products/ens/pages/default.aspx.
[165] European Commission (2011), A strategic vision for European standards: Moving forward to enhance and accelerate the sustainable growth of the European economy by 2020, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2011:0311:FIN.
[166] CEN CENELEC (2020), What is a European Standard (EN)? https://www.cencenelec.eu/standards/defen/pages/default.aspx.
[167] CEN CENELEC (2020), What is a European Standard (EN)? https://www.cencenelec.eu/standards/DefEN/Pages/default.aspx.
[168] CBI (2020), What requirements should fresh fruit or vegetables comply with to be allowed on the European market? https://www.cbi.eu/market-information/fresh-fruit-vegetables/buyer-requirements.
[169] https://www.beuc.eu/ecodesign-and-energy-labelling
[170] European Committee for Standardisation (2020), Who we are, https://www.cen.eu/about/Pages/default.aspx.

Measure	**A deforestation-free standard that products (including commodities linked to deforestation and forest degradation) must comply with to be placed on the EU market (and a prohibition, in line with EU international commitments[163] relevant to sustainable forest management and governance, of the placing on the market of products that do not comply with the standard)**
What/ type of instrument	The standard may be accompanied by a binding, regulatory/standardisation process. The following question should be further explored: • Can a standard be defined as a regulatory measure on its own, or, rather, does it need to be accompanied by regulation (e.g. to prohibit products being placed on the market that do not comply with the standard)?
Legal feasibility and proportionality	European standards play an important role on the internal market (see Regulation (EU) 1025/2012 on European standardisation and the Communication "A strategic vision for European standards").[171] Standards are strategic and efficient policy tools that are used to achieve a high level of consumer and environmental protection (which is a shared competence of the EU), as well as innovation. Prohibitions of commodities or products with a certain GMO content already exist in the EU (see Regulation 1829/2003 on Genetically Modified Food and Feed[172], Implementing Regulation 503/2013 on Applications for Authorisation of Genetically Modified Food and Feed[173], and Directive 2001/18/EC on the Deliberate Release into the Environment of Genetically Modified Organisms[174], amended by Directive 2015/412[175] and closely linked to Directive 91/414/EEC on the Placing of Plant Protection Products on the Market[176]).[177,178] The EU's legislation and policy on GMOs is designed to prevent any adverse effects on the environment and the health and safety of humans and animals (in line with Articles 168, 169, and 191 of the TFEU, and the precautionary principle embodied in EU legislation).[179] The EU's GMO regime allows GMOs and food or feed made from GMOs to be marketed in or imported into the EU, provided they pass strict evaluation and safety assessment requirements that are imposed on a case-by-case basis. Authorisations are granted for a ten-year period. The European Food and Safety Authority (EFSA) conducts the risk assessments, GMOs or products containing GMOs are assigned a unique ID and are labelled as such to ensure traceability and inform consumers.

[171] European Commission (2011), A strategic vision for European standards: Moving forward to enhance and accelerate the sustainable growth of the European economy by 2020, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2011:0311:FIN.

[172] EU (2003), Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed (Text with EEA relevance), https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32003R1829.

[173] EU (2013), Commission Implementing Regulation (EU) No 503/2013 of 3 April 2013 on applications for 2 authorizations of genetically modified food and feed in accordance with Regulation (EC) No 1829/2003 of the European Parliament and of the Council and amending Commission Regulations (EC) No 641/2004 and (EC) No 1981/2006 (Text with EEA relevance), https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32013R0503.

[174] EU (2001), Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC – Commission Declaration, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0018.

[175] EU (2015), Directive (EU) 2015/412 of the European Parliament and of the Council of 11 March 2015 amending Directive 2001/18/EC as regards the possibility for the Member States to restrict or prohibit the cultivation of genetically modified organisms (GMOs) in their territory (Text with EEA relevance), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015L0412.

[176] EU (1991), Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant protection products on the market, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A31991L0414.

[177] European Commission (n.d.), GMO Authorisation, https://ec.europa.eu/food/plant/gmo/authorisation_en.

[178] Papademetriou, T. (2014), Restrictions on Genetically Modified Organisms: European Union, https://www.loc.gov/law/help/restrictions-on-gmos/eu.php#:~:text=While%20marketing%20and%20importing%20GMOs,on%20health%20and%20the%20environment.

[179] Papademetriou, T. (2014), Restrictions on Genetically Modified Organisms: European Union, https://www.loc.gov/law/help/restrictions-on-gmos/eu.php#:~:text=While%20marketing%20and%20importing%20GMOs,on%20health%20and%20the%20environment.

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	A similar case may be considered for products linked to deforestation and forest degradation, because their consumption affects the environment and public wellbeing.
Technical feasibility	Standards already exist in the EU and trade with the EU or the placement of products on the EU market must comply with certain standards (e.g. chemical and food safety, GMOs, eco-design requirements).[180] As such, this should be technically feasible at EU level. The EU would need to define the standard and the criteria behind it (on the basis of a clear and verifiable "deforestation free" definition) and establish a framework/legislative basis in which products that do not comply with the given standard would be prohibited on the internal market. For this to take place, a monitoring structure would also have to be defined. In the GMO example, economic operators have to apply for authorisation of a GMO to be cultivated or placed on the market.[181] The request for authorisation is submitted to a national competent authority (CA), the notification is made available for EU-wide public consultation and consultation among MS. The Commission also requests a risk assessment from the EFSA if any MS propose reasonable objections during the consultation period between MS and the Commission. According to Directive 2001/18/EC, authorisations can be granted for a period of up to 10 years (renewable-) and GMOs must be monitored once placed on the market.[182] According to Article 4(5), national CAs need to organise inspections and other control measures to ensure compliance with the Directive.[183] In the UK, for example, the Food Standards Agency was the CA for GM food and feed whilst the Department for Defra was the CA for GMO presence in seed and deliberate release of GMOs into the environment. The latter was responsible for controls of GMO field trials and seed audits.[184] Meanwhile, the local and port health authorities were responsible for the GMO controls of food and feed, including import controls. As such, the monitoring of the Directive is left to the individual MS CAs and can include physical checks, document checks, and/or? laboratory controls. Audits from the UK and Slovakia illustrate that GMO controls are generally risk-based. [185,186] A similar monitoring structure is used to ensure compliance with the EU's MRL legislation, whereby MS authorities analyse pesticide residue levels annually and send the results to the EFSA.[187] Retailers may also request compliance checks from importers/suppliers.[188] Economic operators may face larger technical constraints, as the measure may require producers to adapt their supply chains. Depending on the coverage of products and commodities (and the geographic areas in which the latter are grown), economic operators may face difficulties accessing resources that are not linked to deforestation and forest degradation. A potential shift in demand from one sourcing region to another may also affect third countries.
Previous policy choices	In the 2013 study, "The impact of EU consumption on deforestation", one of the policy options considered was the implementation of sustainability criteria to the import of commodities associated with deforestation. The study concluded that this measure could be highly effective and relatively efficient.[189] Furthermore, one of the actions suggested in the "Communication on Stepping up EU Action to Protect and Restore the World's Forests" was to encourage the strengthening of standards and certification schemes that help identify and promote deforestation-

[180] European Commission (n.d.), EU product requirements, https://ec.europa.eu/info/business-economy-euro/product-safety-and-requirements/eu-product-requirements_en.
[181] https://ec.europa.eu/commission/presscorner/detail/en/MEMO_07_117
[182] https://ec.europa.eu/food/plant/gmo/authorisation/cultivation_en
[183] https://eur-lex.europa.eu/resource.html?uri=cellar:303dd4fa-07a8-4d20-86a8-0baaf0518d22.0004.02/DOC_1&format=PDF
[184] Based on an audit conducted by DG SANCO in 2014 (https://ec.europa.eu/food/audits-analysis/act_getPDF.cfm?PDF_ID=11503)
[185] Based on an audit conducted by DG SANCO in 2014 (https://ec.europa.eu/food/audits-analysis/act_getPDF.cfm?PDF_ID=11503)
[186] Based on an audit conducted by DG SANTE in 2018 (http://ec.europa.eu/food/audits-analysis/act_getPDF.cfm?PDF_ID=13672)
[187] https://www.efsa.europa.eu/sites/default/files/interactive_tools/efsapesticides11.png
[188] https://www.cbi.eu/market-information/fresh-fruit-vegetables/buyer-requirements
[189] European Commission (2013), The impact of EU consumption on deforestation: Proposal of specific Community policy, legislative measures and other initiatives for further consideration by the Commission, https://ec.europa.eu/environment/forests/pdf/3.%20eport%20policies%20proposal.pdf.

Measure	**A deforestation-free standard that products (including commodities linked to deforestation and forest degradation) must comply with to be placed on the EU market (and a prohibition, in line with EU international commitments[163] relevant to sustainable forest management and governance, of the placing on the market of products that do not comply with the standard)**
	free commodities.[190]
Coherence with other trade legislation	The measure may conflict with international (WTO) trade rules[191], but the WTO allows exemptions for the protection of human/plant/animal health and life (Art. XX(b)), as well as the conservation of exhaustible natural common resources (Art. XX(g)).[192] To meet the requirements for these exemptions, the measure would need to be based on concrete, science-based considerations; restrictions should apply both abroad and domestically (to avoid an unfair advantage to **like-products** produced domestically); and they should not target specific countries or grant advantage to like-domestic products. As such, the measure would apply to all products whether imported or produced in the EU. Overall, no conflicting/incoherence identified in initial screening.
Coherence with other EU policy objectives	This measure is coherent with the Communication on Stepping up EU Action to Protect and Restore the World's Forests (Priority 1), the Biodiversity Strategy 2030, and the Long-Term Decarbonisation Strategy, which recognises the importance of forests as natural sinks.[193,194,195] Overall, no conflicting/incoherence identified in initial screening.
Coherence with other international policy	This measure is coherent with the SDG Agenda, the UN Strategic Plan for Forests (UNSPF 2017-30) as well as with the Global Strategic Plan for Biodiversity. It is also coherent with the ambitions of the Amsterdam Declarations Partnership[196] (signed by several MS) and the New York Declaration on Forests.
Effectiveness	No *mandatory* standards ensuring that products comply with deforestation-free criteria have been identified. Various *voluntary* industry standards exist for deforestation-free commodities (e.g. ADM, BFA, ISCC, RTRS for soy), but deforestation and forest degradation are interpreted differently across the different standards.[197] Voluntary standards have made progress to increase the availability of deforestation-free commodities (e.g. soybeans) in Europe, but the rate of uptake of voluntary standards must accelerate if we are to address escalating deforestation.[198] According to IUCN, a "set of mandatory minimum criteria for agro commodities across EU policy and legislative efforts will help scale up sustainability".[199] Furthermore, in the private sector, there are ongoing discussions about a standard for "zero gross deforestation". Companies that fully commit to the "zero gross deforestation" standard commit to fully remove deforestation from their supply chains without the option of compensation or offsetting. Some third-party sustainability standards like the FSC apply the concept of "zero gross deforestation"[200]

[190] European Commission (2019), Communication on stepping up EU action to protect and restore the world's forests, https://ec.europa.eu/info/publications/eu-communication-2019-stepping-eu-action-protect-and-restore-worlds-forests_en.
[191] https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm
[192] WTO (n.d.), WTO rules and environmental policies: GATT exceptions, https://www.wto.org/english/tratop_e/envir_e/envt_rules_exceptions_e.htm.
[193] European Commission (2019), Communication on stepping up EU action to protect and restore the world's forests, https://ec.europa.eu/info/publications/eu-communication-2019-stepping-eu-action-protect-and-restore-worlds-forests_en.
[194] European Commission (2020), EU Biodiversity Strategy 2030, https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/eu-biodiversity-strategy-2030_en.
[195] European Commission (2018), A Clean Planet for All. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018DC0773.
[196] Amsterdam Declarations Partnership (2018), About, https://ad-partnership.org/about/.
[197] IUCN (2019), Setting the bar for deforestation-free soy in Europe, https://www.researchgate.net/publication/333810941_Setting_the_bar_for_deforestation-free_soy_in_Europe_A_benchmark_to_assess_the_suitability_of_voluntary_standard_systems.
[198] https://www.idhsustainabletrade.com/publication/european-soy-monitor-2018/
[199] IUCN (2020), Reducing the EU footprint in agro commodity trade: five mandatory minimum criteria, https://www.iucn.nl/en/updates/reducing-the-eu-footprint-in-agro-commodity-trade-five-mandatory-minimum-criteria.
[200] Lambin, E. F. et al. (2018), The role of supply-chain initiatives in reducing deforestation, https://www.nature.com/articles/s41558-017-0061-1.

Measure	**A deforestation-free standard that products (including commodities linked to deforestation and forest degradation) must comply with to be placed on the EU market (and a prohibition, in line with EU international commitments[163] relevant to sustainable forest management and governance, of the placing on the market of products that do not comply with the standard)**
	A deforestation-free requirement could be effective, particularly if it is mandatory (and linked to prohibition in cases of non-compliance) and if it covers a broad scope of products and commodities. Mandatory requirements are expected to be effective in reducing the EU's forest footprint by ensuring that all products on the internal market meet certain (minimum) standards. For example, the EU sets limits on the maximum residue levels (MRLs) for pesticides and other active substances in and on food products that are placed on the market. Out of 91,015 samples analysed in 2018, 4.5% exceeded the MRL, of which, 2.7% were considered non-compliant.[201] A similar level of compliance was found in 2015.[202] Controls to enforce this legislation are carried out by Member States at the point of supply to the consumer.[203] It is reported that some buyers in certain MS have even higher requirements than the MRLs set at EU level, thus putting pressure on producers and importers to comply with strict MRLs.[204] In this case, effectiveness is dependent on EU and MS monitoring and controls, as well as pressure from consumer-facing businesses. As a mandatory standard, non-compliance is subject to legal sanctions, and any products found to exceed MRLs at the border or prior to entry to the EU will not be allowed to enter.[205,206] Effectiveness will also depend on the scope of the products and commodities covered (provided that enough resources are available to credibly enforce this). In a study looking at zero-deforestation commitments (ZDCs), the market share of products covered by such commitments influenced the effectiveness of the commitments.[207] Furthermore, the more the global market for a particular commodity and its substitutes is covered by ZDCs, the less likely it is for substitution to occur (between regulated and non-regulated commodities). As highlighted above, monitoring is a critical driver of enforcement (and, therefore, of effectiveness). Monitoring is dependent on (monitoring) capabilities and resources. Enforcement is also driven by credible sanctions and accountability.
Efficiency	The resources required to implement this measure will depend on certain design features that are yet to be defined, such as the scope of products targeted and the complexity of the standard's requirements. In other examples of mandatory standards in the EU (e.g. MRLs or GMOs), the EU and MS are responsible for authorising the placement of products (e.g. containing or having residues of certain pesticides or contaminants) on the EU market, and for conducting regular checks to verify compliance. However, compliance checks for deforestation-free products will not be conducted in laboratories. The methods used to verify links between products and deforestation/forest degradation may have implications on the resources needed to successfully monitor compliance with the standard. Furthermore, it is likely that more resources will be needed to monitor compliance with the standard than in other examples, because the standard would cover a wider range of products. The initial set-up of the standard and of its monitoring framework is also likely to be resource intensive. Economic operators are likely to face a relatively high administrative burden and cost to ensure compliance with the standard, even if its requirements are limited. This is because economic operators would have to review their supply chain and production processes and be able to trace back the different commodities that are included in their products. Producers of raw commodities may also face a burden to demonstrate compliance with the standard. Costs for monitoring and enforcing the policy measure will also arise, particularly if a third-party auditor will be involved.
Risks around implementation	Potential risks could include difficulty to monitor compliance with the standard (e.g. traceability of products/commodities, monitoring of deforestation trends, point of verification). Economic operators may also find it difficult to trace the origins of certain commodities (particularly bulk commodities, which are spread across many companies and products). The potentially large scope of products that could conceivably be covered by this measure may place a large burden and cost on affected economic operators and can be seen as a risk of implementation.

[201] https://efsa.onlinelibrary.wiley.com/doi/10.2903/j.efsa.2020.6057
[202] https://www.efsa.europa.eu/sites/default/files/discover/pesticides_report_2015_en.pdf
[203] https://www.freshquality.eu/php/document.php?catdoc_id=19
[204] https://www.cbi.eu/market-information/fresh-fruit-vegetables/buyer-requirements
[205] https://www.cbi.eu/market-information/grains-pulses-oilseeds/buyer-requirements
[206] https://efsa.onlinelibrary.wiley.com/doi/10.2903/j.efsa.2020.6057
[207] Garrett, R. D. et al. (2019), Criteria for effective zero-deforestation commitments, https://www.sciencedirect.com/science/article/pii/S0959378018306654.

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	Leakage concerns (with deforestation and forest degradation shifting to substitutes that are not covered by the standard) may also arise, for example using agricultural lands to produce commodities destined to the EU market and further deforestation of other agricultural production.
Wider risks and benefits	Possible substitution effects in terms of products, commodities, and countries, which may arise if the scope of products/commodities is limited within the definition of the standard. Substitution can occur when economic operators switch to products/commodities that are not covered by a given policy measure A second leakage problem could arise if some products that are compliant with the standard are consumed in the EU market, and other non-compliant products are simply diverted to other markets outside of the EU, with no net change in deforestation. Prices of products may increase due to implementation of standard (particularly if alternative options that are not linked to deforestation and forest degradation are limited). Small producers/farmers may be discriminated against if they do not have the capacity to fulfil environmental criteria as set out by the standard.[208] A deforestation-free standard does however have the potential to ensure that all products available to consumers on the internal market are free from deforestation and forest degradation impacts. Consumers would have some kind of guarantee.
Political feasibility	Standards are not novel in the EU. A wide range of mandatory requirements already exist when it comes to food safety and quality (e.g. for the control of contaminants, GMO restrictions, limitations on the use of pesticides, use of additives).[209,210,211,212,213] . Beyond food standards, the EU has many industry standards in place for the harmonisation and improved safety of non-food products (albeit often voluntary).[214] The question of deforestation and forest degradation requires a wider range of products to be covered by a potential deforestation-free standard, which may make it more complex to define, implement, and monitor than existing standards. However, the concept of standards is not new to the sectors and market players that would be targeted by a potential deforestation-free standard. The level of complexity (and therefore the costs associated with it) may influence political feasibility, however, the measure remains in line with EU commitments to halt demand-driven deforestation and forest degradation (or wider environmental and biodiversity-related concerns). A standard would help to ensure all products on the internal market meet the same requirements, while addressing environmental protection.[215] The experience of the Ecodesign Directive demonstrates that setting minimum, EU-wide eco-design standards eliminates the least performing products from the market, significantly contributing to the EU's energy efficiency objective.[216]

[208] European Commission (2013), The impact of EU consumption on deforestation: Proposal of specific Community policy, legislative measures and other initiatives for further consideration by the Commission, https://ec.europa.eu/environment/forests/pdf/3.%20eport%20policies%20proposal.pdf.

[209] https://www.cbi.eu/market-information/spices-herbs/what-requirements-should-your-product-comply

[210] https://www.cbi.eu/market-information/grains-pulses-oilseeds/buyer-requirements

[211] https://www.cbi.eu/market-information/fresh-fruit-vegetables/buyer-requirements

[212] https://www.freshquality.eu/php/home.php

[213] https://ec.europa.eu/commission/presscorner/detail/en/MEMO_15_4778

[214] https://europa.eu/youreurope/business/product-requirements/standards/standards-in-europe/index_en.htm#:~:text=Harmonised%20standards,-Harmonised%20standards%20are&text=About%2020%25%20of%20all%20European,request%20from%20the%20European%20Commission.&text=Technical%20requirements%20given%20in%20EU,harmonised%20standards%20is%20usually%20voluntary.

[215] https://www.euronorm.net/content/ce-marking/category/standards/european-standardization.php

216 https://ec.europa.eu/info/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/energy-label-and-ecodesign/about_en#:~:text=The%20EU%20legislation%20on%20ecodesign,the%20EU's%20energy%20efficiency%20objective.

Measure	**A deforestation-free standard that products (including commodities linked to deforestation and forest degradation) must comply with to be placed on the EU market (and a prohibition, in line with EU international commitments[163] relevant to sustainable forest management and governance, of the placing on the market of products that do not comply with the standard)**
Compatibility to be combined with another measure	Compatibility with verification/certification schemes (that would certify some of the requirements of the standard), mandatory labelling (to communicate compliance with the standard), due diligence, and measures relating to trade agreements. This measure might duplicate some requirements of other measures, e.g. IUU In this case, labelling requirements may be redundant since all products on the market would have to comply with a certain standard. The measure does not rely on consumer choice. Labelling would serve the purpose of raising awareness and support but would not increase the impact of the measure.
European Parliament report assessment[217]	This European Parliament report calls for setting a uniform standard based on sustainability, going beyond legality).
Overall assessment as standalone measure	Sufficiently effective/ambitious as a stand-alone measure.
Overall assessment as part of combination of measure	It is likely that the measure would be more effective in combination with other complementary policy tools that would support its implementation and enforcement.

[217] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

Voluntary labelling

Measures	Voluntary labelling (e.g. similar to organic labels for organic products)
Short description	This measure would introduce a voluntary label to identify products as "deforestation-free" similar to existing labels such as fair trade or organic.[218,219]A voluntary label is the voluntary provision of information on product packaging beyond that required by law. Labels can be certification schemes (relying on third party attestation procedures for its members) or self-declaration schemes (without a third-party attestation).
Who	**The European Commission** in starting the process to defining the label, contributing to its development, approving the use of the label, monitoring/supervising the appropriate implementation of voluntary label and issuing EU wide guidance on the use of the label for those who decide to employ it (similar to the organic food label[220,221]). **Economic operators** (businesses) placing products on the EU internal market that seek to apply the label would have to make sure their products, sourcing and production processes comply with the label. Labels involving certification schemes would require a third-party body for auditing. EU-wide information campaigns may be needed to inform consumers about the meaning of the label (although this could also be done by companies and/or industry associations if the label is considered a 'marketing tool'). **Member States** (public authorities) would be responsible to monitor (only) those economic operators that decide to employ voluntary labelling. **Consumers** would be entrusted to boost demand for deforestation-free products based on knowledge.
What/ type of instrument	In the example of the EU organic label, the principles, aims and means of labelling was defined through a binding regulation. [222,223]
Legal feasibility and proportionality	Informing consumers about products that exist on the internal market or that enter the internal market and that have an impact on deforestation and forest degradation is a shared competence of the EU, in line with its environmental objectives. In this sense, the subsidiarity principle would be met. Regarding the proportionality principle, the label must demonstrate that it is relevant, that it can have a positive impact on decreasing deforestation and forest degradation, and that there are no less restrictive means available to achieving the same results. Furthermore, in line with the EU Unfair Commercial Practices Directive (2005/29/EC), environmental claims must be specific, accurate, and unambiguous, and must be supported by evidence.[224]
Technical feasibility	Producers would need to amend their packaging and be able to support the claims they make with evidence, to be presented to a competent authority if/when requested. If certification is involved, certification would be done by certification bodies, while monitoring and supervision would be attributed to public authorities (in MS and third countries) and the EC. In the case of the EU organic label, products go through nearly 60 certification companies that the EU has licensed around the world. The EC supervises these companies to see if they comply with EU rules. At the international level, the EU has signed agreements with 13 countries, establishing a common definition of organic products (so that they can be marketed as such on the EU internal market).
Previous policy choices	A rise in consumer awareness can be achieved through more and consistent labelling through channels such as the EU Ecolabel. The EU Communication on Stepping up EU Action to Protect and Restore the World's Forests considers expanding the EU Ecolabel requirements to further integrate deforestation considerations within the label.[225] For example, the (voluntary) EU Ecolabel covers paper-based product categories. Within

[218] https://www.fairtrade.org.uk/what-is-fairtrade/using-the-fairtrade-mark/#:~:text=The%20FAIRTRADE%20Mark%20is%20a,people%20to%20buy%20Fairtrade%20products
[219] https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/organic-logo_en
[220] https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/organic-logo_en
[221] https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/legislation_en
[222] https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/legislation_en
[223] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0848&from=MT
[224] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32005L0029
[225] https://ec.europa.eu/environment/forests/eu_comm_2019.htm#:~:text=On%2023%20July%202019%2C%20the,and%20R

Measures	Voluntary labelling (e.g. similar to organic labels for organic products)
	these categories, the label requires at least 70% of fibre material to be recycled or to originate from forests managed according to sustainable forestry principles.[226] Applicants can validate the source of their virgin fibres by using a sustainable forest management and chain of custody certificates issued by PEFC, FSC or similar independent third party certification schemes.[227] It is possible that the scope of a proposed deforestation-free label may be significantly more broad than existing labels, given the scale and scope of products that may contribute to deforestation and forest degradation.
Coherence with other trade legislation	Otherwise, according to EU legislation, labelling, advertising and product presentation must not be such as it could mislead a purchaser to a material degree (as per the EU Unfair Commercial Practices Directive 2005/29/EC and Communication on EU best practice guidelines for voluntary certification schemes for agricultural products and foodstuffs[228]). Furthermore, the label would comply with WTO requirements, considering the WTO exemptions for the protection of human/plant/animal health and life (Art. XX(b)), as well as the conservation of exhaustible natural common resources (Art. XX(g)).
Coherence with other EU policy objectives	The measure would be coherent with the Communication on Stepping up EU Action to Protect and Restore the World's Forests (Priority 1), the EU Biodiversity Strategy 2030, and the Long-Term Decarbonisation Strategy, which recognises the importance of forests as natural sinks. However, it may present a partial overlap with the EU Ecolabel for certain product categories. The measure would also be coherent with the "Empowering the consumer for the green transition" initiative.[229] Overall, no significant incoherence has been identified in the initial screening stage.
Coherence with other international policy	This measure is coherent with the SDG Agenda, the UN Strategic Plan for Forests (UNSPF 2017-30) as well as with the Global Strategic Plan for Biodiversity. It is also coherent with the ambitions of the Amsterdam Declarations Partnership[230] (signed by several MS) and the New York Declaration on Forests. Overall, no significant incoherence with international policy has been identified in the initial screening stage.
Effectiveness	Evidence suggests that consumers generally trust food-related labelling (which will be relevant for any deforestation-related scheme), particularly when it is based on a third-party certification scheme (as opposed to self-certified schemes).[231] At the same time, consumer knowledge of associated EU rules is often low, and labelling can sometimes confuse consumers.[232,233] Furthermore, the proliferation of both public and private labels adds complexity to consumer choices. A voluntary label may also lead to too few options for consumers that want to opt for deforestation-free products (if the uptake by companies is low). Experiences from other labels: • Some studies demonstrate that combining social aspects (e.g. living standards) with environmental protection with the Fair Trade label proved to be effective among consumers, while also contributing to natural resource management. Several experiments in the USA suggested sales of the two most popular coffees rose by almost 10% when they carried a Fair Trade label as compared to a generic placebo label as a Fair Trade label is synonymous with for instance sustainable production and ethical purchasing (;[234,235]

estore%20the%20World's%20Forests%20.&text=Support%20the%20availability%20and%20quality,and%20support%20research%20and%20innovation

226 https://ec.europa.eu/environment/ecolabel/documents/Factsheet_Paper.pdf

227 https://ec.europa.eu/environment/forests/pdf/EN_annexe1_2019.pdf

228 https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:341:0005:0011:en:PDF

229 https://circulareconomy.europa.eu/platform/en/news-and-events/all-news/commission-initiative-empowering-consumer-green-transition-have-your-say

230 Amsterdam Declarations Partnership (2018), About, https://ad-partnership.org/about/.

231 https://ec.europa.eu/info/publications/voluntary-food-labelling-schemes-study_en

232 https://ec.europa.eu/info/publications/voluntary-food-labelling-schemes-study_en

233 This was also brought up in our stakeholder workshop on October 2nd, 2020.

234 https://www.researchgate.net/publication/281890516_Consumer_Demand_for_Fair_Trade_Evidence_from_a_Multistore_Field_Experiment

235 https://link.springer.com/article/10.1007/s10806-016-9604-0

Measures	Voluntary labelling (e.g. similar to organic labels for organic products)
	• The 2017 Fitness Check (FC) of the EU Ecolabel notes that there is higher uptake of the label in countries with strong national and regional labels and that uptake is higher for some product categories than for others (there is limited information as to why this is the case).[236] Barriers to uptake include: costs of compliance, lack of recognition, and lack of awareness; • Precautionary allergen labelling (PAL) has been found to increasingly lose its credibility among stakeholders (including consumers for whom it is primarily intended) due to the absence of generally agreed quantitative benchmarks for its application and the lack of consistent harmonised standards among MS and across industry.[237] Voluntary labelling is seen as more of a marketing tool that is more likely to be placed on products that are attractive to more environmentally conscious consumers. Such an initiative is also less of an incentive for the industry, as opposed to mandatory labelling. Stakeholders in early consultation for this project agreed that consumer decisions based on voluntary labelling would be insufficient to deliver on EU deforestation and forest degradation reduction ambitions alone, but that they could form part of a suite of complementary measures.[238]
Efficiency	The FC on the EU Ecolabel notes that the cost burden is relatively low for MS, and does not highlight a significant cost burden for companies and the European Commission - although the Commission's costs result from communication activities and criteria development/revision, and the latter is time consuming.[239] However, the organic food label has been found to require a lot of manpower to enforce and monitor – the organic food certification system relies on certification by nearly 60 certification companies that the EU licences, that are in turn supervised by the EC through annual audits of all actions undertaken by the certification bodies (considered a 'huge' amount of paperwork). In addition, DG AGRI undertakes on-the-ground audits annually. It is reported that this structure requires significant resources for monitoring by the EC.[240] Costs to companies are likely to vary but since this would be a voluntary scheme, only those that consider the cost-benefit ratio to be appealing would implement the measure.
Risks around Implementation	A voluntary scheme involving certification will depend for effectiveness on effective and efficient monitoring, compliance and supervision structures. Evidence from the organic food certification scheme suggests that supervision by the EU would require significant resources, particularly if the range of products extends beyond those for organic food, which appears likely given the scope of deforestation-related products. This risk may be mitigated if products are only accepted into the scheme from countries with which the EU has signed agreements (there are only 13 such countries for the organic food certification scheme), however this may greatly reduce the scope of the scheme. Monitoring would most likely be performed at the level of the Member States with EU supervision. Given the huge potential scope of products that may be included, and based on existing schemes, risks relate to loopholes and uneven implementation, if insufficient resources are allocated to monitoring and supervision (both at MS and EC levels). The experience of the organic food label shows that the system is as reliable as the ability of the Commission to effectively monitor certifying organisations and ensure that they comply with the required standards when certifying organic products sold on the EU market. The main loophole of the system is the lack of monitoring capacity at EU level, meaning that economic operators may apply organic labels without complying with the requirements of the label, in order to benefit from higher prices. A key issue on implementation is how to build up economic incentives for operators to comply with the requirements of the label.
Wider risks and benefits	According to a study made by the EC on voluntary food labelling schemes, consumers often find labels confusing and their knowledge on the rules of the label are low.[241] 71% of consumers surveyed in the study say they trust third-party certified schemes, but only 30% trust self-certification schemes. With regards to the benefits of such labels, the same study concluded that consumers tend to perceive products affiliated to a food labelling scheme as in general of better quality, healthier and safer to eat. This implies that a label will inspire positive sentiment in consumers.

236 https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1505209798054&uri=CELEX:52017DC0355
237 https://www.fooddrinkeurope.eu/uploads/publications_documents/FoodDrinkEurope_non-paper_on_Precautionary_Allergen_Labelling_%28PAL%29.pdf
238 https://www.europarl.europa.eu/doceo/document/A-9-2020-0179_EN.html
239 https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1505209798054&uri=CELEX:52017DC0355
240 Labelling - Organic Food - Short Analysis
241 https://ec.europa.eu/info/publications/voluntary-food-labelling-schemes-study_en

Measures	Voluntary labelling (e.g. similar to organic labels for organic products)
Political feasibility	Voluntary labelling should be politically feasible given the existence of other voluntary labels (e.g. EU Ecolabel, organic food label), and the label's coherence with the EU's policy aims and international environmental agenda on forest-related issues (as highlighted above). As a voluntary measure, there is a risk that participation will be low and ineffective. As such it would require support from the private sector and consumers, who will need to be able to engage with the scheme to enable sufficient adoption. As is the case with voluntary due diligence (see below), there may be resistance to the voluntary element of the scheme by NGOs or operators with more advanced environmental policies. This view was also reflected in the consultation with stakeholders.
Compatibility to be combined with another measure	The measure can be implemented as part of verification systems (with/without minimum requirements for placing on the market based on an EU standard), which can include labelling (and also certification), both public and private.
European Parliament report assessment[242]	The European Parliament report tackles voluntary third-party certification and labels. It notes that voluntary commitments often lack ambition and existing commitments have not yet been sufficient to halt global deforestation. The assessment indicates that voluntary third-party certification schemes should only be complementary to binding measures. Furthermore, the report states that policy measures that depend only on consumer choice unduly shift the responsibility to purchase deforestation-free products to consumers. Nonetheless, deforestation-free labelling and certification are considered a means to increasing supply-chain transparency.
Overall assessment as standalone measure	It appears highly unlikely that voluntary labelling alone will sufficiently address deforestation and forest degradation ambitions of the EU, whether with independent third-party certification or through self-declaration. The voluntary element of the label would not guarantee a high uptake across all product categories, and uptake may depend on the attractiveness and promotion of the schemes to producers and consumers (as was the case with the EU Ecolabel[243]). For example, the FC of the EU Ecolabel showed that very few licenses were distributed for newsprint paper and wooden floor coverings, and that, in general, the number of licenses varies across products and MS (p.18). Nonetheless, the label would still serve to inform consumers and to provide a selection of deforestation-free products. Voluntary labelling may be more effective in the secondary goal of promoting clean supply chains.
Overall assessment as part of combination of measure	The measure could be more efficient together with other measures (for example verification/certification systems).

Mandatory labelling

Measures	Mandatory labelling (e.g. similar to nutritional information labels on food products)
Short description	Mandatory labelling schemes with relevant information on how commodities purchased (or products containing them) are linked to deforestation or forest degradation can inform consumer choice and enhance demand for better performing products. This measure could be supply chain specific (with a possible wording of 'this product contains commodities associated with deforestation and/or forest degradation' or 'this product does not contain commodities associated with deforestation nor forest degradation'. The label could display the compliance of the particular product with deforestation-free criteria set out in the regulation. This measure could entail a new requirement for mandatory labelling of products that contain specific commodities / raw materials or come from specific regions/countries. The wording of the label would have to be refined and agreed.

242 https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

243 https://ec.europa.eu/environment/emas/pdf/other/SWD_2017_253_F1_OTHER_STAFF_WORKING_PAPER_EN_V3_P1_942100.pdf

Measures	Mandatory labelling (e.g. similar to nutritional information labels on food products)
Who	**The European Commission** would be in charge of defining the content of the label and the requirements for its use (i.e. scope of commodities to be covered, definition of deforestation-free, as well as issue EU-wide guidance on the use of the label to support implementation at MS level, possibly issuing harmonised pictograms to be used throughout Member States (e.g. size and design). **Member States** (public authorities) would be responsible for implementing and enforcing the legislation, checking that products are correctly labelled. They could also be required to communicate on the new label to support education of the general public. **Economic operators** (businesses) would be required to amend their packaging to include the new label. The choice of the correct label to apply would require a verification of their supply chain. **Consumers** would be entrusted to boost demand for deforestation-free products based on knowledge about their potential impacts on deforestation and forest degradation.
What/ type of instrument	A mandatory labelling requirement would require a binding legislation.
Legal feasibility and proportionality	Informing consumers about products that exist on the internal market or that enter the internal market and that have an impact on deforestation and forest degradation is a shared competence of the EU, in line with its environmental objectives. In this sense, the subsidiarity principle would be met. Regarding the proportionality principle, the label must demonstrate that it is relevant, that it can have a positive impact on decreasing deforestation and forest degradation, and that there are no less restrictive means available to achieving the same results. Furthermore, in line with the EU Unfair Commercial Practices Directive (2005/29/EC), environmental claims must be specific, accurate, and unambiguous, and must be supported by evidence.[244]
Technical feasibility	The main aspects to consider with regard to technical feasibility is that the criteria to assign the label considering that these must be verifiable and implemented at MS level and by economic operators. Experiences of mandatory labelling and labelling requirements in the EU often pertain to allergen declarations on food and cosmetic products.[245,246] Another example is wine, which must present the label "contains sulphites" (in the cases that it does).[247] Furthermore, the revised EU Regulation setting a framework for energy labelling makes labels for energy-related products mandatory.[248] As of 2019, suppliers need to register their appliances, which require an energy label in the European Product Database for Energy Labelling (EPREL) before selling them on the European market.[249] The revised EU Regulation setting a framework for energy labelling makes labels for energy-related products mandatory. Imposing a mandatory label on how commodities purchased (or products containing them) are linked to deforestation or forest degradation would require economic operators in many sectors (given the scope of commodities and products possibly linked to deforestation and forest degradation) to comply with the labelling requirement and verify their supply chains. In particular, it can be challenging to collect information when the supply chains are complex or when the operators are SMEs without a lot of resources for such activities. The change of packaging to include a label would involve a cost but this is not considered to be, prima facies, prohibitive. However, since mandatory labels are already implemented in the EU in some sectors, the measure will not be new to a lot of operators.
Previous policy choices	No evidence was found of mandatory labelling targeting deforestation/forest degradation having been explored in previous assessments.
Coherence with other trade legislation	Mandatory labelling and certification requirements fall under the scope of the WTO TBT Agreement. WTO rules allow exemptions for the protection of human/plant/animal health and life (Art. XX(b)), as well as the conservation of exhaustible natural common resources (Art. XX(g)). However, the measure would need to be based on concrete, science-based considerations; restrictions should apply both abroad and domestically; and they should not target specific countries or grant advantage to like-domestic products.

244 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32005L0029
245 https://ec.europa.eu/food/safety/labelling_nutrition/labelling_legislation_en
246 https://cosmeticseurope.eu/cosmetic-products/understanding-label/
247 https://www.cbi.eu/market-information/wine/buyer-requirements
248 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.198.01.0001.01.ENG
249 https://www.rehva.eu/eu-policy/eco-design-and-energy-labelling

Measures	Mandatory labelling (e.g. similar to nutritional information labels on food products)
Coherence with other EU policy objectives	The requirement of a mandatory label would be coherent with the Communication on Stepping up EU Action to Protect and Restore the World's Forests (Priority 1), the Biodiversity Strategy 2030, and the Long-Term Decarbonisation Strategy, which recognises the importance of forests as natural sinks. The measure would also be coherent with the "Empowering the consumer for the green transition" initiative.[250] Overall, no conflicting/incoherence identified in initial screening.
Coherence with other international policy	The requirement of a mandatory label would be coherent with the UN Strategic Plan on Forests, Global Strategic Plan for Biodiversity 2011-2020 in that it would contribute to raising awareness and educating consumers on deforestation and forest degradation. Overall, no conflicting/incoherence identified in initial screening.
Effectiveness	Studies show that mandatory labelling on food products has led to healthier food choices and product reformulations by the industry[251], but their power to nudge consumers can sometimes be seen as limited[252]. A 2006 study by DG SANCO also reports mixed results on the effectiveness of labelling[253]. When looking at environmental labelling (e.g. EU Ecolabel), what seems to be important is consumer awareness surrounding the scope of the label[254]. This appears to be a success factor of the energy efficiency label for household appliances (consisting of a comparative scale from A to G). According to a Special Eurobarometer study, the label is recognised by 93% of consumers and 79% consider it when they are buying energy efficient products.[255] The revised regulation on the label emphasises that "a standardised mandatory label for energy-related products is an effective means by which to provide potential customers with comparable information on the energy efficiency of energy-related products".[256] Based on the experiences of other labels, factors that influence the effectiveness of mandatory labelling include consumer awareness about the problem that the label is trying to address (in this case deforestation and forest degradation), as well as awareness about the label (and harmonisation across the EU). Although some questions remain about the effectiveness of such a measure in terms of shifting consumer choices, the label may still incite producers to make changes to their supply chains. Although mandatory labelling may be more effective than voluntary labelling (which is dependent on market uptake), experts are still concerned whether labels alone can deliver on EU deforestation and forest degradation reduction ambitions.[257,258] There is also concern that the multitude of existing labels can cause confusion amongst consumers, and that relying on consumer choice shifts the burden of responsibility away from producers.[259]
Efficiency	The cost-benefit balance may be problematic due to the need to monitor and audit the use of the label and the wide-ranging products/commodities that the label would have to be placed on. Costs may outweigh the benefits if consumers are not aware of the label and if they do not value its message (as an important decision-making factor in comparison to price) The efficiency of the measure may be challenged if many products are included in the scope for which low risk of deforestation is expected in their region or product category.
Risks around Implementation	As described in the analysis of voluntary labelling, monitoring the enforcement of the labelling requirements will increase MS workload, which may leave room for loopholes and fraud (if not enough resources are available to monitor). Furthermore, depending on the design of the labelling scheme, if it relies a lot on the Commission's monitoring ability this will substantially increase the workload of the Commission and might result in a weak

[250] https://circulareconomy.europa.eu/platform/en/news-and-events/all-news/commission-initiative-empowering-consumer-green-transition-have-your-say
[251] Shangguan et al., 2019, https://pubmed.ncbi.nlm.nih.gov/30573335/
[252] Ikonen et al., 2019, https://link.springer.com/article/10.1007/s11747-019-00663-9
[253] DG SANCO, 2006, Labelling: competitiveness, consumer information and better regulation for the EU, https://ec.europa.eu/food/sites/food/files/safety/docs/labelling-nutrition_better-reg_cons-summary.pdf
[254] Iraldo and Barberio, 2017, https://pdfs.semanticscholar.org/7f35/2fc43dbeae011730b69092f93fa1f4adcea3.pdf
[255] https://ec.europa.eu/info/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/energy-label-and-ecodesign/about_en
[256] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.198.01.0001.01.ENG
[257] https://www.europarl.europa.eu/doceo/document/A-9-2020-0179_EN.html
[258] This was also reflected in the consultation with stakeholders that took place on October 2nd, 2020.
[259] https://www.europarl.europa.eu/doceo/document/A-9-2020-0179_EN.html

Measures	Mandatory labelling (e.g. similar to nutritional information labels on food products)
	monitoring system, loopholes and fraud. A key issue is how to build up economic incentives for operators to comply with the rules. Economic operators may be at risk of being disproportionately affected, but in the absence of adequate monitoring, governments may also deal with an increased level of fraud in their countries (e.g. if economic operators apply labels without complying with the necessary requirements, in order to benefit from higher prices). Monitoring issues are similar between voluntary and mandatory labelling, but mandatory labelling requires a larger quantity of products to be labelled and its mandatory component is expected to increase enforcement needs.
Wider risks and benefits	The following were identified: • Possible risk of cheating the system if not enough means are allocated to auditing; • Possible risk of the label not providing sufficient incentives to consumers and shifting the responsibility away from producers; • Possible risk of overloading consumers with labels. • What would be the use of mandatory labelling in a context of a deforestation free requirement is made mandatory? In such scenario, products would have to be compliant to be placed on the market, the labelling would then not be necessary, and in such instance, costs would be more difficult to justify.
Political feasibility	There is already a wide range of labels on the EU market, so it is not expected that additional labelling would encounter political opposition. Examples include allergen labelling and energy efficiency labelling, but mandatory, harmonised labels providing nutritional information to consumers has been discussed in a recent European Commission report on the use of additional forms of expression and presentation of the nutrition declaration.[260] Such a label is considered appropriate in the context of the Farm to Fork Strategy.
Compatibility to be combined with another measure	A mandatory labelling requirement could be implemented as part of a verification system (with/without minimum requirements for placing on the market) based on an EU standard. The measure can also be combined with due diligence, an IUU-like instrument, or country benchmarking, in support of transparency, communication, and outreach to consumers.
European Parliament report assessment[261]	The European Parliament's report takes the view that labelling is not sufficient to halt deforestation on its own: "third-party certification and labels alone are not effective in preventing forest and ecosystem-risk commodities and products from entering the Union internal market; […] third-party certification can only be complementary to, but cannot replace, operators' thorough mandatory due diligence processes".
Overall assessment as standalone measure	Effectiveness is dependent on consumer responsiveness to the label and whether there are enough alternative products in place that are not associated with deforestation.
Overall assessment as part of combination of measure	The measure could be more efficient when combined with other measures (for example verification/certification systems).

IUU like approach

Measures	**Public national legality verification schemes, prohibited operators list, country carding system and export ban to the EU (a replication, with the necessary adaptations, of the EU legislation in place for illegal, unreported and unregulated (IUU) fishing)**
Short description	Similarly to the IUU fishing system, this measure would rely on several parts: a 'sustainable origin' certification scheme (mirroring the catch scheme), penalties for EU nationals not adhering to the laws, a list of contravening operators and the country carding system.

260 https://ec.europa.eu/food/sites/food/files/safety/docs/labelling-nutrition_fop-report-2020-207_en.pdf
261 https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

Measures	**Public national legality verification schemes, prohibited operators list, country carding system and export ban to the EU (a replication, with the necessary adaptations, of the EU legislation in place for illegal, unreported and unregulated (IUU) fishing)**
	Establishing a "deforestation-free" requirement or standard would ensure that only those products/commodities that comply with the requirement/standard will be accessible to EU consumers. The measure considered here would be one possible way to monitor and enforce this requirement through mechanisms inspired by the IUU fishing Regulation. The mechanisms considered include **1) Country carding** for non-EU countries. Non-EU countries identified as having inadequate measures in place to prevent and deter activities associated with deforestation and/or forest degradation may be issued with a formal warning (yellow card) to improve. If they fail to do so, they will face having their products banned from the EU market (red card). Yellow cards would be issued by the Commission: they would not have legal consequences but rather, trigger a dialogue process between the country and the Commission. Red cards would be proposed by the Commission, approved by the Council and would essentially constitute an import ban of those concerned products coming from operators under the flag of the affected country. **2) A 'deforestation-free' certification system for third (non-EU) countries imports and exports.** Non-EU countries issue and validate certification for the export of products to the EU, certifying for example the origin and weight of each consignment, as well as specifying that the commodities were harvested / grown incompliance with national and international legislation along with in agreement with a 'deforestation free' standard defined at EU level; and using a risk-based approach, EU countries check these certificates to verify that imports are legal (i.e. by assessing the relative risk that imports stem from deforestation or forest degradation related activities , using a series of criteria). 3) **List of contravening operators** – EU and non-EU operators that are contravening the 'deforestation free' requirements would be listed once the infringement is confirmed by the country where the corresponding company is registered. Provision should indicate for how long the operator would be listed, and the process to be de-listed (e.g. actively demonstrating to the country's authority that the requirements are now met). It is assumed that such a list would 'name and shame' contravening operators and additional penalties could be attached to being on the list (e.g. prohibition of placing products on EU market without satisfying additional requirements).
Who	The **European Commission** will be responsible to set up the legislation and relevant provisions, including a scheme for verification of the deforestation-free certification. The **Member States** will implement the verification scheme and monitor/enforce it. **Economic operators** are responsible for providing the documentation to obtain certification.
What/ type of instrument	This would take the form of a new mandatory legislation. We note that the current IUU approach in place for fishing is a regulation, not a directive.
Legal feasibility and proportionality	There is an existing body of international law addressing deforestation and forest degradation and while these are not legal, they form a legal precedent to enable the European Commission to address these issues through regulatory measures. Policy-wise, the fact that there are existing international agreements related to deforestation and forest degradation is beneficial as it shows likely acceptance of regulatory measures and the reduced likelihood of a challenge in front of the WTO. With the raising awareness of environmental issues globally, it may be assumed that the acceptance of measures like a carding system will raise accordingly.
Technical feasibility	There is nothing to suggest that such a measure would not be technically feasible.
Previous policy choices	No evidence was found to suggest that an IUU like approach has been considered for commodities other than fishing products in the past.
Coherence with other trade legislation	The existence of a multilateral agreement to rely on could be beneficial in order to increase the acceptance of the regulatory measure and the reduced likelihood of a challenge in front of the WTO. Reference is made here to measure on benchmarking (what does 'measure on benchmarking' presented below ! that could be used in combination. The acceptance of the measure will depend on the type of benchmarking used to underpin the carding system but also the effects attached to the carding.

Measures	**Public national legality verification schemes, prohibited operators list, country carding system and export ban to the EU (a replication, with the necessary adaptations, of the EU legislation in place for illegal, unreported and unregulated (IUU) fishing)**
Coherence with other EU policy objectives	An IUU-like provision is coherent with other EU policy objectives in that it replicates an existing framework (Council Regulation (EC) No 1005/2008) and applies it to another type of product / commodity.
Coherence with other international policy	An IUU like provision would be coherent with international policy and agreements and be aligned with objectives of international agreements by supporting their overall goals and targets of reducing forest degradation and deforestation. Some of the key international policies relating to deforestation are: a. New York declaration on forests: https://unfccc.int/media/514893/new-york-declaration-on-forests_26-nov-2015.pdf (note this is non-binding) b. UN REDD: Less countries involved: https://www.un-redd.org/ourimpact (note this is non-binding) c. UN Strategic plan for forests 2017 -2030: https://www.un.org/esa/forests/documents/un-strategic-plan-for-forests-2030/index.html d. Agenda 2030 — Sustainable Development Goals: https://sdg.iisd.org/commentary/guest-articles/international-day-of-forests-forests-role-in-achieving-the-2030-agenda-for-sustainable-development/
Effectiveness	Information on effectiveness can be inferred from the IUU system for fishing. Implemented since 2008, the IUU system for fishing is considered to be effective, however, there are no overall data on whether this has reduced illegal, unreported and unregulated fishing. The only reports identified on the effectiveness of the scheme are from NGO IUU Watch. It is worth noting that the country card system is credited by DG MARE as having the biggest impact in the fight against illegal, unregistered fishing . Some information has been identified on potential improvements to the IUU system (applied to fishing) catch carding to improve its effectiveness, which could be relevant if such a measure would be implemented to address deforestation and forest degradation.[262] The following overall data have been provided by DG MARE in terms of IUU Regulation implementation: • There are 91 countries participating in the system in total. • There have been 27 yellow card procedures since 2012, of which 6 resulted in a red card. Only 3 countries have not yet taken sufficient measures to remove the red card issued against them.[263]
Efficiency	There is no available EU wide report on efficiency of the IUU regulation, however, some information has been identified on the personnel and other costs from the implementation of the current IUU Regulation (applied to fishing). It is reasonable to assume that an IUU like provision for fighting against deforestation and forest degradation would have requirements in the same order of magnitude, although we do expect efficiency gains due to replicating an existing and successful system. As preliminary information, we understand the below as the required inputs for the implementation of the current IUU Regulation: • Member States: **Personnel**: within Member States, at least 474 people have been allocated new roles and responsibilities with the control of catch certifications (of the 26 Member State reports analysed, all provided a number suggesting an average per Member State of around 18 people).[264] • European Commission: **Personnel**: DG MARE, Unit B4, 13 Persons (9 desk officers plus two assistants plus head of unit and deputy head of unit) are in charge of implementing the IUU Regulation. In addition, assistance by the European Fisheries Control Agency (assist analysing catch certificates to prepare for missions to third countries and they participate in some of these missions (around 4 per year) is provided. **Other**: costs for the creation and maintenance of an IT support tool.
Risks around implementation	The current IUU Regulation system for fisheries is seen positively by the Commission and NGO (IUU Watch) as it does not overload European companies and operators with excessive administrative burdens and legal uncertainties generally linked to due diligence obligations.[265] The system established by the IUU Regulation puts responsibility on third countries to do the necessary reforms and enforcement work. It is recommended that the measure developed for deforestation and forest degradation puts the same emphasis on third country enforcement.

[262] http://www.iuuwatch.eu/catch-certificate-scheme/
[263] http://www.iuuwatch.eu/map-of-eu-carding-decisions/
[264] Data from 2014
[265] Communication from DG MARE, http://www.iuuwatch.eu/member-state-implementation/

Measures	**Public national legality verification schemes, prohibited operators list, country carding system and export ban to the EU (a replication, with the necessary adaptations, of the EU legislation in place for illegal, unreported and unregulated (IUU) fishing)**
Wider risks and benefits	A key benefit of this measure is that it replicates an existing regulatory mechanism that has already been in place for a decade, from which the Commission, as well as Member States can learn in terms of preparing a legislation and setting up the system. However, it is worth noting as a risk that the fishing market is, prima facies, simpler than the global product market potentially considered by the EU intervention. The scope of the Regulation is defined by referring to HS/CN Codes in Annex.
Political feasibility	There is already a similar system in place, so it is expected that there would be less resistance to such a measure by f stakeholders (i.e. this is not an entirely 'novel' approach). The definition of the scope and the details of the mechanism put in place would have to be very clear so that the change of approach from due diligence for timber to another 'logic' is understood and supported. One of the key added value of such system is that it adds the restrictive / punitive aspects with a political dialogue and technical cooperation framework.
Compatibility to be combined with another measure	The approach presented in the IUU Regulation could be combined with other measures considered. For example, the benchmarking measure described below could be used to support the country carding system aspect. A mandatory due diligence requirement could be used for operators, an enhanced requirement could be applied to contravening operators.
European Parliament report assessment[266]	The IUU fishing approach is not considered as part of the EP report.
Overall assessment as standalone measure	As a stand-alone measure, such measure could lead to some of the objectives based on the overall positive reputation of the IUU fishing system.[267]
Overall assessment as part of combination of measure	Effectiveness could potentially be increased in combination with other measures (as above)

[266] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html
[267] Initial communications from DG MARE

Voluntary due diligence

Measures	Voluntary due diligence
Short description	This measure establishes a voluntary due diligence approach, relating to specific standards, to ensure that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation worldwide. Establishing a voluntary due diligence approach would identify, prevent, mitigate and account for ways of addressing actual and potential adverse impacts in operations, supply chain and other business relationships. Although voluntary, this would aim to put pressure on maintaining supply chain transparency. In practice, the measure would work through an industry led initiative establishing the voluntary framework covering the main provisions of a Due Diligence System (DDS). Technical support could also be provided by the Commission to develop the framework and reporting requirements (e.g. bi-annually). Companies would then make a commitment to implement a DDS and would receive a recognised status if they consistently adhere to the framework established.
Who	There are a range of ways a voluntary due diligence system could be established. **A group or a range of representative economic operators** could establish a voluntary framework covering the main provisions and standards of a voluntary DDS, including relevant provisions for monitoring. Design within a stakeholder platform may ensure participation and uptake of the system. Alternatively, another option is that the due diligence system could be designed by the European Commission. As the DDS would be voluntary, enforcement could relate to the granting of a voluntary DDS status or removing this status in the case of non-reporting. To ensure accountability, a publicly available registry of participating operators would be established. **The European Commission** could provide technical support in developing the due diligence framework principles and reporting requirements to ensure the approach of the voluntary DDS is appropriate and would lead to effective changes. **Economic operators** would voluntarily establish a Due Diligence System able to capture a wide variety of commodities that may be associated with deforestation or forest degradation following the given DDS principles and reporting requirements. Economic operators would not be legally obliged to set in place a DDS but would be encouraged to and provided with guidance regarding how to do so through the scheme, by the economic operators group designing the initiative along with the European Commission. Smaller producers or economic operators may be especially affected by the measure. A lack of resources, experience, and capacity to set up and operate voluntary DDS may hinder their ability to carry out voluntary due diligence without appropriate support. **Competent Authorities** (CAs) could also be affected, depending on the inputs and guidance agreed when establishing the scheme. For example, they could be assigned audit responsibilities, to conduct spot checks confirming that voluntary DDS participation status is being correctly allocated and that the DDS principles are upheld.
What/ type of instrument	A voluntary DDS would be defined under an agreed voluntary DDS framework. Reporting requirements would be standardised. This would not be legally binding.
Legal feasibility and proportionality	Consideration of international standards would be important. International standard ISO 37001 on Anti-bribery management systems states due diligence must be weighted according to risk. ISO 37001 takes a strong stance in opposition to a "one-size-fits-all" approach to due diligence. In this way voluntary due diligence would need to allow for flexibility depending on business size and risk. There is no experience to date of WTO dispute cases dealing with similar issues, so WTO risk would be low. Although not legally binding, the voluntary system would still need clarity to ensure universal understanding of the requirements. This would include clarity and narrowness of the definitions of key concepts: e.g. definition of sufficient/good due diligence, definition of 'negligible risk'
Technical feasibility	Gathering appropriate data and information from suppliers, to carry out voluntary due diligence reporting, may also be challenging for participating operators. Implementation, monitoring and enforcement may all be limited by this initial technical constraint. However, voluntary due diligence has been carried out by leading companies. Examples include companies adapting their policies to fit the UN Guiding Principles for Business and Human Rights or the OECD's Due Diligence Guidance for Responsible Business Conduct - two global frameworks that set out broad rules for corporate due diligence. Feasibility of voluntary due diligence will also depend on how proportionate the due diligence measures are and whether the costs to SME's are adequately

Measures	Voluntary due diligence
	cushioned[268]. Feasibility will also hinge on devising and having a risk management plan that includes actions such as temporarily suspending trade whilst pursuing ongoing measurable risk mitigation or disengaging with a supplier after failed attempts at mitigation or where a company deems risk mitigation to be infeasible or unacceptable[269].
Previous policy choices	Voluntary DDS has not been previously considered as a measure for tackling deforestation. Currently voluntary due diligence scheme examples include voluntary human rights due diligence (e.g. UN Guiding Principles for Business and Human Rights), voluntary responsible business due diligence (OECD's Due Diligence Guidance for Responsible Business Conduct, the Kimberley Process (KP) that prevents "conflict diamonds" from entering the mainstream rough diamond market, and due diligence on REDD+ projects.
Coherence with other trade legislation	In principle, operating a voluntary DDS scheme is not expected to cause conflict with WTO legislation. The voluntary DDS would need to be coherent with other trade legislation, e.g. relating to CITES. A voluntary DDS would not necessarily be coherent with EU and international commitments unless these are enshrined in law
Coherence with other EU policy objectives	In terms of other EU commitments and strategies, a voluntary system would not necessarily be coherent and might neither reflect the strong ambitions set out in the EU Green Deal, nor the new EU Forest Strategy nor new EU Biodiversity Strategy, except where they are enshrined in law. These strategies all include EU leadership on international action for global public goods and sustainable development goals. For example, the EU Biodiversity Strategy is determined to capitalise on international partnerships to promote the biodiversity agenda, as part of the European Green Deal and to accompany the transition in developing countries. The voluntary measures may fall short of the combined objectives in these strategies as it does not guarantee a significant uptake of the DDS.
Coherence with other international policy	A voluntary DDS would not necessarily fit with the efforts of the United Nations Strategic Plan for Forests (UNSPF) 2017-2030. This aims to promote sustainable forest management and the contribution of forests and trees outside forests to the 2030 Agenda for Sustainable Development. To play a role the due diligence approach would have to be mandatory not voluntary.
Effectiveness	There is a high risk that a voluntary approach would be wholly ineffective regarding the goal to reduce EU-driven deforestation. As has been seen with past voluntary schemes, often these fail to reach their intended objectives. One study reviewing the effectiveness of more than 150 voluntary schemes suggests the impact of most voluntary schemes is limited, with over 80% performing poorly on at least one performance indicators[270]. Some other examples include REDD+, that faces challenges that require a complete rethink of the measure, and conservation practitioners and scholars are increasingly asking why REDD+ has not delivered more tangible results[271] [272]. Another example is the international forest certification program, the Forest Stewardship Council (FSC) has failed to gain significant support in some regions, and has even resulted in companies attempting to bribe officials (e.g., offering to put the FSC label on illegal wood in exchange for a price mark-up) [273] [274]. Research also demonstrates that commonly used voluntary due diligence tools are not very effective at improving respect for rights[275]. For voluntary measures where expulsion is the ultimate sanction but the actual impacts are negligible (e.g. the economic operator can effectively trade regardless), most collective voluntary initiatives are vulnerable to failure. This is also because of the lack of common standards and an inability to effectively monitor the application of the requirements of the scheme. Corruption issues are also very challenging to overcome. Many wood imports are from countries, documented to be at high risk of corruption and governance issues. These issues may be exacerbated given the schemes are voluntary. Illegally logged products may be more easily passed off as legal as a result of fraudulent practices. Furthermore, with voluntary schemes, while it may be anticipated that increased participation may increase effectiveness, it may have unforeseen impacts. For example, the added value that the operator gains (the competitive edge or

[268] http://tesi.luiss.it/17943/1/625802_PARISE_ROSARIO.pdf
[269] https://www.oecd.org/corporate/mne/GuidanceEdition2.pdf
[270] http://ww2.rspb.org.uk/Images/usingregulation_tcm9-408677.pdf
[271] https://www.researchgate.net/publication/291689845_Questioning_REDD_and_the_future_of_market-based_conservation
[272] https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/cobi.12933
[273] https://www.mitpressjournals.org/doi/abs/10.1162/glep.2007.7.1.1
[274] https://e360.yale.edu/features/greenwashed-timber-how-sustainable-forest-certification-has-failed
[275] https://euideas.eui.eu/2020/07/03/human-rights-due-diligence-making-it-mandatory-and-effective/

Measures	Voluntary due diligence
	differentiation) decrease as the proportion of operators partaking in the DDS increases. Hence, this may disincentivise companies from joining the scheme or drive participants to cut corners in order to out-compete one another once again. It may also be challenging to trace the origin of products down to raw materials when complex value chains and highly processed products are at stake. The capacity of smaller operators to understand and perform broad due diligence at a sufficient level is questionable. It is also proven to be difficult for operators to check certain criteria covering both legality and other information such supply chain origin.
Efficiency	In theory, the cost of enforcement and monitoring of voluntary schemes should be lower than for similar to that of a mandatory scheme. This is because in principle, there would be no enforcement costs for public authorities because the measure is voluntary. As for costs of compliance by the private sector, these would in principle be broadly similar to those incurred by a mandatory regime, with the difference being that these costs would apply only to the operators that voluntarily take up the obligation to perform DD. In the DD scheme, the burden of proof is placed on operators; operators have to prove that timber placed on the EU market does not come from illegal sources. This can be a burdensome exercise and operators may have varying abilities to meet this obligation. In particular, burden on smaller operators might be proportionally higher than for larger operators. FSC / PEFC accredited raw material increases the cost prices by 18-20% and can price some products out of the market for some retailers, as they cannot compete with retailers who have larger buying capabilities.[276] The economic burden of enforcement and monitoring would be on the supplier and producer companies, as opposed to the relevant CA (in mandatory due diligence scheme). Furthermore, unless the product can command a price that is sufficient to cover those costs, it is most likely that participation in a voluntary scheme will remain low. Furthermore, from a participation perspective, it is only financially attractive to strictly abide by the voluntary scheme if the market supports it and consumers reward implementation by preferring the products of participating operators. In other words, customer demand must be sufficient enough to drive the participation. If the market conditions are that the added value of participating in the voluntary scheme is minimal, participation rates will be low. Additionally, the benefits of using participation to differentiate oneself from other competitors by appearing more sustainable, reduces as more companies participate in a voluntary DDS. If a majority of the market participates, it no longer provides operators with a differentiating factor or competitive edge. The initial cost of establishing a voluntary scheme will vary between actors. It will most likely be far higher for smaller companies who have not set up a DDS before.
Risks around Implementation	The potential inability of operators to collect and reasonably check all relevant information, particularly smaller operators who may be expected to have less understanding of the due diligence requirements and its needs, is one of the main risks of this measure. Some Member States have voiced concerns that increased DDS complexity could reduce implementation. There are also concerns that small and medium-sized enterprises (SMEs) would find it more difficult in particular, but equally they might be at a higher risk of sourcing illegal forestry products because they might not have the expertise to implement effective DDS. There is also high risk of uneven and ineffective implementation due to the onus on voluntary involvement. There may also be a risk around interpretation, relating to standards and their strictness/clarity. This might depend on the organisation responsible for establishing these. There may also be a risk around interpretation, relating to standards and their strictness/clarity. This might depend on the organisation responsible for establishing these.
Wider risks and benefits	There is a risk that increasing participation may reduce the competitive differential aspect of having voluntary DDS participation status, and drive companies to cut corners. Given the approach would be voluntary there is a risk of lack of monitoring and enforcement. Depending of the design of the due diligence system, this risk could occur if whoever is responsible for monitoring (e.g. the economic operator group, Competent Authorities, the Commission etc.) does not have the resources or desire to monitor regular implementation, or if audit checks are not carried out frequently enough. If the voluntary DDS entails high additional costs, operators might be incentivised to under-report the risks associated with their current supply chain. There is also the potential risk that with wide application – ranging from big corporate players to SMEs, this could lead to different interpretations of the voluntary DDS if it is not sufficiently clear enough.

[276] https://www.forest-trends.org/wp-content/uploads/imported/eutr-2015-presentation-mandy-v2-pdf.pdf

Measures	Voluntary due diligence
Political feasibility	Voluntary DDS is less politically feasible than mandatory DDS. Whilst industry players may be more likely to support the approach, given that no operator is obliged to take action, the current political circumstance, overall, more stakeholders (NGOs, Member States, European Parliament etc.) would have a preference for a mandatory measures. Historically, industry has viewed voluntary initiatives either as a means of achieving (at best) a flexible cost-effective and more autonomous alternative to direct regulation, or (at worst) simply a means of avoiding the imposition of binding standards altogether[277]. Yet, NGOs have not been supportive of voluntary measures, and as the European Parliament prepares a proposal for an EU-level standard on imported deforestation, green groups are resisting a lean towards voluntary methods[278]. European Parliament has also called on the Commission to propose rules to prevent EU-driven global deforestation through mandatory due diligence[279]. In fact, MEPs have stated that "*voluntary initiatives, third-party certification and labels have failed to halt global deforestation*", showing Member States are not supportive of voluntary due diligence.[280]. In this way Voluntary Due Diligence may not be very politically feasible. There is also a risk that participation will be low/ ineffective. Voluntary Due Diligence would require more support from private sector actors as well as individual consumers to be successful. They would need to be willing to engage with the scheme to enable sufficient adoption and implementation to lead to an impact. However, at that point of wide adoption, the scheme might no longer provide participating operators with a differentiating factor or competitive edge. There may also be resistance to the voluntary element of the scheme by NGOs or operators with more advanced environmental policies who may be in favour of a mandatory scheme instead.
Compatibility to be combined with another measure	The uptake might increase as a consequence of other measures around consumer awareness and information availability. Consumer awareness may in turn influence demand and likelihood of operators participating in a voluntary DDS. Measures include benchmarking or country assessments (e.g. index) showing which countries are exposed to and effectively combat deforestation, promotion through trade and investment agreements of trade in legal and sustainable products, mandatory disclosure of information (including corporate non-financial reporting) and consumer information campaigns in the EU.
European Parliament assessment[281]	Overall, European Parliament assessment finds that "*voluntary anti-deforestation commitments have not yet been sufficient*". European Parliament view is that third-party certification can only be complementary to a mandatory due diligence[282].
Overall assessment as standalone measure	This measure is considered likely to be ineffective as a standalone measure., in particular as not being mandatory its implementation may lead to variation in uptake depending on company size. Any impact will be highly dependent on uptake levels, however, the incentive to participate may reduce with increasing uptake. If a majority of the market participates, it will no longer provide a differentiating factor or competitive edge. This may also incentivise participants to cut corners. The DDS may not be accessible to specific operators due to scheme implementation costs.
Overall assessment as part of combination of measure	The effectiveness is likely to be low. It might be marginally increased in combination with measures that promote the availability and disclosure of information, increase consumer awareness and incentivise transparency, making voluntary DDS participation more attractive.

Mandatory due diligence

Measures	Due Diligence
Short description	This measure establishes a mandatory due diligence approach to ensure that certain commodities placed on the EU market are not associated with deforestation and/or forest degradation worldwide. Based on the initial findings of

277 https://www.oecd.org/env/1819792.pdf
278 https://www.endseurope.com/article/1672971/environment-groups-resist-voluntary-deforestation-measures
279 https://www.europarl.europa.eu/news/en/press-room/20201016IPR89560/legislation-with-binding-measures-needed-to-stop-eu-driven-global-deforestation
280 https://www.europarl.europa.eu/news/en/press-room/20201016IPR89560/legislation-with-binding-measures-needed-to-stop-eu-driven-global-deforestation
281 https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html
282 https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

Measures	Due Diligence
	the Fitness Check, a number of improvements have been identified in addition to the focus on broader sustainability instead of legality, This measure has been developed taking into account preliminary findings from the Fitness Check study (conducted in parallel). Further information from the Fitness Check will be available and used in the next steps of the project.
Who	**The European Commission** will establish a legislative framework covering the main provisions of a Due Diligence System (DDS), including relevant provisions for monitoring and enforcement. Key insights and lessons learnt from the DDS under the EUTR should feed the development of a new DDS for commodities linked to deforestation and forest degradation. **Economic operators** will be obliged to set in place a Due Diligence System able to capture a wide variety of commodities that may be associated with deforestation or forest degradation. **Competent Authorities** (CAs) will be responsible for monitoring and enforcing the DDS and will ensure that businesses/suppliers in third party countries provide necessary information to prove the due diligence requirements. Competent authorities could be responsible to carry out audit checks where economic operators will need to demonstrate their DDS compliance with the official requirements.
What/ type of instrument	A mandatory Due Diligence Scheme will be defined under an EU-wide legislation (most likely a Regulation, rather than a Directive), that will further need to be calibrated to the commodities they import and their relevant supply chain.
Legal feasibility and proportionality	Shared competence between the EU and EU countries applies in the area of environment, therefore, the EU and EU countries are able to legislate and adopt legally binding acts to address the issues of deforestation and forest degradation. There are several challenges around the legal feasibility of a new due diligence exercise: these relate to a variety of issues such as creating mechanisms to discourage unintended operators' behaviour (e.g. change of legal status of country of operation or instituting complex and less traceable supply chains); delivering the legal basis for holding operators accountable; and clarity in the legislative text to allow for universal understanding of the requirements. The latter one will also be determined by the clarity and narrowness of the definitions of key concepts: e.g. definition of sufficient/good due diligence, definition of 'negligible risk' or equivalent,. Key lessons from the Fitness Check on the EUTR's due diligence system will further feed this analysis. For example, early feedback from the FC suggests that, in several cases, enforcement actions may not have been complied with.
Technical feasibility	DDS are already in place for specific products, e.g. the DDS under the EUTR for timber and timber products, and some technical obstacles have been identified in its implementation, that may be encountered if a DDS is established to cover commodities responsible for deforestation and forest degradation. For example, operators may find it difficult to obtain information / obtain reliable information around supply chains. The success of a DDS scheme relies on all operators having awareness and firm/common understanding of requirements of due diligence. However, some Member States have expressed that GIS/satellite data can be harnessed to aid implementation. Key lessons from the Fitness Check on the EUTR's due diligence system will further feed this section. In addition, DG JUST is currently analysing options for regulating due diligence for adverse corporate impacts in companies' own operations and through their supply chain, which will be considered too.
Previous policy choices	A general DDS covering a wider spectrum of commodities and investigating impacts on deforestation and forest degradation across the whole value chain is a new policy measure. However, there is existing mandatory due diligence legislation that covers particular products. The rules concerning the due diligence system and the frequency and nature of the checks are covered in Commission Implementing Regulation (EU) No 607/2012 of 6 July 2012. In this way such a DDS is already in place; however, current policy choices take a narrow product specific approach to DDS, focusing only on timber and timber products. Other existing mandatory due diligence systems include the Dutch Child Labour Due Diligence Bill, and the Final Rule for implementation of Section 1502 of the Dodd-Frank Act, that specifies the standard for due diligence that must be exercised once a company has determined that it uses conflict minerals[283] [284].

[283] https://www.lexology.com/library/detail.aspx?g=c65161b5-1450-405b-9848-1d5612a4954f

[284] https://www.globalwitness.org/en/campaigns/conflict-minerals/dodd-frank-act-section 1502/#:~:text=The%20%E2%80%9Cconflict%20minerals%E2%80%9D%20provision%E2%80%94,to%20report%20on%20their%20efforts

Measures	Due Diligence
Coherence with other trade legislation	In principle, operating a general DDS scheme is not expected to cause conflict with WTO legislation as long as the measure's design does not lead to it affecting products from specific countries disproportionately. A general DDS with a broad product scope as currently envisaged, is so expected to produce limited conflict with WTO legislation. There is however a wide variety of existing EU standards for due diligence checks across different scopes, be it either for products (e.g. timber, mineral) or for broader corporate behaviour or provision of financial services. It is necessary to avoid duplication of checks and thus incorporate as many as possible of these schemes within the overarching due diligence scheme. The ongoing proposal[285] from DG JUST will have to be considered in this analysis.
Coherence with other EU policy objectives	An overarching due diligence obligation is aligned with the key EU policy objectives of preserving nature and biodiversity, protecting the environment, and making sustainable use of natural resources while focusing on improving the quality of life.
Coherence with other international policy	This measure is in line with the United Nations Strategic Plan for Forests (UNSPF), 2017-2030. Its mission was to promote sustainable forest management and the contribution of forests and trees outside forests to the 2030 Agenda for Sustainable Development. By promoting an overarching due diligence approach, it will contribute to sustainable forest management. Capturing a wider choice of products in a coherent way is potentially contributing also to other domains of international policy.
Effectiveness	Overall, the effectiveness will hinge on the capacity of companies to implement the DD requirements, as well as the ease of enforcement by the competent authorities. The initial evaluation of the EUTR concluded that the mandatory due diligence obligation did not achieve in preventing illegally harvested timber from being placed on the market. In the 2013-2015 period, operators were gradually taking up the due diligence obligation and there was more awareness of the problem of illegal logging among EU industry and consumers. However, there was uneven implementation and patchy enforcement during the first two years. The uptake of due diligence obligations has been uneven across operators. Overall compliance by the private sector was also uneven and insufficient, with many operators' DDS not meeting the EUTR requirements. In this way a DDS may be ineffective if there is a lack of even implementation. On a positive note, the complexity of finding all relevant information may create an incentive for operators to use suppliers from countries with more information available, promoting the use of deforestation free products. Finally, the experience of the EUTR have shown limits and challenges in the effectiveness of such DDS: preliminary findings from the FC will further feed this analysis. A mandatory DDS may consolidate different due diligence obligations for operators now needing to comply with obligations from different regulations. It may be challenging to trace the origin of products down to raw materials when complex value chains and highly processed products are at stake. The capacity of smaller operators to understand and perform broad due diligence at a sufficient level is questionable. It is also proven to be difficult for operators to check certain criteria covering both legality and other information such supply chain origin.
Efficiency	A specific issue with the burden for competent authorities arising from their obligations under EUTR Article 4 and Article 6 (due diligence obligations), that may be the same with an extended DDS, relates to the burden for collecting information. While in theory the burden of collecting information about the legality of the timber should be on operators, it is in fact also on the competent authorities in the Member States. They also have to collect information, including on the applicable national legislation of each source country, as well as to assess the risk and choosing adequate measures. This not only leads to a heavy administrative burden on the Member States, but also leads to an opportunity for operators to choose the Member State with either the weakest control system or the weakest penalty measures to import their products, instead of actually practicing due diligence, as this would mean a higher (financial) burden on them. The burden of proof is placed on operators; operators have to prove that timber placed on the EU market does not come from illegal sources. In particular, burden on smaller operators might be higher than other larger operators. It is noted that the current EUTR DDS requirements impose a substantial cost to CAs and enforcement authorities for performing the necessary checks as well as carry out prosecution.
Risks around Implementation	Potential inability of operators to collect the relevant information and for CAs to reasonably check it. It is also expected that smaller operators might have a lower understanding of the due diligence requirements and its needs. Some Member States have voiced concerns that increased DDS complexity might reduce implementation. There are also concerns that small and medium-sized enterprises (SMEs) will find implementation more difficult in particular, but equally they may be at a higher risk of sourcing products associated with deforestation because they may not have the expertise to implement effective DDS. As is the case with many policy measures, reliance on effective and even implementation and enforcement across MS might prove difficult. Effectiveness relies on definitions of key terms – e.g. negligible risk and the way MS and operators will interpret the provisions as due diligence is understood

[285] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12548-Sustainable-corporate-governance

Measures	Due Diligence
	differently based on the legislative tradition of the country. The successful implementation of the measure relies on effective communication between and data availability to CAs, which is not always the case (e.g. communication with customs). In addition, it relies on effective national legal systems to ensure enforcement is taking place, along with prosecution of those breaching the mandatory provisions (which appears to be a challenge under the EUTR DDS).
Wider risks and benefits	Should entail high additional costs, operators might be incentivised to under-report the risks associated with their current supply chain.
Political feasibility	A less strictly defined requirements (the interpretation and implementation of which is left to individual CAs) is more likely to attract wider political support but would lead to a less effective measure. This measure could allow to merge the timber legislation with other commodities and thus meet the 'one in one out' principle of EU legislation.
Compatibility to be combined with another measure	Due diligence mandates are reported to promote the use of certification schemes, and possibly voluntary/mandatory labelling systems. Operating a DDS would also benefit from developed country benchmarks and mandatory disclosures of information.
European Parliament assessment[286]	Mandatory due diligence is considered as part of the EP report. The report calls for the European Commission to present an EU-legal framework based on a mandatory due diligence approach to ensure sustainability and deforestation-free supply chains for products placed in the EU market. It considers that the scheme should not only account for the legality, but also the sustainability of the products harvest, extraction, production or process. The proposal also calls for an SME-friendly implementation which would reduce to the minimum possible level the administrative burden of implementation.
Overall assessment as standalone measure	Likely not very effective as a standalone measure, creates unwanted incentives to operators while it is unsure that all operators can comply with the information gathering requirements. Can be over-burdening for specific operators depending on the exact legal provisions. Difficulties in ascertaining that documentation submitted by third country entities is authentic and genuine.
Overall assessment as part of combination of measure	Effectiveness could be increased in combination with measures that promote the availability and disclosure of information.

Mandatory public certification

Measures	Mandatory public certification
Short description	This measure aims to introduce an EU mandatory public certification scheme to cover all commodities and products which may be linked to deforestation. This public certification system for deforestation-free products would be linked to a ban of non-deforestation-free products. A mandatory public certification scheme would ensure that all companies source their products in a sustainably sound manner and the risk of them using commodities which could be linked to deforestation would decrease significantly.
Who	The Commission would be responsible for introducing this scheme, and MS would be involved in the enforcement of the measures. Industry would have to comply to certification in order to trade sell its products in the EU (ban

[286] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

Measures	Mandatory public certification
	for products without certification). The roles in the establishment and functioning of the scheme would be as follows: The **EU** establishes deforestation-free criteria and a product scope and requires that all products within the scope sold in the EU should comply with the criteria. Products that do not comply with the criteria are not authorised to be placed on the EU market. The EU provide the responsibility to one of its agency for example the European Environment Agency. The EU controls the quality and reliability of the certification. **Individual companies** seek public certification for their products prior to placing on the market. Financial support can be granted for SMEs. A degree of self-certification accompanied by submission of information could be considered. **Member States** are responsible for the verification. MS designate a public authority to verify that the products are meeting the criteria on the basis of the information provided by individual companies. Member States adopt penalties for contravening companies.
What/ type of instrument	The EU would introduce a deforestation-free and certification system that would increase the supply chain transparency in the Union and allow the promotion of products not resulting from deforestation, building on existing approaches and based on an unambiguous definition of deforestation free supply chains. All operators would have to ensure that they comply to this mandatory public certification scheme.
Legal feasibility and proportionality	Informing consumers about products that exist on the internal market or that enter the internal market is a shared competence of the EU, in line with its environmental objectives. As such a mandatory certification requirement should meet the subsidiarity test. Regarding the proportionality principle, it will be necessary to demonstrate that a mandatory certification scheme would be relevant and would have a positive impact on decreasing deforestation and forest degradation, and that there are no less restrictive means available to achieving the same results.
Technical feasibility	One key issue with certification is the challenge of monitoring, disclosure and enforcement. Implementing the measure would require companies to amend their packaging and go through the certification scheme. This could be challenging for SMEs who would have to track down their supply-chain and go through the process of certification which can be costly, resource intensive and time-consuming.
Previous policy choices	Mandatory public certification has been used in some limited examples, including in relation to safety. This includes for examples safety in the automotive sector, safety of food products, safety of toys. In these legislation, public authorities require that products under the scope of the legislation comply with specific criteria and design requirements. For example, the safety in the automotive sector is covered by the General Safety Regulation which defines safety features for a range of vehicles (cars, vans, trucks and buses). Requirements and safety features are regularly updated to keep up with technological progress.[287] The compliance with the requirements is verified by certificates of conformity being issued by the manufacturer of the goods (e.g. car manufacturers).
Coherence with other trade legislation	Developing countries increasingly see certification as a de facto barrier to trade and have been quick to voice their concerns in World Trade Organization (WTO) deliberations, particularly those by the Committee on Trade and Environment. The TBT (Technical barriers to Trade) agreement potentially restricts the scope for natural resources sustainability certification systems.
Coherence with other EU policy objectives	Coherence with the Communication on Stepping up EU Action to Protect and Restore the World's Forests (Priority 1), the Biodiversity Strategy 2030, and the Long-Term Decarbonisation Strategy, which recognises the importance of forests as natural sinks, as well as key EU policy objectives of preserving nature and biodiversity, protecting the environment and making sustainable use of natural resources while focusing on improving the quality of life.
Coherence with other international policy	This measure is coherent with the United Nations Strategic Plan for Forests (UNSPF), 2017-2030. Its mission was to promote sustainable forest management and the contribution of forests and trees outside forests to the 2030 Agenda for Sustainable Development as introducing mandatory public certification schemes is expected to contribute to sustainable forest management.
Effectiveness	

[287] For example, https://ec.europa.eu/docsroom/documents/34588

Measures	Mandatory public certification
	The effectiveness of the car safety related legislation has been found to be credited for the large reduction in fatal and serious injury risk amongst car occupants, followed by measures targeting drink-driving and road safety engineering measures. [288]
Efficiency	The need to monitor and audit the use of certification and the wide-ranging products/commodities that the certification would have to cover could make cost-benefit balance problematic. This is because the costs of monitoring and auditing for certification may outweigh the benefits if consumers are not aware of the certification scheme and do not value its message. Certification can be a complicated and costly process and resources expended to certify operations and to support the various schemes' managerial structures could be used for other ends. The European Parliament analysis notes that while policy options including mandatory certification are the most costly, the costs remain overall proportional when considering overall GDP share.
Risks around Implementation	Monitoring the enforcement of certification will increase MS workload, which may leave room for loopholes and fraud, if there are not enough resources available for monitoring purposes. Furthermore, depending on how the certification scheme is set up, if it relies a lot on the Commission's monitoring ability this will substantially increase the workload of the Commission and might result in a weak monitoring system, loopholes and fraud. There are also challenges in the implementation due to the fact that the mandatory certification standards are a 'de facto ban' for those products that are not certified.[289]
Wider risks and benefits	Suppliers incur both direct and indirect costs in pursuing certification. Direct costs include those associated with the certification process – such as the fees paid to certifiers to conduct initial assessments and subsequent audits, hold stakeholder consultations and prepare reports. Achieving certification may also require investments in machinery, staff training, infrastructure and logistics to comply with the certification standards; these indirect costs could be much higher than direct costs, depending on the gap between the existing quality of management and that required to meet the certification standards.
Political feasibility	Political feasibility for this policy measures can be considered medium/low. This is taken from a recent study by Bager et al on political feasibility for EU policy options which assesses political feasibility based on three criteria: - Advocacy: actors supporting a given policy option - Institutional setting: the institutional rules for defining and adopting a given policy - Costs: magnitude and distribution of societal costs resulting from policy implementation The study gives this policy option a Medium score on advocacy, medium score on institutional complexity & low score for cost.[290]
Compatibility to be combined with another measure	This measure is compatible with other measures.
European Parliament assessment[291]	The EP report policy option 2 'mandatory certification standards' and policy option 3 'mandatory certification standards with due diligence'. The European Parliament analysis assessed the effectiveness of measures containing mandatory certification standards and noted that these measures were the most effective in eliminating deforestation and associated carbon emissions. It estimated that avoided deforestation due to reducing EU imports of commodities associated with deforestation would result in 197 500 hectares of avoided deforested land and 56 million tonnes of avoided CO2 emissions.[292]
Overall assessment as standalone measure	Effectiveness is dependent on consumer responsiveness to the certification scheme and whether there are enough alternatives products in place that are not associated with deforestation.

[288] https://ec.europa.eu/transport/road_safety/sites/roadsafety/files/specialist/knowledge/pdf/vehicles.pdf
[289] EPRS
[290] Bager et al (2020), Reducing Commodity-Driven Tropical Deforestation: Political Feasibility and 'Theories of Change' for EU Policy Options, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3624073
[291] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html
[292] EPRS 2020 EU Legal Framework to halt deforestation

Measures	Mandatory public certification
Overall assessment as part of combination of measure	The measure could be more efficient when combined with other measures (for example labelling).

Private voluntary certification systems either new or those already in place in the EU

Measures	Private voluntary certification systems, new and the ones already in place in the EU market
Short description	Certification is used by several supply chains including for example the timber and wood-based industry to meet sustainability commitments,. The aim of this measure would be to strengthen the existing private certification schemes in place in the EU market and expanding them to other commodities 1)
Who	**European Commission** would guide the development of private scheme by 'encouraging' such development in a political declaration (e.g. COM DOC). **Member States** could also be required to communicate on the existence of certification schemes to further disseminate their use to the general public. **Economic operators** would voluntarily decide whether or not to amend their packaging to include the information on certification and go through the whole certification process, which would require a verification of their supply chain. **Consumers** would be entrusted to boost demand for deforestation-free products based on knowledge about their potential impacts on deforestation and forest degradation.
What/ type of instrument	A non-binding instrument would be sufficient for this measure as the Commission would only 'encourage' such private / voluntary schemes.
Legal feasibility and proportionality	No legal instrument would be required for this measure.
Technical feasibility	There are many existing voluntary private schemes and more could be created without technical limitation.
Previous policy choices	Existing voluntary certification schemes include the following: - Fairtrade (covering 17 products including cocoa) - International Sustainability & Carbon Certification (covers all types of agricultural, forestry and other raw materials, incl. soy and palm oil) - ProTerra Certified (soy) - Rainforest Alliance - Sustainable Agriculture Network (including soy, palm oil, cocoa) - RSPO Roundtable for Sustainable Palm Oil - RTRS Roundtable on Responsible Soy - UTZ Certified (cocoa, coffee, hazelnuts, tea) Private-sector initiatives for sourcing sustainable products are also common, including the zero net deforestation targets of the Consumer Goods Forum and of Nestlé, and the commodity-specific targets of the Dutch Task Forces on Sustainable Soy and Palm Oil, the Belgian Alliance for Sustainable Palm Oil and many individual companies.
Coherence with other trade legislation	Non-EU countries increasingly see certification as a de facto barrier to trade and have been quick to voice their concerns in World Trade Organization (WTO) deliberations, particularly those by the Committee on Trade and Environment. The TBT (Technical barriers to Trade) agreement potentially restricts the scope for natural resources

Measures	Private voluntary certification systems, new and the ones already in place in the EU market
	sustainability certification systems. International standards are not neutral; they secure advantage for certain players and disadvantage for others. Nevertheless, WTO rules allow exemptions for the protection of human/plant/animal health and life (Art. XX(b)), as well as the conservation of exhaustible natural common resources (Art. XX(g)). As such, if the measure is based on concrete, science-based considerations; restrictions apply both abroad and domestically; and they do not target specific countries or grant advantage to like-domestic products, it would be coherent with trade legislation. As such, for voluntary certification to be implemented, it should inform consumers about risks to deforestation/forest degradation in regions (as opposed to countries) that are prone to such risks, and domestic (EU) deforestation/forest degradation should be considered.
Coherence with other EU policy objectives	Coherence with the Communication on Stepping up EU Action to Protect and Restore the World's Forests (Priority 1), the Biodiversity Strategy 2030, and the Long-Term Decarbonisation Strategy, which recognises the importance of forests as natural sinks, as well as key EU policy objectives of preserving nature and biodiversity, protecting the environment and making sustainable use of natural resources while focusing on improving the quality of life.
Coherence with Sustainable Development Goals	- Target 12.8: By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature - Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements - Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally
Coherence with other international policy	This is in line with the United Nations Strategic Plan for Forests (UNSPF), 2017-2030. Its mission was to promote sustainable forest management and the contribution of forests and trees outside forests to the 2030 Agenda for Sustainable Development. Introducing voluntary certification schemes will contribute to sustainable forest management.
Effectiveness	At present, demand for certified products trails supply for most commodities related to deforestation, resulting in small or non-existent price premiums for certified products and hence small incentives for producers to change practices.[293] Difficulties in understanding certificates and certification and lack of clear information by companies/entities and organizations issuing certificates may result in operators paying for something with no or limited value. The European Parliament study notes that the effectiveness of many voluntary commitments remain to be established, and results are non-conclusive on whether deforestation is actually reduced. Issues identified include the challenges in investigating situations at local level but also by the fact that those being certified are mainly retailers and manufacturers at the bottom of a very long supply chain. Stronger uptake would be needed included from the financial sector. [294]
Efficiency	The need to monitor and audit the use of certification and the wide-ranging products/commodities that the certification would have to cover could make cost-benefit balance problematic. This is because the costs of monitoring and auditing for certification may outweigh the benefits if consumers are not aware of the certification scheme and do not value its message. Certification can be a complicated and costly process and resources expended to certify operations and to support the various schemes' managerial structures could be used for other ends. These costs can be prohibitive in particular for SMEs that could resist going through the certification process on this basis. Many private certification schemes already exist however, so the encouragement of pre-existing certification schemes would not be as costly as implementing new ones.
Risks around Implementation	The most significant unintended outcome of the creation of the FSC was how producers around the world responded by creating their own national certification schemes.[295] Due to the fact that economic operators have the choice of being certified or not, businesses who do not employ these certifications might be affected in a disadvantageous way.

Measures	Private voluntary certification systems, new and the ones already in place in the EU market
	Some companies might also have a harder time tracing their supply chain (e.g. products using palm oil) in comparison to others (e.g. coffee). This will depend on how long and complex their supply chain is. For instance, a manufacturing company producing lotions which include a small portion of palm oil might be less familiar with suppliers compared to a coffee company which sells the commodity directly in a less processed state. Another challenge of private certification is the competition it creates with other schemes including public certification schemes. This can undermine the effectiveness of some schemes, or at least challenge its implementation as shown in the context of the FLEGT. Definitional issues and internal variations in definitions among the schemes (e.g. on 'what is a forest?' and 'what is deforestation?') are of particular importance as challenges for certification as a tool to fight deforestation. With weak thresholds or unclear definitions, it becomes more flexible for companies and producers to work within the operational limits of a given certification. Such room for interpretation can allow for compliance-creep and make verification difficult. The challenge is difficult to work with, and stricter definitions may just lead to some companies opting out or not seeking certification in the first place. Regarding issues for SMEs, first movers who shape the rules of certification schemes can tailor the provisions to match their technical and operational requirements, leaving late movers with higher switching costs. This can seriously disadvantage small and medium enterprises in developing countries where low labour costs and low capital investments may serve as the basis of an operation's cost advantage in the market.[296]
Wider risks and benefits	One main concern with certification (of individual producers or supply chains) is that they fail to see the full context and surroundings. Even if most agricultural farms in an area are certified, land tenure can still be weak, poverty increasing, and legal and illegal deforestation taking place. To accommodate this, a few certification schemes provide add-ons, such as 'RSPO NEXT' that includes a voluntary addendum focusing on avoiding deforestation and protecting indigenous people. Conceptually, recent thinking talks of a Jurisdictional Approach to Zero Deforestation Commodities (JA-ZDC) in which the supply chain certification is expanded to cover the entire administrative region or unit that it is situated in. Interactions with public certification scheme can also be challenging, in particular when covering the same scope and criteria, these can lead to undermine the efficiency of public systems.
Political feasibility	Political feasibility for this policy measures can be considered high. This is taken from a recent study by Bager et al on political feasibility for EU policy options which assesses political feasibility based on three criteria: - Advocacy: actors supporting a given policy option - Institutional setting: the institutional rules for defining and adopting a given policy - Costs: magnitude and distribution of societal costs resulting from policy implementation The study gives this policy option a medium score on advocacy, high score on institutional complexity & high score for cost.
Compatibility to be combined with another measure	Certification may provide important building blocks for stronger policy options.
European Parliament report assessment [297]	The EP report calls to not consider voluntary (private) certification measure as these are seen as being insufficient .
Overall assessment as standalone measure	This measure is not considered to be sufficiently effective/ambitious in itself due to the fact that it would be implemented on a voluntary basis and while it could target a wide range of products/commodities - some of which will likely not have a high uptake of certification. Effectiveness is dependent on consumer responsiveness to the certification scheme and whether there are enough alternatives products in place that are not associated with deforestation.

Measures	Private voluntary certification systems, new and the ones already in place in the EU market
Overall assessment as part of combination of measure	Can be more effective if implemented with other measures that increase information for the consumer, for instance, labelling or Due Diligence.[298]

Benchmarking

Measures	Build benchmarking or country assessments (e.g. index) showing which countries are exposed to and effectively combat deforestation or forest degradation
Short description	Benchmarking of a country's performance or the establishment of country assessments would be based on criteria to evaluate exposure and the effective combatting of deforestation and/or forest degradation. Such benchmarking or assessments will enable differences to be seen between countries and/or specific areas in relation to exposure and effective combatting of deforestation and forest degradation. Countries would receive a score, which could then be compared against other countries. Information that could be obtained from the measure's implementation include identifying initiatives that have worked for other countries which have a relatively 'better' score in effectively combatting deforestation. Benchmarking or country assessments would also enable the ranking of countries and would be available to all stakeholders, which would facilitate consumer choice and have the potential to impact decisions made at global, regional and national level surrounding deforestation and forest degradation. Benchmarking needs to be considered against two main aspects: 1. Criteria to use for the benchmarking 2. Effects to attach to the benchmarking Each of these aspects could be further declined. 1. Criteria to use for benchmarking: • Quantitative criteria: o Deforestation statistics including a blended view of FAO land use change data and GFW tree cover data. A rating would be placed based on a comparison of the year considered with the base year for the benchmarking. Each country's situation could be described as: stable (less than xx% variation), improving or worsening. o Trade statistics on commodities linked to deforestation and forest degradation to ascertain whether the country is directing toward increase production of these commodities. A rating would be placed based on a comparison of the year considered with the base year for the benchmarking. Each country's situation could be described as low risk (e.g. less than 10% variation in commodities types), medium risk (10-30% of variation) and high risk (30% and above). o Trade relationships on commodities linked to deforestation and forest degradation o C&I criteria on sustainable forest management [299] that can be used at global, regional or national level • Qualitative criteria: o Country's land tenure rights o Country's protection of indigenous population's rights and human rights protection: could be used as one proxy to benchmark countries. • Composite criteria adding quantitative and qualitative criteria A final rating could be based on one criterion only, quantitative criteria only, or a combined approach of quantitative and qualitative criteria. 2. Effects to attach to the benchmarking: • Red country: ban to import products to the EU • Red country: name and shame, no other effect • Green / Red country: lower / higher tariffs when importing to the EU for specific products • Green / Red country: exemption / requirement to undertake mandatory certification • Green / Red country: a reduced / enhanced due diligence requirement for those importing from this country.

[299] http://www.fao.org/forestry/ci/en/

Measures	**Build benchmarking or country assessments (e.g. index) showing which countries are exposed to and effectively combat deforestation or forest degradation**
	• Green country: get access to additional financing or development support • No consequence, benchmarking is used for information purpose
Who	**Third countries**: third countries would need to facilitate data collection for the specific criteria identified. This could include hosting country visits from the EU. **European Commission**: the European Commission would need to establish the criteria for the benchmarking and/or country assessments, collect and process data and publish results. A review of the criteria at a set period of time (e.g. 2 years) and updated data would need to be collected to ensure benchmarking and/or country assessments represent the existing scenario. The quality and accuracy of information may need to be evaluated, as well as the enforcing the provision of information from third countries and/or producers. **Others**: Depending on how the assessments are conducted and then used, other stakeholders may be involved (e.g. Member States providing evidence or assessments). It would be advantageous for details of the initiatives taken to combat deforestation to be provided by third countries or other relevant actors, to enable further information to be communicated in the benchmarking/assessment with the intent of maximising the impact of reducing deforestation.
What/ type of instrument	Depending on the effects of the benchmarking considered the measure could be a non-binding/non-regulatory instrument or a binding regulatory instrument and would likely take the form of a non-regulatory Commission guidance document or platform (e.g. web platform) to communicate the methodology used and the results of benchmarking.
Legal feasibility and proportionality	The feasibility and proportionality would vary based on the effects of the benchmarking (i.e. information purpose vs access to EU market). If used for information purposes only with no other effects (and perhaps provided citizens have access to the information it generates) it can be argued that this is a shared competence of the EU and it is also in line with environmental policy objectives (e.g. support for information quality and availability on forests) and is therefore in accordance with the subsidiarity principle. Regarding the proportionality principle, this is less clear. It depends on what the intended use of this information is and whether it therefore will contribute to reducing deforestation.
Technical feasibility	For this measure to be a workable option, there are several outstanding challenges that require resolving. For example, the assessment/benchmarking criteria will likely be required to apply at country / regional level. Information provided will need to be monitored, updated/re-assessed on a regular basis, which could result in an administrative burden. Comparisons between country indexes will need to be viable and this information presented in a clear manner. This will require a detailed methodology to enable comparisons where different countries are being assessed on different criteria, but their resulting score is then comparable and not complicated to interpret. For benchmarking and country assessments, it may be that information available for country assessments may already be available for use (e.g. through FAO Global Forest Resources Assessment or otherwise). At an international level, REDD+ (UNFCCC) submissions may already provide some information to contribute to benchmark/assess countries.
Previous policy choices	The Feasibility study does not refer explicitly to benchmarking, or an index for countries for information purposes. No information identified on this measure being considered for forest degradation and deforestation.
Coherence with other trade legislation	This measure should be compliant with WTO as this is an information obtaining measure. Restrictions are not being imposed. If actions are determined on the basis of this information, the associated policies would need to be evaluated for compliance with WTO.
Coherence with other EU policy objectives	The measure is coherent with the objective of the Communication adopted in July 2019 on Stepping up EU Action to Protect and Restore the World's Forests. Priority 5: "Support the availability and quality of information on forests and commodity supply chains, the access to that information, and support research and innovation." Regulation (EU) 2016/1011 of the European Parliament and of the Council[300] establishes the uniform rules for benchmarks in the Union, with the consideration of different types of benchmarks. Regulation 2019/2089 of the European Parliament and of the

[300] Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No 596/2014 (OJ L 171, 29.6.2016.

Measures	Build benchmarking or country assessments (e.g. index) showing which countries are exposed to and effectively combat deforestation or forest degradation
	Council[301] (known as the Low Carbon Benchmarks Regulation) aims to increase transparency and uniformity in the use of low-carbon indices, and forms part of the broader EU initiative on sustainable development and sustainable finance of Europe's financial sector.
Coherence with other international policy	National forest monitoring may already exist in some countries. The OECD also undertakes Environmental Performance Reviews of individual OECD countries,[302] where assessments of a country's progress in achieving environmental and sustainable development objectives are reviewed, with elements such as peer reviews included.
Effectiveness	Whilst there is limited evidence concerning the use of benchmarking for policies relating to deforestation, the EU Benchmark Regulation[303] was introduced to address concerns around the accuracy and integrity the indices used in financial markets for benchmarks. A review has been undertaken with the aim of updating the rules for financial benchmarks,[304] in line with the Action Plan 'Financing Sustainable Growth'. Related to sustainable finance, Regulation (EU) 2019/2089 of the European Parliament and Council (which amended the EU Benchmark Regulation) introduced the EU Climate Transition Benchmarks and EU Paris-aligned Benchmarks, with sustainability-related disclosures for all benchmarks.[305] The application of the IUU fishing regulation country carding system is found to be effective in providing incentives to country exporting to the EU but also for those not exporting to the EU that do not want to lose the possibility of future trade partnerships. In addition, dialogues opened as part of the red carding system are found to further the knowledge and understanding of the IUU fishing. [306]
Efficiency	Regarding costs, if information is readily available through existing monitoring and data collection processes, costs may be relatively low, compared to if new monitoring and data collection approaches had to be undertaken. Costs will be associated with the identification and review of criteria, benchmarking methodology and publishing of the compiled information. Information will also need to be updated on a regular basis to ensure accuracy of a country's assessment/benchmarking which would lead to additional costs. For comparison, the costs of implementing the country carding system of the IUU which relies on a country benchmarking assessment is 10 FTE equivalent.[307] In addition, and considering this measure would provide information to operators and authorities, it is expected that this would reduce costs for those actors of implementing related requirements by avoiding individual operators and authorities the effort of having to gather the information and rate countries independently. A central system also supports a more harmonised and common approach at EU level leading to further efficiencies.
Risks around Implementation	The burden placed on the European Commission (and Member States) for compiling the assessments and the third countries for providing information (if directly) could be high, with the country assessments needing to be updated. Different regions/countries may have different criteria to fulfil which could also change over time and would require monitoring. There is also the possibility that countries will dispute/contest the outcome of their assessment, as well as the process established for benchmarking. In particular, concerning the method to benchmark countries against each other which produce the same products, with the country assessments/index influencing the preferred country to obtain products from/invest in etc. Countries may also contest the data used to derive outputs, in particular where data is

[301] Regulation (EU) 2019/2089 of the European Parliament and of the Council of 27 November 2019 amending Regulation (EU) 2016/1011 as regards EU Climate Transition Benchmarks, EU Paris-aligned Benchmarks and sustainability-related disclosures for benchmarks.
[302] OECD. (no date). *Environmental Performance Review.* [online]. Available from: https://www.oecd.org/site/peerreview/environmentalperformancereviews.htm [Accessed 16 October 2020].
[303] Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No 596/2014 (OJ L 171, 29.6.2016.
[304] European Commission. (2020). *Financial benchmarks (for interest rates, stock-exchange prices, exchange rates, etc.) – review of EU rules.* [online]. Available from: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12268-Review-of-the-Benchmark-Regulation- [Accessed 15 October 2020].
[305] Regulation (EU) 2019/2089 of the European Parliament and of the Council of 27 November 2019 amending Regulation (EU) 2016/1011 as regards EU Climate Transition Benchmarks, EU Paris-aligned Benchmarks and sustainability-related disclosures for benchmarks (OJ L 317, 9.12.2019, p.17; https://ec.europa.eu/finance/docs/level-2-measures/benchmarks-delegated-act-2020-4744_en.pdf
[306] Information from targeted interview
[307] Information from targeted interview

Measures	**Build benchmarking or country assessments (e.g. index) showing which countries are exposed to and effectively combat deforestation or forest degradation**
	considered to not be robust and/or reliable. There is also the risk that if not sufficiently publicised, the information may not be disseminated enough to cause an impact.
Wider risks and benefits	Wider risks and benefits depend on the use of the information provided in the country assessments. For example, if the country assessments were used to assess areas for improvement and identify possible reform paths for individual countries, benefits could be seen, such as the introduction of new policy and the identification of 'priority areas' where to focus attention for improvement at an international level. Wider risks include where the country assessments are used to impact decisions concerning trade, and such an application may require an assessment of WTO compliance. Further investigation into the criteria which could be used for benchmarking and the intended use of the information is required for greater consideration of the benefits.
Political feasibility	Political support would depend on the effects attached to the benchmarking.
Compatibility to be combined with another measure	This measure is likely compatible to be combined with other measures and in theory, this could complement any measure by providing some additional information / incentives to the overall measure.
European Parliament assessment report[308]	The EP report does not consider benchmarking measure.
Overall assessment as standalone measure	Very unlikely to be effective to reduce forest degradation and deforestation as an information measure, however potentially effective if attached to other effects.
Overall assessment as part of combination of measure	Likely useful as a combination measure.

Promotion through trade and investment agreements of trade in legal and sustainable products

Measures	**Promotion through trade and investment agreements of trade in legal and sustainable products**
Short description	This policy measure aims to include requirements for legal and sustainable products in trade deals and trade policy. This would involve trade deals with legally enforceable provisions and sustainability commitments in accordance with WTO as well as trade policy instruments to facilitate international cooperation and understanding of Green Deal measures. Furthermore, other areas to be covered could include improved effectiveness of Sustainable Development chapters, the inclusion of Trade and Sustainable Development (TSD) provisions and promotion of 'Sustainable Forest Management' in EU Free Trade Agreements. Furthermore, sustainability requirements for financial investments in agricultural and commodity production activities could be introduced as part of the measure.
Who	The **European Commission** will be responsible to set up the trade and investment agreements with third party-countries, including a scheme for verification of the deforestation-free certification. The **Member States** will implement the verification scheme and monitor/enforce it.

[308] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

Measures	Promotion through trade and investment agreements of trade in legal and sustainable products
	Economic operators and **third-party countries** would be responsible for providing the documentation to obtain benefits from FTA. Key questions to be further explored through the consultation: • Should an independent body be responsible for supervising the free trade agreements and verifying compliance with sustainability standards? • How can technical experts be involved in larger trade deals dealt with at a political level? • What would the role of the WTO be in this?
What/ type of instrument	International Trade Agreements including Free Trade Agreements.
Legal feasibility and proportionality	The largest constraints to trade policies might be political rather than legal. There is an existing body of international law addressing deforestation and forest degradation and while these are not binding, they do provide a legal basis for the European Commission to act . Policy-wise, the fact that there are existing multilateral agreements related to deforestation and forest degradation is beneficial as it shows likely acceptance of regulatory measures and the reduced likelihood of a challenge in front of the WTO. With the raising awareness for environmental issues globally, it may be assumed that the acceptance of measures like a promotion through trade and investment agreements of trade in legal and sustainable products will raise accordingly.
Technical feasibility	Most FTAs hold sustainable development provisions on sustainability and environmental governance, hence setting a good frame for addressing deforestation. Trade and Sustainable Development (TSD) chapters envisage trade and investment as a means to support and pursue sustainable development objectives and include provisions on the conservation and sustainable management of biodiversity. A recent report from the European Parliament considered a range of possible trade related options for instruments to halt deforestation and forest degradation, these are declined at unilateral, bilateral and multi-lateral levels[309]: - "developing the EUTR into an instrument for sustainable forest management by including sustainability criteria into its framework; - combining obligations for EU market access of FRCs [read commodity] with political dialogue and EU technical cooperation to enhance sustainable forest governance in producer countries in a specific EU import regulation for FRCs [read commodity]; - introducing a third special arrangement under the EU's Generalised System of Preferences (GSP) focused on promoting sustainable forestry and deforestation-free value chains for FRCs [read commodity]. - granting preferential tariff rates for sustainable timber & timber products and FRCs [read commodity] in bilateral EU FTAs; - introducing import restrictions for non-sustainable timber & timber products and FRCs [read commodity] into EU FTAs as an additional safeguarding measure; - including provisions into EU FTAs that offer tariff incentives conditional upon improvements in sustainable production; - including investor obligations in the EU's FTAs with respect to sustainable development and sustainable production of timber & timber products and FRCs [read commodity] - further employing the chapter on trade and sustainable development to promote deforestation-free value chains and sustainable production and management of FRCs [read commodity]; - strengthening enforcement and dispute settlement with respect to the sustainable development provisions, in particular via binding dispute settlements and an essential elements clause; - including in EU FTAs protocols on timber & timber products and FRCs [read commodity] specifying sustainable management provisions and their implementation - EU proposes to both major consumer and producer countries that they negotiate a plurilateral or multilateral framework for the promotion of trade in sustainable timber & timber products and FRCs [read commodity] via the establishment of a mechanism that introduces tariff reduction commitments by consumer countries in exchange for pledges by producer countries to introduce sustainable production methods for specific products".

[309] European Parliament, In depth analysis, How can international trade contribute to sustainable forestry and the preservation of the world's forests through the Green Deal?

Measures	Promotion through trade and investment agreements of trade in legal and sustainable products
Previous policy choices	At the moment the EU has trade agreements in place (fully or partly) with 85 countries, and agreements either pending to enter into force or under negotiation with 46 countries, making the EU the most productive trade negotiating authority globally.[310] The agreements use trade as a lever to improve law enforcement and address forest governance challenges.
Coherence with other trade legislation	The WTO general exception lays down the conditions under which members may take trade-restrictive measures which are 'necessary to protect human, animal or plant life or health', or relating to the exhaustion of natural resources. The measure (e.g. an import restriction or a ban) cannot be applied in a manner that would constitute arbitrary or unjustifiable discrimination between countries where the same conditions prevail, nor can it be a disguised restriction on international trade (Article XX, chapeau). Recent EU trade deals, including the EU-Mercosur provisions on trade in goods, set out that 'environmental measures, such as measures taken to implement multilateral environmental agreements' fall within the general exception, as such we consider this is coherent with other trade legislation.
Coherence with other EU policy objectives	Coherence with the European Green Deal which reaffirms EU commitments to sustainability in the context of its trade policy, with a promise to continue strengthening the mainstreaming of social and environmental sustainability concerns in EU trade agreements. In addition, the Communication on 'Trade for All – towards a more responsible trade and investment policy' calls for priority to be given to the sustainable management and conservation of natural resources (including forests and timber) and to the fight against climate change in free trade agreements (FTAs) and their implementation.[311]
Coherence with other international policy	Coherence with United Nations Strategic Plan for Forests (UNSPF), 2017-2030. Its mission was to promote sustainable forest management and the contribution of forests and trees outside forests to the 2030 Agenda for Sustainable Development. Introducing mandatory certification schemes will contribute to sustainable forest management.
Effectiveness	**TSD** (trade and sustainable development) has been under scrutiny recently with criticisms highlighting it lacks a mechanism for its enforcement and therefore it has little impact on sustainability. More ambitious implementation of it has been supported by many stakeholders. An increasing number of experts are also of the opinion that, in order to be effective, the sustainability related provisions of EU trade agreements should not be dealt through a separate process but that they should be part of the formal dispute settlement mechanism between the trade parties.[312] - The existing evidence indicates that the assessment of environmental impacts linked to **EU FTAs** is not (yet) able to treat the environment with the comprehensiveness and robustness it requires. Consequently, dedicated efforts are needed to ensure that the information underpinning EU FTA negotiations and implementation can correspond to the challenges linked to trade liberalisation.[313] - Support to **producer countries** can help legitimise more stringent interventions, e.g., trade policy measures, by establishing the foundations on which such interventions rest, e.g., good governance and capacity (technical, financial). - Existing EU and MS policies, e.g., FLEGT and the IUU and Minerals Regulations also use **collaborative** **efforts** with producer countries as part of stronger, domestic action. Beyond enabling public action, supporting producer countries can also facilitate the successful implementation of industry supply-chain and jurisdictional initiatives currently ongoing in producer regions making private-sector actors more supportive of such interventions. [314]
Efficiency	Costs of negotiating trade agreements vary but remain limited to administrative costs for time negotiating (including travels) and supporting studies development. Costs of the application of the agreements depend on

[310] https://ec.europa.eu/trade/policy/countries-and-regions/negotiations-and-agreements/index_en.htm
[311] COWI (2018), Feasibility study on options to step up EU action against deforestation, https://iopscience.iop.org/article/10.1088/1748-9326/aa625e/pdf
[312] Institute for European Environmental Policy (2020), https://ieep.eu/uploads/articles/attachments/9c951784-8c12-4ff5-a5c5-ee17c5f9f80b/Trade%20and%20environment_FINAL%20(Jan%202020).pdf?v=63748123099
[313] Institute for European Environmental Policy (2020), https://ieep.eu/uploads/articles/attachments/9c951784-8c12-4ff5-a5c5-ee17c5f9f80b/Trade%20and%20environment_FINAL%20(Jan%202020).pdf?v=63748123099
[314] FERN (2016), What can be learned from EU regulation of other sectors?, https://www.fern.org/fileadmin/uploads/fern/Documents/Developing%20EU%20measures_0.pdf

Measures	Promotion through trade and investment agreements of trade in legal and sustainable products
	the impacts on business of the provisions, there could be no costs impact for business for clauses dealing with general commitments, information exchange and dialogue.[315] These would include adding provisions regarding sustainability in FTAs, and possibly re-negotiating trade agreements with third-party countries. We have not identified a comprehensive overview of trade agreement negotiation costs; however, the following elements have been found: - CETA trade agreement between the EU and Canada was reported to have cost a total of EUR 1,031,452.26. This estimate covers the 2009-2016 period.[316]
Risks around Implementation	The inclusion of commitments to improve trade in sustainably produced commodities and products and of provisions for dialogue and cooperation is clearly feasible; several new FTAs already include them. Negotiating reductions in tariffs for sustainably produced commodities would be distinctly more complex but less so at a bilateral than a multilateral level.[317] Some of these agreements are very lengthy to negotiate and adopt, leading to even longer time before results are visible (e.g. MERCOSUR trade agreement took c. 20 years to agree).
Wider risks and benefits	No wider risks and benefits identified for this policy measure.
Political feasibility	The main constraints are political. Potential constraints lie both with trade partners and with the EU itself. At the EU level, there may for example be reluctance to push action of subsidies aimed at reducing deforestation in a bilateral context due to the potential that this may incite demands from partners for reductions in other subsidies that are important for the EU economy. Successful measures will need to navigate and adapt to these political constraints, finding points of common interest and identifying where parties may be open to push the boundaries a little further.[318] Amending existing trade measures to consider deforestation—e.g., giving preferential access through the Generalised System of Preferences (GSP) or reducing tariffs for agricultural commodities (Brack and Bailey, 2013; COWI et al., 2018)—could ease feasibility concerns, but are unlikely to be very effective, due to the low tariffs on most agricultural products and the limited coverage of the GSP. There are critical legal constraints to more stringent measures, such as tariff increases, sanctions, and bans, imposed, inter alia, by WTO agreements and current EU law.[319]
Compatibility to be combined with another measure	Bilateral Trade Agreements related measures are compatible with all other measures.
European Parliament assessment[320]	The EP report does not consider trade agreements as a separate measure / option/
Overall assessment as standalone measure	FTAs, and in particular sustainable development provisions under these, may have positive effects on halting of deforestation, in particular where these provisions can improve policy and governance factors in partner countries, and thus alleviate the drivers of deforestation and forest degradation. Where trade agreements also encourage the provision of technical assistance to partner countries, they can also support changes in technical factors (e.g. the application of more sustainable forest management techniques, better forest monitoring techniques and potentially also agricultural practices) that can alleviate damage to forests, particularly through agricultural expansion and wood extraction. FTAs could be a potential area for enhancing EU's influence on managing different drivers for deforestation in partner countries. Compliance with existing global instruments

[315] COWI (2018), Feasibility study on options to step up EU action against deforestation, https://iopscience.iop.org/article/10.1088/1748-9326/aa625e/pdf
[316] https://www.europarl.europa.eu/doceo/document/P-8-2016-002914-ASW_EN.html
[317] COWI (2018), Feasibility study on options to step up EU action against deforestation, https://iopscience.iop.org/article/10.1088/1748-9326/aa625e/pdf
[318] Climate Focus (2016), https://climatefocus.com/sites/default/files/ML0616058ENN_002_0.pdf
[319] COWI (2018), Feasibility study on options to step up EU action against deforestation, https://iopscience.iop.org/article/10.1088/1748-9326/aa625e/pdf
[320] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

Measures	Promotion through trade and investment agreements of trade in legal and sustainable products
	on forests is a lever used in the existing FTAs. Potentially, FTAs could prioritise criteria for sustainable supply chains and transparency and access to consumer information as part of trade agreements.[321]
Overall assessment as part of combination of measure	Likely useful in combination with other measures

A VPA-like approach in combination with possible legislative measure(s)

Measures	Development and cooperation assistance to producing countries
Short description	A Voluntary Partnership Agreement (VPA) is a bilateral trade agreement negotiated between the EU and a trade partner country outside the EU for wood products focusing only on legality. This leads to a product assurance scheme operated in the exporting country to certify that certain products exported to the EU comply with a set of negotiated criteria. The VPA approach would include the development of country-specific agreement with trade partner countries. The policy measure would include a partnerships approach through which, in dialogue with relevant stakeholders, the product scope and a set of criteria would be defined to identify products, the trade of which does not contribute to deforestation. There is a question on how these criteria would interplay with the criteria defined at the EU level. The assurance scheme would be developed to certify that products exported to the EU meet the defined criteria.
Who	The **European Commission and VPA countries** engage in negotiations regarding the design of an assurance scheme certifying that products exported to the EU do not have a negative impact on deforestation and other. **Stakeholder consultations** are organised to define the exact scope of products to fall under the scheme as well as a set of EU level defined sustainability criteria with which products need to comply in order to be certified by the product assurance scheme. **VPA countries** are called to set up a robust and credible assurance scheme including effective supply chain controls and mechanisms for verifying products compliance with the criteria set earlier An **independent party** is appointed to conduct audits to assure the proper functioning of the assurance scheme. **Exporters** of relevant products need to certify them before exporting to the EU.
What/ type of instrument	Voluntary Partnership Agreements
Legal feasibility and proportionality	No issue related to legal feasibility identified at an EU level. Similar to the functioning of the existing scheme set up by the FLEGT for timber-product conducting VPAs, for a wider scope of products should be possible. However, in contrast with the FLEGT approach, the different viewpoint taken focusing with sustainability of the products instead of their legality in each of the partner countries might cause internal coherence issues as legally produced products would not necessarily meet the sustainability criteria set. There is a question on how these criteria would interplay with the criteria defined at the EU level. In other words, it is not clear what would be negotiated.
Technical feasibility	Experience from the timber-product VPAs highlights the difficulties entailed not only in concluding VPA agreements but also in developing and implementing a product assurance system afterwards. In the 15 years of implementation of the regulation, only 15 countries have engaged in the VPA process (implementing and negotiating), only 7 have signed VPAs and only one (Indonesia) has and operating system and reached the phase of issuing FLEGT licences. For the countries which have not reached licencing (14 out of 15), which are still covered by the EUTR, the Member States Competent Authorities stated that often it is more difficult to

[321] COWI (2018), Feasibility study on options to step up EU action against deforestation, https://iopscience.iop.org/article/10.1088/1748-9326/aa625e/pdf

Measures	Development and cooperation assistance to producing countries
	gather the necessary information for the EUTR implementation than in non VPA countries. This is opposite from what would be expected and puts in question transparency and results more in general. Furthermore, those engaged in the process do not represent the largest exporters to the EU, leading to limited product coverage. Not all potential partner countries seem to be able to draw the resources to develop a reliable product certification scheme. Negotiations with potential partner countries are reported to take too long to conclude given the complexity of the agreements, but also compounded by capacity and governance limitations on behalf of exporting countries. Furthermore, the outcome of the negotiation process is uncertain and exposed to political volatility in partner countries. The eventual discrepancy between legally and sustainably sourced products may lead to even more difficult negotiation agreements. Most importantly though, the current VPA scheme of FLEGT has resulted in a very poor coverage of EU timber-based imports having no effect on the grand majority of EU imports. As such a large fraction of relevant imports to the EU is not captured by the VPAs while the investments and efforts at EU level are important.
Previous policy choices	Voluntary Partnership Agreements (VPAs) are a key component of the EU Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan to address illegal logging. A VPA is a bilateral trade agreement negotiated between the EU and a timber-exporting country outside the EU leading to a timber legality assurance scheme (TLAS) operated in the exporting country to certify the legality of exported timber-based products. The VPA approach foresees the development of a country-specific product scope and sustainability criteria developed in dialogue with relevant stakeholders. The VPA approach is meant to be a supply side measure working closely together with demand side measures promoting demand for products from legally harvested timber. Product certification via the TLAS is meant to create a product basis to fulfil this demand ensuring the legality of the harvested timber and easing their imports to the EU.
Coherence with other trade legislation	While the current experience with FLEGT focusing on timber legality has brought no conflict with WTO, an approach based on a set of EU-defined sustainability criteria may be more challenging to uphold against WTO rules. In specific, in the absence of a globally accepted definition of sustainability production criteria a set of sustainability criteria defined unilaterally by the EU can be challenged as unevenly discriminating against imports from specific countries. This can be the case, should the design of the VPA system be considered to lead to increasing trade barriers and red tape for the imports of non-certified products.
Coherence with other EU policy objectives	Coherent with the objective of the Communication adopted in July 2019 on Stepping up EU Action to Protect and Restore the World's Forests (Priority 1), the Biodiversity Strategy 2030, and the Long-Term Decarbonisation Strategy, which recognises the importance of forests as natural sinks, however by focusing on legality only this measure would fall short of addressing the challenges identified in the abovementioned strategies, and central at the EU level.
Coherence with other international policy	Coherence with United Nations Strategic Plan for Forests (UNSPF), 2017-2030. Its mission was to promote sustainable forest management and the contribution of forests and trees outside forests to the 2030 Agenda for Sustainable Development.
Effectiveness	Examining the global effectiveness of the FLEGT approach to VPA agreements, overall effectiveness is assessed as being very low. With VPA negotiations initially taking too long to conclude, the import volumes from all VPA-engaged countries represents about 7.5% of the total EU imports of relevant products.[322] Hardly culminating in a functioning TLAS (functioning only for Indonesia currently) and eventually covering only a fraction (3%) of EU timber-based product imports, the overall footprint of the approach in tackling EU-induced deforestation is assessed as being marginal. Moreover, in the absence of a functioning TLAS, there is no indication that the VPA process leads to either a reduction of illegal timber harvesting activities or a reduced deforestation rate in these countries: the engagement in VPA agreements has not necessarily led to a reduced risk-profile for illegally harvested timber for most of the partner countries.

[322] Trade data derived from the Eurostat ComExt database.

Measures	Development and cooperation assistance to producing countries
	The most successful example of implementation of the VPA agreements when it comes to the FLEGT Regulation precedent is the agreement concluded with Indonesia, the only country that is currently fully implementing the FLEGT VPA agreement by means of issuing legality certificates for timber products has observed improved access of its products to the EU market. Nevertheless, even in the case of Indonesia, the proper functioning of the agreement has been jeopardised in the past by political developments in the partner country as overall there is no means of guaranteeing that implementation of the VPA by partner countries is in line with the agreement. Given the broader scope of products addressed under this new measure, and the continuing decline of the EU as a key importer globally, it is expected that the conclusion of negotiations might be an even more challenging and long-term process. Similarly to FLEGT, it might be challenging to conclude VPAs that cover a significant part of the EU imports of relevant products.
Efficiency	The implementation of the, usually lengthy, FLEGT VPA negotiation processes with partner countries is reported to require a significant amount of resources from the European Commission while, as seen earlier, the process hardly culminates in the development of a functioning TLAS. Cost estimates are still being developed under the FC. Information on the aggregate costs of implementing the FLEGT Regulation are limited in the literature. Commission data from 2015 shows EU and MS expenditures close to €620m spend on the VPA processes (covering period from 2003-14). Given only 3 % of EU import is so far covered by a FLEGT license, it appears much cheaper (per unit volume of imports) to place a requirement on EU market operators to ensure legality of imports (i.e. through EUTR) relative to seeking to put in place licencing agreements with multiple exporting countries (noting the implicit assumption that this equates coverage of imports to effectiveness of tackling illegal logging) The cost of reaching agreements on broader product scopes will possibly cost significantly larger amounts of effort to put in place.
Risks around Implementation	Even when considering partner countries willing to enter in VPA negotiations, these are not guaranteed to reach a conclusion (in a reasonable timeframe) or even when they do so, to be implemented as per the agreement. Getting partner countries to agree to an EU-definition of sustainably sourced products will be an additional negotiation challenge as this might be conflicting with their definition of legal timber. Eventually this approach does not guarantee that a good part of the EU imports of products causing a deforestation risk are eventually covered by the VPAs. Additionally, there is a lack of control of local regulation that might evolve to undermine the implementation of the Regulation (e.g. allowing the legalisation of confiscated illegally harvested timber).
Wider risks and benefits	This policy measure, if applied in the deforestation context, would need to involve an approach in which an EU-level definition of sustainability of production conditions for products related to deforestation. This is different from the VPA approach implemented in the FLEGT where the emphasis is placed on the legality of timber products, a definition that can differ from country to country. It is not guaranteed that the main EU trading partners of the selected products will have interest in entering a VPA agreement with the EU. The relative reduction of the importance of the EU as a trade partner globally is likely reducing the incentives of trade partners to enter into a VPA, reducing thus the overall potential of the VPA approach. On the benefits side, for the countries that an assurance scheme is eventually installed, there is the opportunity to certify the origin of products exported to the EU.
Political feasibility	Given the identified low interest of major trade partner countries to enter into VPA agreements, and the underperformance of the FLEGT VPA approach to reduce deforestation globally, the political feasibility of this measure might be considerably curtailed in lack of a means to ensure an improved measure performance. The use of an EU-defined set of sustainability criteria is probable to further undermine the willingness of trade partner countries to engage in VPA-style agreements.

Measures	Development and cooperation assistance to producing countries
Compatibility to be combined with another measure	For this measure to produce an impact, it would have to be combined with demand-targeting measures. Once the standards are defined at the EU level, however, the question arises on what would actually be negotiated in this kind of agreements.
European Parliament assessment[323]	The EP report mentions VPA agreements as a possibility; however, it does not develop on this. . The EP report does not take into account previous experience nor it is based on a cost-benefit analysis.
Overall assessment as standalone measure	Implementation experience shows that the assessed effectiveness of the measure when acting in combination with demand-side measures is still very low. As a standalone measure there seems to be little incentive for deforestation-free-certified product imports and thus this is considered as a very low-ranking measures as a standalone
Overall assessment as part of combination of measure	Even in combination with demand-side measures, this measure seems to be a low-ranked option for reducing EU-induced deforestation.

Mandatory disclosure of information (including corporate non-financial reporting)

Measures	Mandatory disclosure of information (including corporate non-financial reporting)
Short description	This measure would require companies to disclose certain information on environmental protection relating to deforestation and forest degradation, where applicable. The Feasibility study identified and assessed the intervention of 'Mandatory disclosure of information on deforestation proofing on financial investments linked to production or processing of FRCs [read commodities]'. The proofing of investments and disclosure of results is to be made clear in the disclosure and reporting. If there is a risk that an investment could result in deforestation, this needs to be assessed and managed. This can affect public, institutional or private investments. The Feasibility Study identified the objective of this measure to 'Increase transparency in financing of high deforestation risk sectors' affecting the inadequate controls of flows of finance and investment from the EU.
Who	Companies: would need to report information linked to deforestation and forest degradation which will require an input of resources. A process will need to be set up to collect and store the information. It could benefit those companies who have already engaged in disclosing and being transparent with such information.[324] Competent Authorities: would need to ensure companies provide the required information and enforce this measure at national level. Competent Authorities would need to set up a system/the tools to disclose information and information would need to be checked/audited/monitored by a Competent Authority to ensure that the correct information is being reported. These actions require the input of resources. The Feasibility Study suggests "A template for the disclosure should be developed to ensure that specific and comparable information is provided". EU: The European Commission would need to manage the regulation and set out the format and elements of reporting.
What/ type of instrument	A mandatory requirement to disclose information would require regulatory, binding legislation.
Legal feasibility and proportionality	Existing EU legislative acts require companies to disclose certain information on environmental protection (and other areas). For example, Directive 2014/95/EU of the European Parliament and of the Council[325] (the Non-financial Reporting Directive). It has been suggested that a revision of Directive

[323] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

[324] COWI A/S. (2018). Feasibility study on options to step up EU action against deforestation. Luxembourg: Publications Office of the European Union.

[325] Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2014:330:FULL&from=EN

Measures	Mandatory disclosure of information (including corporate non-financial reporting)
	2014/95/EU could introduce standards for deforestation impact, risk or impact (Bager et al. 2020), with the European Parliament resolution[326] also suggesting a stepping up in the quality and scope of non-financial disclosure, more specifically on the reporting of financial institutions on environmental aspects as part of the ongoing revisions to the Directive. Currently, EU rules on non-financial reporting only apply to large public-interest companies with more than 500 employees. This covers approximately 6,000 large companies and groups across the EU. The European Parliament resolution also suggests that the Commission 'promote the integration of forest-related considerations into corporate social responsibility'.
Technical feasibility	An existing initiative for a legislative proposal on substantiating green claims[327] suggests that companies could substantiate their environmental claims using the EU Product and Organisation Environmental Footprint (PEF/OEF)[328]. This has the potential to be applied to this measure as a method for companies to report and disclose information. Regarding timescales, these are likely to be an annual disclosure and included as part of companies' annual reports. The Feasibility study also suggests that the mandatory disclosure template should integrate content and elements from the Soft Commodities Forest Risk Assessment Tool commissioned by UN-REDD for investors[329]. Key commodities could also be targeted. The Feasibility Study highlights that some banks and financial institutions already have guidelines and voluntary commitments, however these are of limited effect. It is also reported that recent assessments show a low commitment in the financial sector to current initiatives, and therefore suggested that this measure will contribute to creating public and peer pressure on investors to proof investments, with the expected behaviour change linked to reducing deforestation.[330] A balance between business confidentiality and practical feasibility will also need to occur. Feasibility depends on the level of detail required and the number of inputs based on the scope of the measure. Existing methods to report under the Non-financial Reporting Directive are flexible, and European and national guidelines have been provided to help companies produce their statements. For example, the UN Global Compact,[331] the OECD guidelines for multinational enterprises[332] and the ISO 26000.[333] The European Commission has also published guidelines on reporting climate-related information in 2019,[334] and guidelines to help companies disclose environmental and social information in 2017.[335]
Previous policy choices	The Feasibility Study assessed the policy option "Mandatory disclosure of information on deforestation proofing of financial investments linked to production or processing of FRCs". This assessment scoped that subjects to the regulation would be EU-based investors with managed assets of more than e.g. 100 M EUR, with part of their portfolio of investments in the production or processing of commodities associated with risks of deforestation and forest degradation taking place in risk geographies. The Non-

[326] European Parliament. (2020). Report with recommendations to the Commission on an EU legal framework to halt and reverse EU-driven global deforestation (2020/2006(INL)).
[327] European Commission (2020). Environmental performance of products & businesses – substantiating claims. [online]. Available from: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12511-Environmental-claims-based-on-environmental-footprint-methods [Accessed 16 October 2020].
[328] More information available here: https://ec.europa.eu/environment/eussd/smgp/
[329] IISD. (2015). UNEP, UN-REDD Programme Address Bank and Investor Risk Policies on Soft Commodities. [online]. Available from: http://sdg.iisd.org/news/unep-un-redd-programme-address-bank-and-investor-risk-policies-on-soft-commodities/
[330] COWI A/S. (2018). Feasibility study on options to step up EU action against deforestation. Luxembourg: Publications Office of the European Union.
[331] United Nations Global Compact. (no date). United Nations Global Compact. [online]. Available from: https://www.unglobalcompact.org/ [Accessed 15 October 2020].
[332] OECD. (no date). Guidelines for multinational companies. [online]. Available from: http://www.oecd.org/corporate/mne/ [Accessed 15 October 2020].
[333] ISO. (no date). ISO 26000 Social Responsibility. [online]. Available from: https://www.iso.org/iso-26000-social-responsibility.html [Accessed 16 October 2020].
[334] European Commission. (2019). Commission guidelines on non-financial reporting. [online]. Available from: https://ec.europa.eu/info/publications/non-financial-reporting-guidelines_en#climate [Accessed 15 October 2020].
[335]European Commission. (2019). Commission guidelines on non-financial reporting. [online]. Available from: https://ec.europa.eu/info/publications/non-financial-reporting-guidelines_en#climate [Accessed 15 October 2020].

Measures	Mandatory disclosure of information (including corporate non-financial reporting)
	financial Reporting Directive currently requires large companies to have to publish reports on the policies they implement in relation to environmental protection; social responsibility and treatment of employees; respect for human rights; anti-corruption and bribery; and diversity on company boards (in terms of age, gender, educational and professional background). The European Parliament's study does not assess this measure specifically. However, the European Parliament's study notes the Carbon Disclosure Project[336] as an existing private sector initiative. The Feasibility Study notes that it's measure of 'Mandatory disclosure of information on deforestation proofing of financial investments linked to production or processing of commodities associated with deforestation is built upon existing disclosure initiatives used by companies, such as the Carbon Disclosure Project (which also now targets deforestation).
Coherence with other trade legislation	The reporting itself should not act as a barrier to trade legislation, however any restriction placed on investments could be seen as a barrier, particularly if these are investments from specific countries/areas.
Coherence with other EU policy objectives	This measure is coherent with the Green Claims Initiative[337] and the Non-Financial Reporting Directive (Directive 2014/95/EU)[338] requiring companies to publish reports on the policies they implement in relation to environmental protection (amongst other requirements). A review of this is currently being undertaken by the Commission. This measure is also coherent with the EU Action Plan on financing sustainable growth,[339] and with the European Parliament resolution of 11 September 2018 on transparent and accountable management of natural resources in developing countries: the case of forests (2018/2003(INI))[340], which "Calls for the EU to adopt a rule on mandatory disclosure of information on deforestation that provides proof of financial investments linked to the production or processing of forest risk commodities". Depending on the choice of scope, SME investors may or may not be included in the measure. This may have an impact on EU policies concerning SME EU Policy. This measure is also coherent with the EU's Regulation on Investor Disclosure[341] on sustainability risks and due diligence, with "Regulation on Disclosures Relating to Sustainable Investments and Sustainability Risks" part of the Action Plan on Financing Sustainable Growth.
Coherence with other international policy	The Principles for Responsible Investment helps investors align their responsible investment practices with the broader sustainable objectives of society (as defined by the SDGs).
Effectiveness	Whether information requirements imposed on investors will actually result in reduced or halted deforestation and forest degradation is a key concern (expressed in the Feasibility Study). The scoping of the size of investments/operators/companies included would need to be determined and may have an impact on effectiveness. Whilst compliance checks and verification that information has been disclosed may increase effectiveness, this will increase the administrative burden. This measure will create public and peer pressure on investors to proof investments, rather than avoiding deforestation itself. It therefore requires behaviour change to actually reduce/halt deforestation and forest degradation, as noted by the Feasibility Study. The regulating of the investments themselves or banning certain investments may result in a greater impact/meeting of objectives, but such a measure would have its own downsides and implications (outlined in the Feasibility Study).

[336] https://www.cdp.net/en

[337] [337] European Commission (2020). Environmental performance of products & businesses – substantiating claims. [online]. Available from: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12511-Environmental-claims-based-on-environmental-footprint-methods [Accessed 16 October 2020].

[338] Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2014:330:FULL&from=EN

[339] European Commission. (2018). Communication from the Commission. Action Plan: Financing Sustainable Growth. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018DC0097

[340] European Parliament Resolution of 11 September 2018 on transparent and accountable management of natural resources in developing countries: the case of forests (2018/2003(INI)). https://www.europarl.europa.eu/doceo/document/TA-8-2018-0333_EN.pdf

[341] Regulation 9UE) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.317.01.0001.01.ENG&toc=OJ:L:2019:317:TOC

Measures	Mandatory disclosure of information (including corporate non-financial reporting)
Efficiency	A clear template/process will need to be set up to ensure the efficiency of the measure itself. In terms of efficiency in achieving a reduction in deforestation and forest degradation, it is not clear that this measure would result in benefits. Therefore, this would not be a very efficient measure because it would trigger administrative costs for very uncertain benefits.
Risks around Implementation	If SMEs are included in the measure and required to report, there is the risk that the administrative burden may outweigh the achievement of reducing or halting deforestation or forest degradation. The Feasibility Study also highlights the risk associated with business confidentiality, should a high level of detail be required to be reported on. The mandatory disclosure of information would require public and private operators to disclose information. The European Commission would publish details on the information operators would be required to mandatorily disclose. As determined by the Feasibility Study, this would include the 'mandatory disclosure of information on deforestation proofing on financial investments linked to production or processing of commodities and would be disclosed annually and the Commission would communicate information 'on how to gather and report information on land footprint, deforestation, or the legality of the commodities. The legislation would be binding, compared to the existing non-binding guidelines on non-Financial reporting. Information on investments, risks and risk mitigation with proof. The Feasibility study also suggests that the mandatory disclosure template should integrate content and elements from the Soft Commodities Forest Risk Assessment Tool commissioned by UN-REDD for investors[342]. Key commodities could also be targeted. Drawing on the methodology outlines in the Feasibility Study, for example, if an operator wanted to make an investment relating to cocoa from the Ivory Coast, the risks of this investment being associated with deforestation would need to be assessed. This would be done by identifying whether the investment takes place in a risk area/geography (here, the Ivory Coast). Risk geographies would need to be identified and its determined whether this investment in this commodity would take place in a risk area. Similarly, if an investment was identified as being linked to the production and/or supply of soy from Brazil, it would need to be determined if that area of Brazil was an at risk geography and the steps taken by the company to ensure that the investment is not linked with deforestation. The commodity linked to the investment could not be produced on land or facilities located within risk geographies and it is suggested that both illegal and legal deforestation are included in the reporting of risk and mitigations taken. Whilst such investments taking place in risk geographies would not be prohibited under this measure, the information on this investment must be reported to the European Commission, and likely published. The Soft Commodities Forest Risk Assessment Tool is comprised of three categories (policy scope, policy strength and implementation, monitoring & reporting) and has 18 individually-weighted indicators, presented in the footnote.[343] Benchmarking can also take place using such a system, so that financial institutions (and other actors) can be ranked against one another.
Wider risks and benefits	Companies already engaged in reporting and transparency activities would benefit, as they would likely receive less of an increase in costs associated with the measure due to reporting already being accounted for in their business model.
Political feasibility	The Feasibility Study highlights that an EU law on investors and subsidiaries will expose investors to scrutiny. In the Feasibility Study, the intervention scored a middle score on political feasibility, reflecting stakeholder buy-in into the intervention. Incorporating a preference for supporting existing initiatives would be expected to increase acceptance by lawmakers and the sector.[344] A reduced scope (e.g. to larger funds) needs to be taken into consideration.
Compatibility to be combined with another measure	This measure has the compatibility to be combined with other measures, such as voluntary due diligence, voluntary and mandatory labelling, as well as provide some support/be supported by promotion through trade and investment agreements of trade in legal and sustainable products.

[342] IISD. (2015). *UNEP, UN-REDD Programme Address Bank and Investor Risk Policies on Soft Commodities.* [online]. Available from: http://sdg.iisd.org/news/unep-un-redd-programme-address-bank-and-investor-risk-policies-on-soft-commodities/; https://naturalcapital.finance/wp-content/uploads/2018/11/NCD-SOFT-COMMODITIES-RISK-FULL.pdf

[343] https://naturalcapital.finance/wp-content/uploads/2018/11/NCD-SOFT-COMMODITIES-RISK-FULL.pdf

[344] COWI A/S. (2018). Feasibility study on options to step up EU action against deforestation. Luxembourg: Publications Office of the European Union.

Measures	Mandatory disclosure of information (including corporate non-financial reporting)
European Parliament assessment[345]	The EP report does not consider mandatory disclosure in its policy options.
Overall assessment as standalone measure	As it has previously been assessed that this measure would unlikely have a significant contribution in achieving a reduction of halting of deforestation,[346] it would need to be combined with another measure with a higher likelihood of achieving the objectives.
Overall assessment as part of combination of measure	Likely not effective as a standalone measure, as whether its implementation will result in achieving the objectives is uncertain. Some elements of this measure may be included in the revision of the Non-Financial Reporting Directive.

Consumer information campaigns in the EU

Measures	Consumer information campaigns in the EU
Short description	This measure would involve public oriented initiatives for example supporting meat and dairy alternatives, reducing unsustainable consumption of commodities and products through increasing education and awareness campaigns relating to health/nutrition and consumption. These would focus on the promotion of sustainable diets and education for consumers relating to consumption patterns and health. This would be obtained through awareness raising campaigns and engagement with businesses.
Who	**European Commission** would be in charge of defining an EU wide model. An EU wide campaign declined in all EU languages could also be implemented. **Member States** would be in charge of running campaigns. **Consumer** awareness would be raised through education and awareness campaigns.
What/ type of instrument	A non-legislative instrument would involve awareness raising campaigns and education on sustainable diet, health/nutrition and consumption and.
Legal feasibility and proportionality	It is legally feasible to introduce education campaigns, these are used often at EU level to guide consumer behaviour. Every year, the European Commission's Civil Protection and Humanitarian Aid Operations runs high impact communication campaigns to raise awareness and enhance understanding and support of humanitarian aid values among the EU citizens. The campaigns also inform citizens about the EU's role in civil protection. These can be done for sustainable consumption of food for deforestation. On average, a recent study on sustainable food found that most consumers find that their government is not doing enough to encourage/ promote food sustainability. (BEUC, 2020)
Technical feasibility	Implementation of this option would be straightforward - campaigns can be run through regular advertisement (i.e. posters), social media, education in schools, TV, Media and so on.
Previous policy choices	Although a number of information, education, and training initiatives are already underway at EU, national and local level, to date, their effect in terms of influencing long-term consumption patterns among target groups has been relatively limited. Various campaigns are taking place in individual member states. Examples of MS campaigns on this are: - UK five a day campaign: this campaign focused on healthy eating rather than sustainable consumption. The campaign cost approximately £1 million a year, it was launched in 2003 and has been ongoing since then. Evidence from this however, suggests that there has not been a significant increase in fruit and vegetable consumption since its implementation in 2003.[347]

[345] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

[346] COWI A/S. (2018). Feasibility study on options to step up EU action against deforestation. Luxembourg: Publications Office of the European Union.

[347] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/772434/NDNS_UK_Y1-9_report.pdf

Measures	Consumer information campaigns in the EU
	- Meat-free-Mondays: Ghent, in the Flanders region of Belgium was one of the first cities in the world to implement a citywide initiative to go meat free for a day in 2009. In the UK, Meat-free-Mondays was also launched 2009 by Paul, Stella and Mary McCartney as a simple and straightforward idea to show everyone the value of eating less meat and to make it easier for us all to do so. Costs on these campaigns are not available online and little research has been carried out to analyse the effectiveness of these campaigns. Nevertheless, a recent study analysing the effects of Meat-free Mondays in Ohio State University found that the campaign had no effect in reducing meat consumption amongst students, neither on Monday nor during the rest of the week. The Austrian Environment Ministry in partnership with other ministries, retailers and NGOs, sponsors the annual Sustainability Weeks event to promote organic, locally produced and fair trade goods under the theme "That's the Way to do It: Sustainably". The campaign launched in 2004 and is ongoing, but information on costs are not available online. Evaluations found that the campaign increased consumer awareness, particularly among women, and prompted greater numbers of retailers to join in successive years. - The German Development Co-operation Ministry mounted a large-scale campaign (€3.3 million) between 2003-2005 to promote consumption of fair-trade goods under the theme Fair Feels Good. Results from this campaign showed that between 2003-2007 the number of buyers of Fair-Trade products had risen by 9.5%. [348] - At EU level, the European Commission launched the 'Generation Awake' awareness raising campaign on resource efficiency, implemented between 2011 and spring 2015. The campaign targeted young European consumers and families with small children and aimed to encourage them to use resources sustainably to minimize impacts on the environment. An external evaluation carried out in 2014 found that the campaign had attracted a considerable share of the EU population, raised awareness on resource efficiency, and – to the extent expected from projects of this scale – triggered behavioural changes among its audiences. No information was found on the cost of implementing this campaign.
Coherence with other trade legislation	An EU campaign to promote sustainable food consumption would not interfere with other trade legislation.
Coherence with other EU policy objectives	Within the EU, production, processing, distribution and consumption of food, and their impacts, fall under a wide range of policy areas and instruments. This includes the Common Agricultural Policy (CAP) and Common Fisheries Policy, but also policies such as environment and conservation policies, health and food safety, research and innovation, single market and competition, trade and development policies. Also, highly relevant are the EU's commitments towards the UNs sustainable development goals (SDGs) and COP21. A number of calls for a more integrated and holistic EU food policy and/or a better coordination of existing policies have been made in recent years. Also, the recent European Commission's reflection paper 'Towards a Sustainable Europe by 2030',expresses the need for "a comprehensive approach entailing a genuine change in the way we produce, transform, consume and distribute food by accelerating the transition to a sustainable food system based on circular economy principles and making innovative, healthy, environment and animal welfare-friendly, safe and nutritious food production one of our key European trademarks." Moreover, it calls for "ensuring a socially fair transition." Similarly, President-elect Von der Leyen highlighted in her political guidelines the need for a comprehensive "new 'Farm to Fork Strategy' on sustainable food along the whole value chain" as well as "a just transition for all."[349]
Coherence with other international policy	Introducing information-based campaigns can complement other policies to spur sustainable consumption. Consumer information and education tend to be non-invasive policy instruments which do not conflict with other policies.
Effectiveness	In terms of the success of campaigns to promote greater consumption of fruit and vegetable, an evaluation of the five-a-day campaign in the UK has shown that, on the one hand the five a day message remains one of the most memorable and simplest diet related advertising in the country, but on the other hand, a decade after its introduction only about a third of UK adults consume five portions of fruit and vegetables per day. Evidence also shows that consumer choices are not only made based on best available information, but consumer behaviour is constrained and formed by many actors and aspects which are together referred to as 'food environment', and include e.g. the choice architecture (i.e. the way in which food choice is presented to nudge consumers towards preferred choices), norms and

[348] http://www.diva-portal.org/smash/get/diva2:288781/FULLTEXT01.pdf

[349] European Commission (2019), Towards a Sustainable Europe by 2030, https://ec.europa.eu/commission/sites/beta-political/files/rp_sustainable_europe_30-01_en_web.pdf

Measures	Consumer information campaigns in the EU
	conventions, cost, convenience, and habit. For this reason, information provision, fact-based education, and awareness campaigns are on their own insufficient to achieve the required behavioural change towards sustainable consumer choices.[350]
Efficiency	Cost of a campaign will depend on its scope, type of media utilised, length and reach: costs vary greatly depending on the campaign - an example is " Stoptober" for smokers, a campaign launched in 2012 by the UK government. The costs of Stoptober were £5.8 million and the breakdown of these costs were as follows: Media advertising (television, radio, press, digital, outdoor, media partnerships) £3380,000; Public relations activity £70,000; Local and regional activation of the campaign among participating organisations including the national Stop Smoking Services £500,000; Fees for development and fulfilment of all creatives and products including advertising, website, and digital tools £1820,000; Follow on communications £30,000. This campaign led to more than 300,000 smokers to try to quite in October 2012, with the overall estimate of additional past-month quitting attributed to the campaign being 4.15%, and the incremental cost-effectiveness ratio being £557.90 for the population, suggesting that the campaign was efficient. [351] To implement an effective awareness campaign at the European level, several aspects must be considered: the content, the messenger, the choice of media and tone; targeting a specific audience with a specific message, as it is cheaper and more effective than extensive advertising campaigns. It is important to be able to identify key consumer segments and markets for tailor made information campaigns and adapt campaigns by using relevant communication channels (i.e. social marketing websites for younger consumers). Furthermore, information campaigns are in general more costly to implement than tools such as implementing an environmental tax or product standard. Awareness campaigns are usually short-term, media-oriented actions that focus on a specific issue. Despite, their high initial implementation costs, awareness campaign can be quite effective under certain conditions. Research shows that rather than governments alone launching an information campaign, joint initiatives can be particularly effective. This is because the partners can often more effectively communicate with target audiences, drawing on specific experiences, resources, and knowledge. Collaboration with NGOs could render information campaigns more effective as NGOs usually have in-depth knowledge of local and/or specific communities.[352]
Risks around Implementation	The behavioural approach may lead policy makers into competition with commercial marketing. most actions targeting consumers therefore require careful adaptation, which can vary according to country or even by region. This is an obstacle to centralized European action on consumer behaviour. Moreover, the social incentives for sustainable consumption often develop at the local level or by the action of communities of citizens.[353]
Wider risks and benefits	There are not many risks associated with information campaigns. Benefits of information campaigns can include the generation of widespread interest in the issue of deforestation and sustainable consumption. Studies have shown that increased awareness also leads to increased acceptance to other policy options on behalf of consumers. Awareness-raising and information campaigns targeted at a wide range of stakeholders including farmers, food providers, restaurants and retail (for example lifelong learning schemes for farmers and making citizens aware of the real prices of food) are key. Behavioural change campaigns can be used to reinforce and propose morals associated with food.[354]
Political feasibility	Political acceptability of information campaigns tends to be less sensitive compared to market-based policies such as taxes as they are not invasive. Therefore, political feasibility can be deemed as High.

[350] European Commission (2020), Towards a Sustainable Food System, https://ec.europa.eu/info/sites/info/files/research_and_innovation/groups/sam/scientific_opinion_-_sustainable_food_system_march_2020.pdf

[351] Brown et al (2014), How effective and cost-effective was the national mass media smoking cessation campaign 'Stoptober'?, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3929003/

[352] European Commission (2012), Policies to encourage sustainable consumption, https://ec.europa.eu/environment/eussd/pdf/report_22082012.pdf

[353] OECD, 2018, Promoting Sustainable Consumption, https://www.oecd.org/greengrowth/40317373.pdf

[354] OECD, 2018, Promoting Sustainable Consumption, https://www.oecd.org/greengrowth/40317373.pdf

Measures	Consumer information campaigns in the EU
Compatibility to be combined with another measure	Education and information do not have to be used as stand-alone policies, in fact evidence has shown that these alone are not enough to change consumption patterns. These should be complemented with other proposed policy options
Has this been addressed in the EP legislative report? If so, how?	Has not been addressed in the EP legislative report.
Overall assessment as standalone measure	Not effective enough to change consumption patterns alone - people's behaviour and choices are not only driven by their knowledge but by a wide variety of factors. Price, marketing, availability of products and habit are all factors that should be taken into consideration when looking at consumer choice, and public authorities face tough competition when competing with companies for consumer attention.[355] This is shown by the mixed evidence regarding outcomes of information campaigns, which worked in some cases (such as the fair feels good campaign in Germany or he Austrian Sustainability Weeks event) but not in other cases (such as the UK five a day campaign or meat-free Monday campaign).
Overall assessment as part of combination of measure	This can be an effective tool when combined with other measures such as eco-labels, market-based policy interventions as well as supply-side interventions. Increased awareness of the problem can have an impact; however, it is important that consumers have readily accessible alternatives to beef products in order for them to shift their behaviour. Furthermore, supply-side measures would also be needed to have a big impact. A recent OECD report supports a combination of awareness campaigns with market-based instruments, indicating that information campaigns which raise people's environmental awareness may also increase the political acceptability of policies, facilitating their implementation.[356]

Green Diplomacy

Measures	
Short description	The Green Diplomacy Network was launched in June 2003, this is an initiative aimed at promoting the integration of environmental efforts into external relations through the creation of an informal network. The Network consists of officials dealing with sustainable development and environmental issues in the EU's Ministries of Foreign Affairs and their diplomatic missions including the European External Action Service (EEAS) and the EU Delegations. Since January 2012, the Network is chaired by the EEAS. The aim of this measure would be to reduce deforestation through green diplomacy by promoting sustainable forest management internationally.
Who	The **European Commission** will be responsible to promote green diplomacy internationally. **NGOs** and **International Organisations** will be involved in collaborating with nations and the EU in order to achieve consensus on issues related to deforestation.
What/ type of instrument	International sustainability initiative.
Legal feasibility and proportionality	No issues related to legal feasibility were identified in regard to green diplomacy.
Technical feasibility	The Green Diplomacy Network established in 2003 could be used as a platform to use green diplomacy as a measure to reduce deforestation worldwide.
Previous policy choices	Green Diplomacy launched in 2003, however there is no specific relation to deforestation identified to date regarding this. Furthermore, there is no global legal instrument in which forests are the main subject; nor there is any international treaty in which all environmental, social and economic aspects of forest ecosystems are included. However, some international agreements on other topics such as Climate Change have been established. For instance:

[355] OECD, 2018, Promoting Sustainable Consumption, https://www.oecd.org/greengrowth/40317373.pdf
[356] OECD, 2018, Promoting Sustainable Consumption, https://www.oecd.org/greengrowth/40317373.pdf

Measures	
	• **The Paris Agreement:** In December 2015, after more than two decades of negotiations, governments adopted the first universal agreement to combat climate change, at the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) in Paris. The Paris Agreement strives to keep the increase in global average temperature to 'well below' 2°C, while trying to maintain it at 1.5°C above pre-industrial levels. To accomplish this goal, Parties aim to reach global peaking of GHG emissions as soon as possible, and to achieve net zero emissions in the second half of the century. Financial instruments will be utilised to obtain these goals. For the first time in history, all Parties which signed the agreement had to make ambitious efforts to reduce GHG emissions, in line with their individual situations and the possibilities available to them. As part of the agreement, every five years all countries have to renew and upgrade their climate action plans and communicate them in a transparent way so that the collective progress can be assessed. In particular, the most vulnerable, the Least Developed Countries and Small Island Developing States, will be supported both financially and via capacity-building. The Agreement entered into force in November 2016 after it had been ratified by the threshold number of 55 governments representing at least 55% of total global GHG emissions. All EU countries ratified the Paris Agreement.[357] • **The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITIES Convention):** This international agreement was signed by the EU in 2015, and its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Since trade in wild animals and plants crosses borders between countries, the effort to regulate it requires international cooperation to safeguard certain species from over-exploitation, which is why CITES was created. Today, it provides varying degrees of protection to more than 37,000 species of animals and plants, whether they are traded as live specimens, fur coats or dried herbs. Although this agreement has received a lot of criticism, it is an important first step as it regulates international wildlife trade, which was largely free-for-all before its implementation.[358] • **Stockholm convention on Persistent Organic Pollutants:** Adopted in 2001, and entered into force in May 2004, the aim of this agreement is to protect human health and the environment from persistent organic pollutants. The convention requires its parties to take measures to eliminate or reduce the release of POPs into the environment. An evaluation carried out to analyse its effectiveness in the period 2010-2017 found that the Stockholm Convention provided an effective and dynamic framework to regulate POPs throughout their lifecycle, addressing the production, use, import, export, releases, and disposal of these chemicals worldwide. Monitoring results from the evaluation indicated that regulations targeting POPs succeeded in reducing levels of POPs in humans and the environment. This is another example of a successful green diplomacy initiative which helped tackle an important global environmental challenge.
Coherence with other trade legislation	No identified breach of WTO trade legislation related to green diplomacy. Policy-wise, the fact that there are existing multilateral agreements related to deforestation and forest degradation is beneficial as it shows likely acceptance of regulatory measures and the reduced likelihood of a challenge in front of the WTO.
Coherence with other EU policy objectives	This would be in line with the EU green deal - promoting "green deal diplomacy" as well as the farm to fork strategy. Furthermore, it would be coherent with the FLEGT action plan and the EU Timber Regulation as it would promote the reduction of global deforestation.
Coherence with Sustainable Development Goals	Coherence with: - Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements - Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally. These would be obtained through the reduction of deforestation potentially achieved through increased global cooperation regarding issues related to deforestation.
Coherence with other international policy	Green diplomacy would be coherent with international policy and agreements and be aligned with objectives of international agreements by supporting their overall goals and targets of reducing forest

357 https://www.europarl.europa.eu/factsheets/en/sheet/72/combating-climate-change

358 https://ec.europa.eu/environment/cites/background_en.htm#:~:text=The%20Convention%20on%20International%20Trade,are%20Parties%20to%20the%20Convention.

Measures	
	degradation and deforestation. Some of the key international policies include: a. New York declaration on forests: https://unfccc.int/media/514893/new-york-declaration-on-forests_26-nov-2015.pdf NON BINDING b. UN REDD: Less countries involved: https://www.un-redd.org/ourimpact NON BINDING c. UN Strategic plan for forests 2017 -2030: https://www.un.org/esa/forests/documents/un-strategic-plan-for-forests-2030/index.html d. Agenda 2030 — Sustainable Development Goals: https://sdg.iisd.org/commentary/guest-articles/international-day-of-forests-forests-role-in-achieving-the-2030-agenda-for-sustainable-development/
Effectiveness	While EU policies can promote environmentally and socially sustainable practice and avoid precipitating damage beyond its borders, the EU can also learn from other countries' and regions' experiences and approaches to addressing environmental challenges. Furthermore, since the EU only accounts for 9% of global emissions, achieving real impact worldwide will require strong collective action. In EU circles, the Green Diplomacy Network is seen as a successful example of how to combine the strength of EU diplomatic structures overseas in favour of more effective outreach and intelligence activities. The Green Development Network could thus serve as a model to tackle problems related to deforestation. Engaging jointly in outreach activities and intelligence gathering in this domain would allow the EU to raise the profile of deforestation globally.[359] Evidence from other green diplomacy initiatives such as the Paris Agreement shows that this agreement set in motion a set of irreversible mechanisms pertaining to the creation of new climate policies, such as the five-year cycle of Nationally Determined Contributions (NDCs) which embody efforts by each country to reduce national emissions and adapt to the impacts of climate change.[360] Furthermore, other successful international agreements aimed at tackling environmental challenges include the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITIES Convention) and Stockholm convention on Persistent Organic Pollutants. These show that international agreements and cooperation represent a potentially effective tool in addressing environmental challenges, suggesting that an international treaty aimed at tackling deforestation could also represent an effective policy measure to tackle this complex international problem.
Efficiency	This measure can be considered efficient. Whilst there will likely be high administrative costs and resources required to set up international agreements or to set up an international treaty on deforestation, it is likely that there will be a reduction in deforestation and forest degradation due to international commitment in resolving the product.
Risks around Implementation	These kinds of measures under green diplomacy are feasible; similar activities have taken place and are still under way for timber, and many discussion forums already exist within which to raise these issues. If these efforts lead to wider understanding, broad agreement on concepts such as zero-deforestation or sustainability, and other countries taking similar action to promote production of and trade in legal and sustainable commodities, they would also be effective. Clearly, this may take some time; but by themselves, they require fewer resources than many of the other policy measures.[361] The role of the EU would be to encourage international cooperation with other countries to tackle deforestation. Recurring meetings which could take place on an annual or bi-annual basis could be set-up to establish goals and track progress with regards to deforestation. International cooperation could either cover all commodities or it could cover single commodities.
Wider risks and benefits	The EU encourages dialogue and international cooperation with other major producer and consumer countries of commodities which might be linked to deforestation to increase awareness, profile, understanding and convergence on zero-deforestation and sustainability definitions and standards and to encourage similar actions to those described in relevant interventions elsewhere. This would include in particular partnership agreements on commodities, public procurement policies, encouragement for business initiatives, and transparency platforms. This helps to reduce leakage and increases the global impact of interventions. Overall, supply-side interventions would clearly benefit from additional involvement and support from other development cooperation partners. Considering demand-side interventions these will be more effective if other consumer countries adopt them or similar measures. In

[359] https://www.egmontinstitute.be/green-diplomacy-network-what-is-in-a-name/
[360] https://iopscience.iop.org/article/10.1088/1748-9326/ab865c/pdf
[361] COWI (2018), Feasibility study on options to step up EU action against deforestation, https://iopscience.iop.org/article/10.1088/1748-9326/aa625e/pdf

Measures	
	the absence of action by other major consumer countries, the risk of 'leakage' or trade diversion to less scrupulous markets could undermine the effectiveness of EU action.[362]
Political feasibility	The political acceptance would depend on the willingness to engage with a range of other countries on deforestation. However, these kinds of information sharing and discussion initiatives have taken place and are still under way for timber and many other topics, and not much new efforts would be needed. Green diplomacy is already widely used to promote public policy aims, including for legal and sustainable timber, throughout the EU. Many public sector bodies already have procurement policies for food.[363]
Compatibility to be combined with another measure	Green diplomacy can be easily combined with other measures
Has this been addressed in the EP legislative report? If so, how?	Green diplomacy has not been addressed in the EP legislative report as a possible measure.
Overall assessment as standalone measure	Alone it is not sufficient to reduce deforestation - it is most effective when combined with other measures such as DD, certification schemes and labelling.
Overall assessment as part of combination of measure	Green diplomacy would work best when combined with certification schemes, labelling and support to producer countries to tackle deforestation.

Other - US approach – Schatz Bill

Measures	Other – US approach – Schatz Bill
Short description	The Schatz Bill is a draft legislation in the US which aims to combat illegal deforestation through prohibiting products produced where illegal deforestation is taking place. To achieve this, mandatory due diligence is required from importers, with lists also published detailed countries and subnational regions considered to have credible risk that illegal deforestation is occurring (or has occurred after the date of legislature enactment). Importers will be required to prove that their products do not come from such areas. Please note that the following analysis is based on a draft of the Schatz Bill and information on its current state of play obtained from public sources. Similar to the draft Schatz Bill in the US as an amendment to The Tariff Act of 1930, binding legislation would be introduced to prohibit the imports of commodities which are produced on land where illegal deforestation is taking place. In line with the draft Schatz Bill, the legislation would cover commodities including any article (raw or processed) or containing a component or ingredient that has been produced on land undergoing deforestation.[364] Under the introduced law, it would be unlawful for any person to import such a commodity after the legislation is brought into force. The measure would be implemented through a reporting requirement and 'reasonable care' standard.
Who	EU: The EU would need to provide the legislative framework for member states to operate in and provide clear guidance for national governments and competent authorities to enforce the measure. A review of the list of commodities and countries would need to be undertaken over a given period of time. Companies: Companies would be required to provide proof that the products they import do not come from areas subjected to deforestation. Competent Authorities/Customs and Border Forces: the legislation would need to be enforced at national level by customs and border forces. The checking of certifications and approvals would also need to be undertaken. Communication between national governments and customs and/or border forces would need to be sufficient.

[362] COWI (2018), Feasibility study on options to step up EU action against deforestation, https://iopscience.iop.org/article/10.1088/1748-9326/aa625e/pdf

[363] https://ec.europa.eu/info/sites/info/files/communication-eu-action-protect-restore-forests_en.pdf

[364] Discussion Draft (2019) A Bill to combat illegal deforestation by prohibiting the importation of commodities that are produced on land undergoing illegal deforestation, and for other purposes. 116th Congress, 1st Session. Senate of the United States.

Measures	Other – US approach – Schatz Bill
What/ type of instrument	This would be a legislative, binding measure.
Legal feasibility and proportionality	This measure would draw on the burden of proof, with importers required to prove that their products do not come from areas subject to illegal deforestation. Customs controls throughout the EU would need to enforce and follow the same standards, with the Commission perhaps needing to set up a customs partnership within the Union.[365] It is uncertain whether the existing EU-level framework has the foundations to support such a measure, in the same way the US legislative framework does. This measure is proportional and conforms with the subsidiarity principle, by reason of scale.
Technical feasibility	For this to be a workable option, several aspects need to be considered in relation to technical feasibility: • The list of commodities provided, where imports of any product on this list can only occur where a person has certification that reasonable care has been taken to identify the point of origin of the commodity and that such a point of origin was not an area of illegal deforestation. • The list of countries is provided where commodities can only be imported provided information shows supply chain information relating to the point of origin, and that the point of origin has not seen illegal deforestation. The list of commodities can be determined, but the draft Schatz Bill includes palm oil, soy products, beef and cattle products, and pulp and paper, although another source suggests that cocoa and rubber may also be included.[366] Supply chains are therefore analysed to ensure compliance with the law. It may a challenge to collect such information, as well as enforcing the measure.
Previous policy choices	Existing policies that include the prohibition of imports include CITES,[367] and the EUTR which prohibits the placing on the market of illegally harvested timber or timber products derived from such timber, with FLEGT-licensed timber an exception. The Conflict Minerals Regulation[368] also prohibit the placing of illegal products on the EU market, with importers required to exercise due diligence (Bager et al. 2020). However, for commodities other than timber, there are currently no rules in place that prohibit placing commodities related to deforestation on the Union market.
Coherence with other trade legislation	This measure will need to be assessed for WTO compliance, with it potentially a protectionist measure. For the US, the draft Schatz Bill draws upon the US Lacy Act that bans trafficking in illegal wildlife, plant and plant products.[369] In the EU, the measure will likely be coherent with CITES.[370] The WTO allows for exemptions where the protection of human/plant/animal and lift (Article XX(b)), as well as Article XX (g) allowing for the conservation of exhaustible natural common resources. This measure would need to be based on concrete, science-based considerations and restrictions would need to apply both abroad and domestically.
Coherence with other EU policy objectives	A report recently called on the Commission to forbid the public purchase of imported products resulting in deforestation, ensuring this occurs within the framework of the WTO Plurilateral Agreement on Government Procurement (GPA) and Directive 2014/24 on public procurement.[371] Recent calls at the most recent framework of the European Green Deal demanded that products coming from deforestation, should be prohibited from entering the Union market.[372]

[365] European Parliament.
[366] https://www.forest-trends.org/blog/meaningful-supply-chain-legislation-lessons-from-the-us-tariffs-act-for-demand-for-regulating-the-trade-in-forest-risk-commodities/
[367] CITES. (no date). What is CITES? [online]. Available from: https://www.cites.org/eng/disc/what.php [Accessed 15 October 2020].
[368] https://ec.europa.eu/trade/policy/in-focus/conflict-minerals-regulation/index_en.htm
[369] Union of Concerned Scientists. (2015). The Lacey Act's Effectiveness in Reducing Illegal Wood Imports. [online]. Available from: https://www.ucsusa.org/sites/default/files/attach/2015/10/ucs-lacey-report-2015.pdf [Accessed 15 October 2020].
[370] CITES. (no date). What is CITES? [online]. Available from: https://www.cites.org/eng/disc/what.php [Accessed 15 October 2020].
[371] Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02014L0024-20200101
[372] European Parliament. (2020). Report with recommendations to the Commission on an EU legal framework to halt and reverse EU-driven global deforestation (2020/2006(INL)).

Measures	Other – US approach – Schatz Bill
	The EU also has prohibited and restricted goods, including endangered species which are protected by the CITES convention,[373] amongst others. Further examples of existing EU regulations include the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)[374], Biocidal Products Regulation,[375] and Prior Informed Consent Regulation[376], with these regulations prohibiting or restricting products being placed on the EU market.
Coherence with Sustainable Development Goals	This measure is coherent with SDG 15: 'Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss'.[377]
Coherence with other international policy	The UK is also currently developing its own due diligence legislation, with organisations recommending a review of the US legal framework for possible integration.[378] The US Lacey Act is drawn upon in the draft Schatz Bill, which bands trafficking in illegal wildlife, plant and plant products, and also draws upon the Trade Facilitation and Trade Enforcement Act (TFFA), which grants the US Customs and Border Protection Agency the power to exclude whole categories of products from the US market, provided there is sufficient risk of them being produced with forced labour.[379]
Effectiveness	The measure would likely be effective at achieving a reduction in deforestation and forest degradation, as it would be addressed at the point of product import and throughout the EU. In line with WTO trade rules, this measure will need to be implemented on both products imported into, as well as within the EU. This means this measure may also have the potential to be effective at addressing deforestation within the EU.
Efficiency	This measure can be considered efficient. Whilst there will likely be high administrative costs and resources required, it is likely that there will be a reduction in deforestation and forest degradation due to the market effectively becoming closed, if imports do not comply.
Risks around Implementation	With this measure, access to the market is restricted through the prohibiting of products. There is the risk that customs and border controls would not enforce the same rules and protectionism occurs, where domestic and international imports and not treated the same. Importers would be required to undertake due diligence to ensure that products they import are not derived from areas where deforestation is undertaken. For example, if cocoa were on the covered commodity list and was to be imported from the Ivory Coast, the importer would need to consult the list published of countries and subnational regions where there is a credible risk that deforestation is occurring and check the Ivory Coast or its sub-national areas were not on its list. If the country is on the list, then the importer must provide sufficient information on the supply chain of the commodity and sufficient information to determine that the point of origin of the cocoa was not subject to illegal deforestation. The same process would be required for any imports of soy from Brazil. A declaration which includes a certification would need to be filed upon the entry of that commodity to the country importing it. It is the obligation of the importer to arrange this.

[373] CITES. (no date). What is CITES? [online]. Available from: https://www.cites.org/eng/disc/what.php [Accessed 15 October 2020].
[374] European Chemicals Agency (ECHA). (no date). Understanding REACH. Available from: https://echa.europa.eu/regulations/reach/understanding-reach [Accessed 16 October 2020].
[375] ECHA. (no date). Understanding BPR. [online]. Available from: https://echa.europa.eu/regulations/biocidal-products-regulation/understanding-bpr [Accessed 16 October 2020].
[376] ECHA. (no date). Understanding PIC. [online]. Available from: https://echa.europa.eu/regulations/prior-informed-consent/understanding-pic [Accessed 16 October 2020].
[377] United Nations. (no date). 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. [online]. Available from: https://sdgs.un.org/goals/goal15 [Accessed 15 October 2020].
[378] Forest Trends. (2020). Meaningful supply chain legislation: Lessons from the US Tariffs Act for regulating the trade in forest risk commodities. [online]. Available from: https://www.forest-trends.org/blog/meaningful-supply-chain-legislation-lessons-from-the-us-tariffs-act-for-demand-for-regulating-the-trade-in-forest-risk-commodities/
[379] Forest Trends. (2020). Meaningful supply chain legislation: Lessons from the US Tariffs Act for regulating the trade in forest risk commodities. [online]. Available from: https://www.forest-trends.org/blog/meaningful-supply-chain-legislation-lessons-from-the-us-tariffs-act-for-demand-for-regulating-the-trade-in-forest-risk-commodities/

Measures	Other – US approach – Schatz Bill
Wider risks and benefits	There are risks concerning the accessibility of products to consumers, where products cannot be substituted and with a decline in supply, a potential increase in product price for consumers in the EU may occur. Wider benefits could include those related to human rights and forced labour (dependent on these aspects being included in the definition of 'deforestation' and/or 'illegal' deforestation).
Political feasibility	There may be substantial resistance to this policy from operators and national authorities required to enforce. Whilst existing policies exist (such as CITES), expanding the scope to cover a much wider range of products may not be accepted, particularly as supply and prices for consumers has the potential to be affected. The definition of the scope will need to be carefully selected.
European Parliament assessment[380]	The EP report does not consider this measure.
Overall assessment as standalone measure	The Schatz approach is characterised by its combination of several potential measure. As such it cannot be considered as a stand-alone measure in the same way other measures are.
Overall assessment as part of combination of measure	The Schatz approach is characterised by its combination of several potential measure.

Other – FATF

Measures	Measure similar to the Financial Action Task Force (FATF)
Short description	The Financial Action Task Force (FATF) sets standards and promotes the implementation of legal, regulatory and operational measures to combat money laundering, terrorist financing and the financing of proliferation, amongst other related threats, to the international financial system.[381] Aspects relevant for applying a similar measure but related to deforestation and forest degradation include (summarised)[382] the monitoring of country progress in implementing the recommendations made by FATF, holding countries to account where there is non-compliance and the production of a list of 'high-risk and other monitored jurisdictions'.[383] This measure would also facilitate international co-operation in combatting deforestation and forest degradation. FATF is a watchdog for global money laundering and terrorist financing.[384] It is an inter-governmental, policy-making body.
Who	**European Commission**: the European Commission would need to set up an organisation similar to the FATF which would provide guidance and recommendations for governments to combat deforestation and forest degradation. In a similar process to benchmarking or the list created in the Schatz Bill measure, the European Commission would need to assess compliance with its recommendations at a country level and list those countries not following recommendations, those that are trying to follow recommendations and those that are following recommendations.

[380] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

[381] FATF. (2012-2019). International Standards on Combating Money Laundering and the Financing of Terrorism & Proliferation. The FATF Recommendations. Paris, France: FATF. http://www.fatf-gafi.org/media/fatf/documents/recommendations/pdfs/FATF%20Recommendations%202012.pdf

[382] FATF. (2020). What we do. [online]. Available from: https://www.fatf-gafi.org/about/whatwedo/ [Accessed 15 October 2020].

[383] FATF. (2020). High-risk and other monitored jurisdictions. [online]. Available from: http://www.fatf-gafi.org/countries/#high-risk [Accessed 16 October 2020].

[384] https://www.fatf-gafi.org/about/whoweare/

Measures	Measure similar to the Financial Action Task Force (FATF)
	There are 51 staff members at the FATF Secretariat: an 'Executive Secretary, a Deputy Executive Secretary, six Senior Policy Analysts, thirty policy analysts, one communications manager, one media relations manager, one resource management advisor, one resource management officer, one programme and events coordinator and eight assistants'.[385] For the 2020 financial year, the FATF budget was around 11.8 million EUR. Of this, around 8.2 million EUR is budgeted for staff costs and 1.6 million EUR for travel. The budget is funded by annual membership fees from FATF members as well as the European Commission and Gulf Co-operation Council, as well as voluntary contributions for specific projects. The OECD calculates the membership fees which are related to the size of a country's economy.[386] **Producer countries**: would need to commit to the recommendations and facilitate the assessments carried out by the FATF-equivalent organisation.
What/ type of instrument	The measure itself is non-binding and non-regulatory, but draws on EU regulation, legislation, and available techniques (e.g. voluntary labelling) to provide guidance, monitor country progress and list countries in terms of compliance.
Legal feasibility and proportionality	The environment is a shared competence of the EU and Member States; therefore, it is legally feasible and proportionate.
Technical feasibility	The measure would assess countries' implementations of measures to prevent deforestation and forest degradation. This includes the assessments of whether producer countries have developed sound laws and regulations and whether these are being implemented and enforced. This measure's ability to monitor a countries' implementation and enforcement of laws may be challenging where sufficient information is not available. There is the question over which laws, objectives etc. (i.e. both international and EU legislation and objectives) to include in the guidance by which countries are assessed.
Previous policy choices	A policy choice with direct reference to the FATF has not been observed in the literature. The FATF is not discussed in the European Parliament's Resolution or study and the Feasibility Study does not evaluate FATF as an optional measure.
Coherence with other trade legislation	This measure is voluntary for countries to become members of and therefore should not, in principle, cause conflict with WTO legislation. However, it will need to be ensured that the reporting required does not duplicate efforts from the outcome of the revision of the non-Financial reporting directive. Similarly, if other measures were to be implemented, this measure's coherence would need to be evaluated. In particular, with a benchmarking measure. If standards are introduced as part of the measure, these would need to be assessed against the WTO trade rules, in particular the exemptions relating to the protection of human/plant/animal health and life.[387]
Coherence with other EU policy objectives	This measure has coherence with other EU policy objectives including the Stepping up EU Action to Protect and Restore the World's Forests (strengthening international co-operation with members to the implementing organisation and supporting the availability of information on forests and commodity supply chains)[388] and the EU Biodiversity strategy for 2030.[389]
Coherence with other international policy	This measure is coherent with the Sustainable Development Goals, the Amsterdam Declaration Partnership, the UN Strategic Plan for Forests 2017-2030,[390]

[385] https://www.fatf-gafi.org/media/fatf/documents/brochuresannualreports/FATF-annual-report-2019-2020.pdf
[386] https://www.fatf-gafi.org/media/fatf/documents/brochuresannualreports/FATF-annual-report-2019-2020.pdf
[387] WTO (n.d.), WTO rules and environmental policies: GATT exceptions, https://www.wto.org/english/tratop_e/envir_e/envt_rules_exceptions_e.htm.
[388] https://ec.europa.eu/info/publications/eu-communication-2019-stepping-eu-action-protect-and-restore-worlds-forests_en
[389] https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/eu-biodiversity-strategy-2030_en
[390] https://www.un.org/esa/forests/documents/un-strategic-plan-for-forests-2030/index.html#:~:text=The%20Strategic%20Plan%20features%20a,twice%20the%20size%20of%20France.

Measures	Measure similar to the Financial Action Task Force (FATF)
Effectiveness	It could not be determined whether an assessment of the effectiveness of FATF has been undertaken. It was set up in 1989 by the G7 and in April 2019 adopted an open-ended mandate with it recognised that there was a need for FATF to continue its action. It could therefore be accepted that FATF, overall, has been effective.[391] Although it should be noted that FATF operates in the financial sector and concerns money laundering and terrorist financing, and different challenges will be faced relating to deforestation and forest degradation. Additionally, the measure would create an international policy-making body that does not undertake activities relating to law enforcement, investigations or prosecutions. Local authorities would still be required to operate in these areas.
Efficiency	Administrative costs of FATF could not be identified. However, a Secretariat would need to be established for this measure and there would be administrative costs.
Risks around Implementation	There is the risk that a lack of membership may undermine the effectiveness of the measure. However, jurisdictions may make commitments to meeting the Recommendations without becoming a member. This would still allow for an assessment to take place. A list of standards, laws, regulations and measures intending to combat deforestation and forest degradation would need to be identified and listed. These would include elements relating to International Co-operation as well as EU initiatives (listed below in the 'Coherence' rows). As for FATF, there would be members of the organisation developed by the measure, which may include both member jurisdictions and regional organisations, observer organisations may also join, such as the UN, World Bank and IMF. When the organisation undertakes an assessment, evidence will be looked for to demonstrate that key components (determined when recommendations are established) are being met, with example factors for assessment including the level of risk, policy and co-ordination in the country; the level of international co-operation; preventative measures in place; legal persons and arrangements; intelligence; and deforestation investigation and prosecution [obtained and adapted from FATF immediate outcomes].[392] This assessment is done via peer reviews/mutual evaluations of each member. The detailed process used for this in FATF can be found in the footnoted source.[393] For example, if a country were producing soy, then its compliance with the standards, laws, regulations and measures identified by the FATF-equivalent body would be assessed and the country listed. For example, if soy is produced in Brazil, the list of standards, laws, regulations and measures would include national policies in Brazil, as well as EU and International Policies on deforestation. There is the question of whether such standards, laws, measures etc. should be commodity specific or apply to deforestation overall. Brazil would then be assessed on its compliance with the identified list. A score is not provided. Countries which are identified as having significant strategic deficiencies[394]in their regimes to combat deforestation will be listed as a high-risk jurisdiction and the list will be published. In serious cases, countries will be asked to apply countermeasures to protect supply chains from deforestation occurring in that country.[395]
Wider risks and benefits	The measure will facilitate increased communication between countries' and international co-operation on tackling deforestation and forest degradation.
Political feasibility	With the European Commission an existing member of FATF as well as several Member States, the concept of a measure similar to FATF can be considered politically feasible. Although, there may be some disagreement from producer countries on the elements they are assessed against and the results of the assessment. More than 200 jurisdictions are committed to FATF Recommendations.[396]
Compatibility to be combined with another measure	The FATF Recommendations are also recognised as global standards, therefore it is unlikely that it would be combined with a deforestation free requirement or standard as there would be some overlap. Similarly, there may be some overlap if combined with benchmarking or the Schatz Bill, as elements of this measure are similar to these (e.g. lists). However, this measure may go beyond the list of countries provided by the Schatz Bill as the present measure also takes into account wider compliance with international laws and standards, rather than illegal deforestation alone.

391 https://www.fatf-gafi.org/publications/fatfgeneral/documents/fatf-mandate.html
392 https://www.fatf-gafi.org/publications/mutualevaluations/documents/effectiveness.html
393 https://www.fatf-gafi.org/publications/fatfrecommendations/documents/fatfissuesnewmechanismtostrengthenmoneylaunderingandterroristfinancingcompliance.html
394 https://www.fatf-gafi.org/publications/high-risk-and-other-monitored-jurisdictions/documents/call-for-action-october-2020.html
395 https://www.fatf-gafi.org/publications/high-risk-and-other-monitored-jurisdictions/documents/call-for-action-october-2020.html
396 https://www.fatf-gafi.org/countries/

Measures	Measure similar to the Financial Action Task Force (FATF)
	This measure could be combined with other measures and monitor the progress of countries in adopting, implementing and monitoring the EU legislation introduced.
European Parliament assessment [397]	The EP report does not consider this measure.
Overall assessment as standalone measure	It is unlikely that this measure will be effective as a standalone measure, as there is lack of evidence to suggest it will be effective in the area of deforestation and forest degradation, and it will not be a binding measure.
Overall assessment as part of combination of measure	This may be an effective tool if combined with other measures, such as its monitoring and list supporting the benchmarking measure.

Other – Kimberley process

Measures	Measure similar to the Kimberley process
Short description	This measure is based on the Kimberley Process currently undertaken to regulate trade in rough diamonds. The Kimberley Process is a multi-lateral trade regime that aims to prevent the flow of conflict diamonds, with a certification scheme which contain safeguards for a diamond shipments to be certified as 'conflict free'.[398] Aspects relevant for potential measures relating to deforestation and forest degradation include: • The requirement to satisfy 'minimum requirements' as week as national legislation being established alongside controls on imports and exports; • Exchange of data and a commitment to transparent practices; • Trade only with recognised members who comply with the same requirements; and • Certification of shipments as "conflict free".[399] The certification scheme would aim to prevent the flow of commodities produced from deforestation or forest degradation areas. All countries are welcome to join (both Member States and producer countries), provided the minimum requirements can be met.
Who	European Commission: The European Commission would need to set up the organisation responsible for implementing the process/certification. If built directly upon the workings of the Kimberley Process, this would neither require a permanent office nor permanent staff. Member States and producer countries: would have the option to agree to the terms of the measures to achieve certification. Competent Authorities: Competent Authorities and in particular, importing authorities would be encouraged to inspect the contents of shipments and to verify that a shipment arrives with a valid certificate.[400] Industry and civil society groups: these stakeholders may participate as 'Observers' which contribute to monitoring and establishing the effectiveness of the measure, playing and active role. As with the Kimberley Process Certification Scheme, this measure would allow for 'candidates' which is where a country has expressed an interest in adhering to the measure but have not yet met the minimum criteria.[401]

[397] https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html
[398] Kimberley Process. (2020). *What is the Kimberley Process?* [online]. Available from: https://www.kimberleyprocess.com/en/what-kp [Accessed 15 October 2020].
[399] Kimberley Process. (2020). *What is the Kimberley Process?* [online]. Available from: https://www.kimberleyprocess.com/en/what-kp [Accessed 15 October 2020].
[400] https://www.kimberleyprocess.com/en/system/files/documents/20131122_kpcs_core_document_eng_amended_clean.pdf
[401] https://www.kimberleyprocess.com/en/what-kp

Measures	Measure similar to the Kimberley process
What/ type of instrument	Non-binding and non-regulatory. This would be a voluntary measure that countries could choose to participate in.
Legal feasibility and proportionality	This measure would be implemented through the national legislations of its participants (producer countries).[402]
Technical feasibility	Similar to other certification systems, definitions and criteria must be established to allow for verification and monitoring to take place. The scope of the commodities to be included (for example, one certification per commodity type) also needs to be determined.
Previous policy choices	The Feasibility Study, the European Parliament resolution and European Parliament Study make reference to certification schemes, although the Kimberley Process is not explicitly referred to. Existing voluntary certification schemes include Fairtrade, Rainforest Alliance, RSPO and RTRS, amongst others (discussed in detail in 'Private certification systems' measure).
Coherence with other trade legislation	As this certification would only allow participants to trade with other members who satisfy the requirements of the agreement/certification, WTO compliance may not be met. Although, as the Kimberley Process was established in 2003 and is still in operation, it is possible that WTO compliance may be met for deforestation and forest degradation as it has been for "conflict free" rough diamonds.
Coherence with other EU policy objectives	This measure is coherent with the Communication on Stepping up EU Action to Protect and Restore the World's Forests, the Biodiversity Strategy 2030, the Long-Term Decarbonisation Strategy and the European Green Deal relating to sustainability and trade policy.
Coherence with other international policy	This measure is coherent with the United Nationals Strategic Plan for Forests, 2017-2030.
Effectiveness	There has been some criticism over the effectiveness of the Kimberley Process by several NGOs, including Global Witness,[403] although these are not recent. It has also been argued that the achievements of the Kimberley Process are undermined by poor reporting and a lack of transparency when non-compliance is present, this in turn undermines assurances that 99% of diamonds are conflict-free. It is reported that the Kimberley Process is responsible for stemming 99.8% of the tide in conflict diamonds, however its effectiveness is not discussed.[404]
Efficiency	The Kimberley Process has no permanent offices or permanent staff. Rather, it is an organisation that relies on contributions from participants and 'burden-sharing'.[405] This measure would be a consensus-based body and rely on the engagement from all participants, costs would therefore be distributed amongst the voluntary participants. Customs and boarder control authorities would need to be engaged to undertake certificate checks on imports.
Risks around Implementation	There is the risk that fake certificates could be produced, as occurs with the Kimberley Process.[406] This would undermine the effectiveness of the measure in combatting deforestation and forest degradation. This measure is similar to a voluntary certification scheme built into a multilateral trade regime. Shipments of commodities (e.g. wood, palm oil, soy etc.) would be certified as 'deforestation-free' with a set of safeguards have been met by the country making the shipment. As under the Kimberley Process Certification Scheme, participants to the scheme must

402 https://www.kimberleyprocess.com/en/faq

403 https://cdn.globalwitness.org/archive/files/import/loopholes_in_the_kimberley_process.pdf; see also: https://www.bbc.co.uk/news/10307046; https://www.theguardian.com/sustainable-business/diamonds-blood-kimberley-process-mines-ethical

404 https://www.kimberleyprocess.com/en/what-kp

405 https://www.kimberleyprocess.com/en/what-kp

406 https://www.kimberleyprocess.com/en/enforcement

Measures	Measure similar to the Kimberley process
	satisfy minimum requirements; establish national legislation, institutions and controls for imports and exports; make a commitment to transparent practices and the exchange of data; trade only with other members and certify shipments as 'deforestation-free'.[407] For example, a shipment of cocoa coming from the Ivory Coast would have its supply chain assessed and a certificate issued by the exporting authority. The importing authority then verifies the certificate along with other import formalities. Participants/countries are required to designate Importing and Exporting Authorities.[408] The same process would apply if cocoa were imported from Brazil. Both the importing and exporting countries must be members of the Process for trade to occur. National legislation, institutions and import/export controls must be satisfied to be a Participant of the process.
Wider risks and benefits	As countries can only trade with other members (under the measure's commitments), there is the risk of supply being impacted on countries which cannot yet meet the commitments or are not party to the organisation. Other certification systems relating to deforestation and forest degradation are also already known amongst consumers.
Political feasibility	In 2018, the EU held the Chairmanship for the Kimberley Process.[409] As this measure is voluntary and open to any country there may be political support for this measure.
Compatibility to be combined with another measure	This certification focuses on the shipment, import and export of commodities. This measure could be made compatible with labelling systems and the information generated through achieving the certification used to demonstrate compliance, as well as assist with informing consumers about the supply chain of the commodity. This measure would have some overlap with other certification schemes.
European Parliament assessment[410]	The EP report does not consider this measure.
Overall assessment as standalone measure	As a voluntary measure relying on commitments made by producer countries and Member States, it is not clear that this measure will achieve the objectives of reducing deforestation and forest degradation.
Overall assessment as part of combination of measure	Whilst it is feasible for this measure to combined with another measure, the lack of evidence concerning its effectiveness (both concerning rough diamonds and deforestation), means it is difficult to expect the measure to effectively combat deforestation and forest degradation as either a stand-alone measure, or as part of a combination measure.

407 https://www.kimberleyprocess.com/en/what-kp

408 https://www.kimberleyprocess.com/en/system/files/documents/20131122_kpcs_core_document_eng_amended_clean.pdf

409 https://ec.europa.eu/fpi/what-we-do/kimberley-process-fight-against-%E2%80%98conflict-diamonds%E2%80%99_en

410 https://www.europarl.europa.eu/doceo/document/TA-9-2020-0285_EN.html

Appendix C List of bulk commodities under scope with HS codes

This appendix presents the list of HS codes used to derive the values in the baseline section and the scoping section.

Commodity	HS code	HS name
Cattle	41012010	Whole raw hides and skins of bovine "incl. buffalo" or equine animals, whether or not dehaired, unsplit, of a weight per skin <= 16 kg, fresh
	41012030	Whole raw hides and skins of bovine "incl. buffalo" or equine animals, whether or not dehaired, unsplit, of a weight per skin <= 16 kg, wet-salted
	41012050	Whole raw hides and skins of bovine "incl. buffalo" or equine animals, whether or not dehaired, unsplit, of a weight per skin <= 8 kg when simply dried or <= 10 kg when dry-salted
	41012080	Whole raw hides and skins of bovine "incl. buffalo" or equine animals, whether or not dehaired, unsplit, of a weight per skin <= 16 kg, limed, pickled or otherwise preserved (excl. fresh or wet-salted, simply dried or dry-salted, tanned, parchment-dressed or further prepared)
	41015010	Whole raw hides and skins of bovine "incl. buffalo" or equine animals, whether or not dehaired or split, of a weight per skin > 16 kg, fresh
	41015030	Whole raw hides and skins of bovine "incl. buffalo" or equine animals, whether or not dehaired or split, of a weight per skin > 16 kg, wet-salted
	41015050	Whole raw hides and skins of bovine "incl. buffalo" or equine animals, whether or not dehaired or split, of a weight per skin > 16 kg, dried or dry-salted
	41015090	Whole raw hides and skins of bovine "incl. buffalo" or equine animals, whether or not dehaired or split, of a weight per skin > 16 kg, limed, pickled or otherwise preserved (excl. fresh or wet-salted, simply dried or dry-salted, tanned, parchment-dressed or further prepared)
	41019000	Butts, bends, bellies and split raw hides and skins of bovine "incl. buffalo" or equine animals, whether or not dehaired, fresh, or salted, dried, limed, pickled or otherwise preserved, and whole raw hides and skins of a weight per skin > 8 kg but < 16 kg when simply dried and > 10 kg but < 16 kg when dry-salted (excl. tanned, parchment-dressed or further prepared)
	01022110	Pure-bred breeding heifers "female bovines that have never calved"
	01022130	Pure-bred breeding cows (excl. heifers)
	01022190	Pure-bred cattle for breeding (excl. heifers and cows)
	01022905	Live cattle of the sub-genus Bibos or Poephagus (excl. pure-bred for breeding)
	01022910	Live cattle of a weight <= 80 kg (excl. pure-bred for breeding)
	01022921	Cattle of a weight > 80 kg but <= 160 kg, for slaughter
	01022929	Live cattle of a weight > 80 kg but <= 160 kg (excl. for slaughter, pure-bred for breeding)
	01022941	Cattle of a weight > 160 kg but <= 300 kg, for slaughter
	01022949	Live cattle of a weight > 160 kg but <= 300 kg (excl. for slaughter, pure-bred for breeding)
	01022951	Heifers "female bovines that have never calved" of a weight > 300 kg, for slaughter
	01022959	Live heifers "female bovines that have never calved" of a weight > 300 kg (excl. for slaughter and pure-bred for breeding)
	01022961	Cows of a weight > 300 kg, for slaughter (excl. heifers)
	01022969	Live cows of a weight > 300 kg (excl. for slaughter and pure-bred for breeding and heifers)
	01022991	Cattle of a weight > 300 kg, for slaughter (excl. heifers and cows)

	01022999	Live cattle of a weight > 300 kg (excl. for slaughter, pure-bred for breeding and heifers and cows)
	02011000	Carcases or half-carcases of bovine animals, fresh or chilled
	02012020	"Compensated" quarters of bovine animals with bone in, fresh or chilled
	02012030	Unseparated or separated forequarters of bovine animals, with bone in, fresh or chilled
	02012050	Unseparated or separated hindquarters of bovine animals, with bone in, fresh or chilled
	02012090	Fresh or chilled bovine cuts, with bone in (excl. carcases and half-carcases, "compensated quarters", forequarters and hindquarters)
	02013000	Fresh or chilled bovine meat, boneless
	02021000	Frozen bovine carcases and half-carcases
	02022010	Frozen "compensated" bovine quarters, with bone in
	02022030	Frozen unseparated or separated bovine forequarters, with bone in
	02022050	Frozen unseparated or separated bovine hindquarters, with bone in
	02022090	Frozen bovine cuts, with bone in (excl. carcases and half-carcases, "compensated" quarters, forequarters and hindquarters)
	02023010	Frozen bovine boneless forequarters, whole or cut in max. 5 pieces, each quarter in 1 block; "compensated" quarters in 2 blocks, one containing the forequarter, whole or cut in max. 5 pieces, and the other the whole hindquarter, excl. the tenderloin, in one piece
	02023050	Frozen bovine boneless crop, chuck and blade and brisket cuts
	02023090	Frozen bovine boneless meat (excl. forequarters, whole or cut into a maximum of five pieces, each quarter being in a single block "compensated" quarters in two blocks, one of which contains the forequarter, whole or cut into a maximum of five pieces, and the other, the hindquarter, excl. the tenderloin, in one piece, crop, chuck and blade and brisket cuts)
	02061010	Fresh or chilled edible bovine offal for manufacture of pharmaceutical products
	02061095	Fresh or chilled edible bovine thick and thin skirt (excl. for manufacture of pharmaceutical products)
	02061098	Fresh or chilled edible bovine offal (excl. for manufacture of pharmaceutical products, thick and thin skirt)
	02062100	Frozen edible bovine tongues
	02062200	Frozen edible bovine livers
	02062910	Frozen edible bovine offal for manufacture of pharmaceutical products (excl. tongues and livers)
	02062991	Frozen edible bovine thick and thin skirt (excl. for manufacture of pharmaceutical products)
	02062999	Frozen edible bovine offal (excl. for manufacture of pharmaceutical products, tongues, livers and thick and thin skirt)
Cocoa	18010000	Cocoa beans, whole or broken, raw or roasted
	18040000	Cocoa butter, fat and oil
	18031000	Cocoa paste (excl. defatted)

	18032000	Cocoa paste, wholly or partly defatted
	18050000	Cocoa powder, not containing added sugar or other sweetening matter
Coffee	09011100	Coffee (excl. roasted and decaffeinated)
	09011200	Decaffeinated coffee (excl. roasted)
	09012100	Roasted coffee (excl. decaffeinated)
	09012200	Roasted, decaffeinated coffee
	09019010	Coffee husks and skins
	09019090	Coffee substitutes containing coffee in any proportion
Palm oil	12071000	Palm nuts and kernels
	15132110	Crude palm kernel and babassu oil, for technical or industrial uses (excl. for manufacture of foodstuffs)
	15132130	Crude palm kernel and babassu oil, in immediate packings of <= 1 kg (excl. for technical or industrial uses)
	15132190	Raw palm kernel oil and babassu oil in immediate packings of a net content of > 1 kg or put up otherwise (excl. oils for technical or industrial uses)
	15111010	Crude palm oil, for technical or industrial uses (excl. for manufacture of foodstuffs)
	15111090	Crude palm oil (excl. for technical or industrial uses)
	15119011	Solid palm oil fractions, whether or not refined, but not chemically modified, in packings of <= 1 kg
	15119019	Solid palm oil fractions, whether or not refined, but not chemically modified, in packings of > 1 kg or put up otherwise
	15119091	Palm oil and its liquid fractions, whether or not refined, but not chemically modified, for industrial uses (excl. for production of foodstuffs and crude)
	15119099	Palm oil and its liquid fractions, whether or not refined, but not chemically modified (excl. for industrial uses and crude)
Soy	12011000	Soya bean seed, for sowing
	12019000	Soya beans, whether or not broken (excl. seed for sowing)
	12081000	Soya bean flour and meal
	23040000	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of soya-bean oil
	15071010	Crude soya-bean oil, whether or not degummed, for technical or industrial uses (excl. for production of foodstuffs)
	15071090	Crude soya-bean oil, whether or not degummed (excl. for technical or industrial uses)
	15079010	Soya-bean oil and its fractions, whether or not refined, for technical or industrial uses (excl. chemically modified, crude, and for production of foodstuffs)
	15079090	Soya-bean oil and its fractions, whether or not refined (excl. for technical or industrial uses, chemically modified, and crude)

Wood	44012100	Coniferous wood in chips or particles (excl. those of a kind used principally for dying or tanning purposes)
	44012210	Wood in chips or particles, of eucalyptus
	44012290	Wood in chips or particles (excl. those of a kind used principally for dyeing or tanning purposes, coniferous wood and eucalyptus)
	44013100	Wood pellets
	44021000	Bamboo charcoal, incl. shell or nut charcoal, whether or not agglomerated (excl. used as a medicament, mixed with incense, activated bamboo charcoal and in the form of crayons)
	44029000	Wood charcoal, incl. shell or nut charcoal, whether or not agglomerated (excl. bamboo charcoal, wood charcoal used as a medicament, charcoal mixed with incense, activated charcoal and charcoal in the form of crayons)
	44034100	Dark red meranti, light red meranti and meranti bakau wood in the rough, whether or not stripped of bark or sapwood, or roughly squared (excl. rough-cut wood for walking sticks, umbrellas, tool shafts and the like; wood cut into boards or beams, etc.; wood treated with paint, stains, creosote or other preservatives)
	44034910	Sapelli, acajou d'Afrique and iroko in the rough, whether or not stripped of bark or sapwood, or roughly squared (excl. rough-cut wood for walking sticks, umbrellas, tool shafts and the like; wood cut into boards or beams, etc.; wood treated with paint, stains, creosote or other preservatives)
	44034935	Okoumé and sipo in the rough, whether or not stripped of bark or sapwood, or roughly squared (excl. rough-cut wood for walking sticks, umbrellas, tool shafts and the like; wood cut into boards or beams, etc.; wood treated with paint, stains, creosote or other preservatives)
	44041000	Hoopwood; split poles; piles, pickets and stakes of wood, pointed but not sawn lengthwise; wooden sticks, roughly trimmed but not turned, bent or otherwise worked, suitable for the manufacture of walking sticks, umbrellas, tool handles or the like; chipwood and the like, of coniferous wood (excl. hoopwood sawn lengthwise and carved or notched at the ends; brushmounts, lasts)
	44042000	Hoopwood; split poles; piles, pickets and stakes of wood, pointed but not sawn lengthwise; wooden sticks, roughly trimmed but not turned, bent or otherwise worked, suitable for the manufacture of walking sticks, umbrellas, tool handles and the like; chipwood and the like (excl. hoopwood sawn lengthwise and carved or notched at the ends; brushmounts, lasts; coniferous wood in general)
	44050000	Wood wool; wood flour "wood powder able to pass through a fine", 0,63 mm mesh, sieve with a residue of <= 8% by weight
	44072110	Mahogany "Swietenia spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded, or end-jointed, whether or not planed or sanded
	44072191	Mahogany "Swietenia spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, planed (excl. end-jointed)
	44072199	Mahogany "Swietenia spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm (excl. planed, sanded or end-jointed)
	44072210	Virola, imbuia and balsa, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded, or end-jointed, whether or not planed or sanded
	44072291	Virola, imbuia and balsa, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, planed (excl. end-jointed)
	44072299	Virola, imbuia and balsa, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm (excl. planed, sanded or end-jointed)
	44072510	Dark red meranti, light red meranti and meranti bakau, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, end-jointed, whether or not planed or sanded
	44072530	Dark red meranti, light red meranti and meranti bakau, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, planed (excl. end-jointed)
	44072550	Dark red meranti, light red meranti and meranti bakau, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded (excl. end-jointed)

44072590	Dark red meranti, light red meranti and meranti bakau, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm (excl. such products planed, sanded or end-jointed)
44072610	White lauan, white meranti, white seraya, yellow meranti and alan, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, end-jointed, whether or not planed or sanded
44072630	White lauan, white meranti, white seraya, yellow meranti and alan, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, planed (excl. end-jointed)
44072650	White lauan, white meranti, white seraya, yellow meranti and alan, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded (excl. end-jointed)
44072690	White lauan, white meranti, white seraya, yellow meranti and alan, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm (excl. planed, sanded or end-jointed)
44072710	Sapelli, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded, or end-jointed, whether or not planed or sanded
44072791	Sapelli, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, planed (excl. end-jointed)
44072799	Sapelli, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm (excl. planed, sanded or end-jointed)
44072810	Iroko, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded, or end-jointed, whether or not planed or sanded
44072891	Iroko, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, planed (excl. end-jointed)
44072899	Iroko, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm (excl. planed, sanded or end-jointed)
44072915	Keruing, ramin, kapur, teak, jongkong, merbau, jelutong, kempas, okoumé, obeche, sipo, acajou d'Afrique, makoré, tiama, mansonia, ilomba, dibétou, limba, azobé, palissandre de Rio, palissandre de Para, palissandre de rose, abura, afrormosia, ako, andiroba, aningré, avodiré, balau, bossé clair, bossé foncé, cativo, cedro, dabema, doussié, framiré, freijo, fromager, fuma, geronggang, ipé, jaboty, jequitiba, kosipo, kotibé, koto, louro, maçaranduba, mahogany (excl. "Swietenia spp."), mandioqueira, mengkulang, merawan, merpauh, mersawa, moabi, niangon, nyatoh, onzabili, orey, ovengkol, ozigo, padauk, paldao, palissandre de Guatemala, pau Amarelo, pau marfim, pulai, punah, quaruba, saqui-saqui, sepetir, sucupira, suren, tauari and tola, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, end-jointed, whether or not planed or sanded
44072920	Palissandre de Rio, palissandre de Para and palissandre de Rose, sawn or chipped lengthwise, sliced or peeled, planed, of a thickness of > 6 mm (excl. end-jointed)
44072983	Abura, afrormosia, ako, andiroba, aningré, avodiré, balau, bossé clair, bossé foncé, cativo, cedro, dabema, doussié, framiré, freijo, fromager, fuma, geronggang, ipé, jaboty, jequitiba, kosipo, kotibé, koto, louro, maçaranduba, mahogany (excl. "Swietenia spp."), mandioqueira, mengkulang, merawan, merpauh, mersawa, moabi, niangon, nyatoh, onzabili, orey, ovengkol, ozigo, padauk, paldao, palissandre de Guatemala, pau Amarelo, pau marfim, pulai, punah, quaruba, saqui-saqui, sepetir, sucupira, suren, tauari, tola, keruing, ramin, kapur, teak, jongkong, merbau, jelutong, kempas, okoumé, obeche, sipo, acajou d'Afrique, makoré, tiama, mansonia, ilomba, dibétou, limba and azobé, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, planed (excl. end-jointed)
44072983	Abura, afrormosia, ako, andiroba, aningré, avodiré, balau, bossé clair, bossé foncé, cativo, cedro, dabema, doussié, framiré, freijo, fromager, fuma, geronggang, ipé, jaboty, jequitiba, kosipo, kotibé, koto, louro, maçaranduba, mahogany (excl. "Swietenia spp."), mandioqueira, mengkulang, merawan, merpauh, mersawa, moabi, niangon, nyatoh, onzabili, orey, ovengkol, ozigo, padauk, paldao, palissandre de Guatemala, pau Amarelo, pau marfim, pulai, punah, quaruba, saqui-saqui, sepetir, sucupira, suren, tauari, tola, keruing, ramin, kapur, teak, jongkong, merbau, jelutong, kempas, okoumé, obeche, sipo, acajou d'Afrique, makoré, tiama, mansonia, ilomba, dibétou, limba, azobé, palissandre de Rio, palissandre de Para and palissandre de Rose, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded (excl. end-jointed and planed)
44072983	Abura, afrormosia, ako, andiroba, aningré, avodiré, balau, bossé clair, bossé foncé, cativo, cedro, dabema, doussié, framiré, freijo, fromager, fuma, geronggang, ipé, jaboty, jequitiba, kosipo, kotibé, koto, louro, maçaranduba, mahogany (excl. "Swietenia spp."), mandioqueira, mengkulang, merawan, merpauh, mersawa, moabi, niangon, nyatoh, onzabili, orey, ovengkol, ozigo, padauk, paldao, palissandre de Guatemala, pau Amarelo, pau marfim, pulai, punah, quaruba, saqui-saqui, sepetir,

	sucupira, suren, tauari, tola, keruing, ramin, kapur, teak, jongkong, merbau, jelutong, kempas, okoumé, obeche, sipo, acajou d'Afrique, makoré, tiama, mansonia, ilomba, dibétou, limba, azobé, palissandre de Rio, palissandre de Para and palissandre de Rose, sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm (excl. end-jointed, planed and sanded)
44079115	Oak "Quercus spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded, or end-jointed, whether or not planed or sanded
44079131	Blocks, strips and friezes of oak "Quercus spp." for parquet or wood block flooring, not assembled, of a thickness of > 6 mm, planed (excl. veneered or of plywood)
44079139	Oak "Quercus spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, planed (excl. end-jointed and blocks, strips and friezes for parquet or wood block flooring)
44079190	Oak "Quercus spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm (excl. planed, sanded or end-jointed)
44079200	Beech "Fagus spp.", sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or end-jointed, of a thickness of > 6 mm
44079310	Maple "Acer spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, planed, or end-jointed, whether or not planed or sanded
44079391	Maple "Acer spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded (excl. end-jointed)
44079399	Maple "Acer spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm (excl. planed, sanded or end-jointed)
44079410	Cherry "Prunus spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, planed, or end-jointed, whether or not planed or sanded
44079491	Cherry "Prunus spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded (excl. end-jointed)
44079499	Cherry "Prunus spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm (excl. planed, sanded or end-jointed)
44079510	Ash "Fraxinus spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, planed, or end-jointed, whether or not planed or sanded
44079591	Ash "Fraxinus spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded (excl. end-jointed)
44079599	Ash "Fraxinus spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm (excl. planed, sanded or end-jointed)
44079691	Birch "Betula spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded (excl. end-jointed)
44079791	Poplar and aspen "Populus spp.", sawn or chipped lengthwise, sliced or peeled, of a thickness of > 6 mm, sanded (excl. end-jointed)
44079927	Wood sawn or cut lengthwise, sliced or peeled, of a thickness of > 6 mm, planed, or end-jointed, whether or not planed or sanded (excl. tropical wood, coniferous wood, oak "Quercus spp.", beech "Fagus spp.", maple "Acer spp.", cherry "Prunus spp.", ash "Fraxinus spp.", birch "Betula spp.", poplar and aspen "Populus spp.")
44079940	Wood sawn or cut lengthwise, sliced or peeled, sanded, of a thickness of > 6 mm (excl. end-jointed; tropical wood, coniferous wood, oak "Quercus spp.", beech "Fagus spp.", maple "Acer spp.", cherry "Prunus spp.", ash "Fraxinus spp.", birch "Betula spp.", poplar and aspen "Populus spp.")
44081015	Sheets for veneering, incl. those obtained by slicing laminated wood, for coniferous plywood or for other similar laminated coniferous wood and other coniferous wood, sawn lengthwise, sliced or peeled, of a thickness of <= 6 mm, planed, sanded or end-jointed
44081091	Small boards for the manufacture of pencils, of coniferous wood, of a thickness of <= 6 mm

44081098	Sheets for veneering, incl. those obtained by slicing laminated wood, for coniferous plywood or for other similar laminated coniferous wood and other coniferous wood, sawn lengthwise, sliced or peeled, whether or not spliced, of a thickness of <= 6 mm (excl. planed, sanded or end-jointed, and small boards for the manufacture of pencils)
44083111	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, of a thickness of <= 6 mm, end-jointed, whether or not planed or sanded, of dark red meranti, light red meranti and meranti bakau
44083121	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, of a thickness of <= 6 mm, planed, of dark red meranti, light red meranti and meranti bakau (excl. end-jointed)
44083125	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, of a thickness of <= 6 mm, sanded, of dark red meranti, light red meranti and meranti bakau (excl. end-jointed)
44083130	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, of a thickness of <= 6 mm, whether or not spliced, of dark red meranti, light red meranti and meranti bakau (excl. planed, sanded or end-jointed)
44083915	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, of a thickness of <= 6 mm, sanded, or end-jointed, whether or not planed, of white lauan, sipo, limba, okoumé, obeche, acajou d'Afrique, sapelli, virola, mahogany "Swietenia spp.", palissandre de Rio, palissandre de Para and palissandre de Rose
44083921	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, of a thickness of <= 6 mm, planed, of white lauan, sipo, limba, okoumé, obeche, acajou d'Afrique, sapelli, virola, mahogany "Swietenia spp.", palissandre de Rio, palissandre de Para and palissandre de Rose (excl. end-jointed)
44083930	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, whether or not spliced, of a thickness of <= 6 mm, of white lauan, sipo, limba, okoumé, obeche, acajou d'Afrique, sapelli, virola, mahogany "Swietenia spp.", palissandre de Rio, palissandre de Para and palissandre de Rose (excl. planed, sanded or end-jointed)
44083955	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, of a thickness of <= 6 mm, planed, sanded or end-jointed, of tropical wood (excl. white lauan, sipo, limba, okoumé, obeche, acajou d'Afrique, sapelli, virola, mahogany "Swietenia spp.", palissandre de Rio, palissandre de Para and palissandre de Rose)
44083970	Small boards for the manufacture of pencils, of a thickness of <= 6 mm, of tropical wood (excl. white lauan, sipo, limba, okoumé, obeche, acajou d'Afrique, sapelli, virola, mahogany "Swietenia spp.", palissandre de Rio, palissandre de Para and palissandre de Rose)
44083985	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, whether or not spliced, of a thickness of <= 1 mm, of tropical wood (excl. white lauan, sipo, limba, okoumé, obeche, acajou d'Afrique, sapelli, virola, mahogany "Swietenia spp.", palissandre de Rio, palissandre de Para, palissandre de Rose, and planed, sanded or end-jointed)
44083995	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, whether or not spliced, of a thickness of > 1 mm but <= 6 mm, of tropical wood (excl. white lauan, sipo, limba, okoumé, obeche, acajou d'Afrique, sapelli, virola, mahogany "Swietenia spp.", palissandre de Rio, palissandre de Para, palissandre de Rose, and planed, sanded or end-jointed)
44089015	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, of a thickness of <= 6 mm, planed, sanded or end-jointed (excl. tropical and coniferous wood)
44089035	Small boards for the manufacture of pencils, of wood, of a thickness of <= 6 mm (excl. tropical and coniferous wood)
44089085	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, whether or not spliced, of a thickness of <= 1 mm (excl. planed, sanded or end-jointed, and tropical and coniferous wood)

44089095	Sheets for veneering, incl. those obtained by slicing laminated wood, for plywood or for other similar laminated wood and other wood, sawn lengthwise, sliced or peeled, whether or not spliced, of a thickness of > 1 mm (excl. planed, sanded or end-jointed, and tropical and coniferous wood)
44091011	Mouldings for frames for paintings, photographs, mirrors or similar objects, of coniferous wood
44091018	Coniferous wood, incl. strips and friezes for parquet flooring, not assembled, continuously shaped "tongued, grooved, rebated, chamfered, V-jointed beaded, moulded, rounded or the like" along any of its edges, ends or faces, whether or not planed, sanded or end-jointed (excl. mouldings for frames for paintings, photographs, mirrors or similar objects)
44092100	Bamboo, incl. strips and friezes for parquet flooring, not assembled, continuously shaped "tongued, grooved, rebated, chamfered, V-jointed beaded, moulded, rounded or the like" along any of its edges, ends or faces, whether or not planed, sanded or end-jointed
44092910	Mouldings for frames for paintings, photographs, mirrors or similar objects, of wood (excl. coniferous and tropical wood and bamboo)
44092991	Blocks, strips and friezes for parquet or wood block flooring, not assembled, continuously shaped "tongued, grooved, rebated, chamfered, V-jointed, beaded, moulded, rounded or the like" along any of its edges, ends or faces, whether or not planed, sanded or end-jointed, of wood (excl. coniferous and tropical wood and bamboo)
44092999	Wood, continuously shaped "tongued, grooved, rebated, chamfered, V-jointed beaded, moulded, rounded or the like" along any of its edges, ends or faces, whether or not planed, sanded or end-jointed (excl. coniferous and tropical wood and bamboo, and mouldings for frames for paintings, photographs, mirrors or similar objects, blocks, strips and friezes for parquet or wood block flooring)

Appendix D List of derived products with HS codes

This appendix provides a list of HS codes for potential derived products for each commodity that may be under scope. The aim is not to be exhaustive, but to provide an overall list of products that are most widely used. This is particularly true for commodities, like palm oil, that are introduced in a large spectrum of products along their value chain.

Additionally, the tables provide specific examples of derived products that well fit into the scope, with more detailed CN codes, as set out in Annex I to Council Regulation (EEC) No 2658/87[411].

Palm oil

HS codes	Description	Examples of more detailed CN codes	Description
0401	Milk and cream, not concentrated nor containing added sugar or other sweetening matter		
0402	Milk and cream, concentrated or containing added sugar or other sweetening matter		
0403	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavoured or containing added fruit, nuts or cocoa		
1517	Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this chapter, other than edible fats or oils or their fractions of heading 1516		
1521	Vegetable waxes (other than triglycerides), beeswax, other insect waxes and spermaceti, whether or not refined or coloured	1521 10	Vegetable waxes (other than triglycerides), beeswax, other insect waxes and spermaceti, whether or not refined or coloured: Vegetable waxes
1604	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs		
1703	Sugar confectionery (including white chocolate), not containing cocoa		
1902	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti,		

411 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:01987R2658-20210101&from=EN

HS codes	Description	Examples of more detailed CN codes	Description
	macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared		
1904	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal), pre-cooked or otherwise prepared, not elsewhere specified or included		
1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products		
2103	Sauces and preparations therefor; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard		
2104	Soups and broths and preparations therefor; homogenised composite food preparations		
2105	Ice cream and other edible ice, whether or not containing cocoa		
2106	Food preparations not elsewhere specified or included		
2202	Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavoured, and other non-alcoholic beverages, not including fruit or vegetable juices of heading 2009		
2302	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants	2302 50	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants: Of leguminous plants
2306	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of vegetable fats or oils, other than those of heading 2304 or 2305	2306 60	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of vegetable fats or oils, other than those of heading 2304 or 2305: Of palm nuts or kernels
2308	Vegetable materials and vegetable waste, vegetable residues and by-products, whether or not in the form of		

HS codes	Description	Examples of more detailed CN codes	Description
	pellets, of a kind used in animal feeding, not elsewhere specified or included		
2309	Preparations of a kind used in animal feeding		
3303	Perfumes and toilet waters		
3304	Beauty or make-up preparations and preparations for the care of the skin (other than medicaments), including sunscreen or suntan preparations; manicure or pedicure preparations		
3305	Preparations for use on the hair		
3306	Preparations for oral or dental hygiene, including denture fixative pastes and powders; yarn used to clean between the teeth (dental floss), in individual retail packages	3306 10	Preparations for oral or dental hygiene, including denture fixative pastes and powders; yarn used to clean between the teeth (dental floss), in individual retail packages: Dentifrices
3307	Pre-shave, shaving or aftershave preparations, personal deodorants, bath preparations, depilatories and other perfumery, cosmetic or toilet preparations, not elsewhere specified or included; prepared room deodorisers, whether or not perfumed or having disinfectant properties	3307 10	Pre-shave, shaving or aftershave preparations, personal deodorants, bath preparations, depilatories and other perfumery, cosmetic or toilet preparations, not elsewhere specified or included; prepared room deodorisers, whether or not perfumed or having disinfectant properties: Pre-shave, shaving or aftershave preparations
		3307 20	Pre-shave, shaving or aftershave preparations, personal deodorants, bath preparations, depilatories and other perfumery, cosmetic or toilet preparations, not elsewhere specified or included; prepared room deodorisers, whether or not perfumed or having disinfectant properties: Personal deodorants and antiperspirants
3401	Soap; organic surface-active products and preparations for use as soap, in the form of bars, cakes, moulded pieces or shapes, whether or not containing soap; organic surface-active products and preparations for washing the skin, in the form of liquid or cream and put up for retail sale, whether or not containing soap; paper, wadding, felt and nonwovens, impregnated, coated or covered with soap or detergent		

HS codes	Description	Examples of more detailed CN codes	Description
3402	Organic surface-active agents (other than soap); surface-active preparations, washing preparations (including auxiliary washing preparations) and cleaning preparations, whether or not containing soap, other than those of heading 3401		
3404	Artificial waxes and prepared waxes		
3405	Polishes and creams, for footwear, furniture, floors, coachwork, glass or metal, scouring pastes and powders and similar preparations (whether or not in the form of paper, wadding, felt, nonwovens, cellular plastics or cellular rubber, impregnated, coated or covered with such preparations), excluding waxes of heading 3404		
3406	Candles, tapers and the like		
3407	Modelling pastes, including those put up for children's amusement; preparations known as 'dental wax' or as 'dental impression compounds', put up in sets, in packings for retail sale or in plates, horseshoe shapes, sticks or similar forms; other preparations for use in dentistry, with a basis of plaster (of calcined gypsum or calcium sulphate)		
3826	Biodiesel and mixtures thereof, not containing or containing less than 70 % by weight of petroleum oils or oils obtained from bituminous minerals		

Soy

HS codes	Description	Examples of more detailed CN codes	Description
1208	Flours and meals of oil seeds or oleaginous fruits, other than those of mustard	1208 10	Flours and meals of oil seeds or oleaginous fruits, other than those of mustard: Of soya beans
1516	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinised, whether or not refined, but not further prepared	1516 20 96	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinised, whether or not refined, but not further prepared: Groundnut, cotton-seed, soya-bean or sunflower-seed oils; other oils containing less than 50 % by weight of free fatty acids and excluding palm kernel, illipe, coconut, colza, rapeseed or copaiba oils

1517	Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this chapter, other than edible fats or oils or their fractions of heading 1516		
1520	Glycerol, crude; glycerol waters and glycerol lyes		
1521	Vegetable waxes (other than triglycerides), beeswax, other insect waxes and spermaceti, whether or not refined or coloured	1521 10	Vegetable waxes (other than triglycerides), beeswax, other insect waxes and spermaceti, whether or not refined or coloured: Vegetable waxes
1703	Sugar confectionery (including white chocolate), not containing cocoa		
1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products		
2103	Sauces and preparations therefor; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard		
2104	Soups and broths and preparations therefor; homogenised composite food preparations		
2105	Ice cream and other edible ice, whether or not containing cocoa		
2106	Food preparations not elsewhere specified or included		
2202	Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavoured, and other non-alcoholic beverages, not including fruit or vegetable juices of heading 2009	2202 99 11	Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavoured, and other non-alcoholic beverages, not including fruit or vegetable juices of heading 2009: Other: Soya-based beverages with a protein content of 2,8 % or more by weight
		2202 99 15	Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavoured, and other non-alcoholic beverages, not including fruit or vegetable juices of heading 2009: Other: Soya-based beverages with a protein content of less than 2,8 % by weight; beverages based on nuts of Chapter 8, cereals of Chapter 10 or seeds of Chapter 12
2302	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants:	2302 50	Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants: Of leguminous plants

2304	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of soya-bean oil		
2308	Vegetable materials and vegetable waste, vegetable residues and by-products, whether or not in the form of pellets, of a kind used in animal feeding, not elsewhere specified or included		
2309	Preparations of a kind used in animal feeding		
2923	Quaternary ammonium salts and hydroxides; lecithins and other phosphoaminolipids, whether or not chemically defined		Quaternary ammonium salts and hydroxides; lecithins and other phosphoaminolipids, whether or not chemically defined: Lecithins and other phosphoaminolipids
2936	Provitamins and vitamins, natural or reproduced by synthesis (including natural concentrates), derivatives thereof used primarily as vitamins, and intermixtures of the foregoing, whether or not in any solvent	2936 28	Vitamin E and its derivatives
3304	Beauty or make-up preparations and preparations for the care of the skin (other than medicaments), including sunscreen or suntan preparations; manicure or pedicure preparations		
3305	Preparations for use on the hair		
3307	Pre-shave, shaving or aftershave preparations, personal deodorants, bath preparations, depilatories and other perfumery, cosmetic or toilet preparations, not elsewhere specified or included; prepared room deodorisers, whether or not perfumed or having disinfectant properties		
3401	Soap; organic surface-active products and preparations for use as soap, in the form of bars, cakes, moulded pieces or shapes, whether or not containing soap; organic surface-active products and preparations for washing the skin, in the form of liquid or cream and put up for retail sale, whether or not containing soap; paper, wadding, felt and nonwovens, impregnated, coated or covered with soap or detergent		
3402	Organic surface-active agents (other than soap); surface-active preparations, washing preparations (including auxiliary washing preparations) and cleaning preparations, whether or not containing soap, other than those of heading 3401		
3404	Artificial waxes and prepared waxes		
3406	Candles, tapers and the like		

3407	Modelling pastes, including those put up for children's amusement; preparations known as 'dental wax' or as 'dental impression compounds', put up in sets, in packings for retail sale or in plates, horseshoe shapes, sticks or similar forms; other preparations for use in dentistry, with a basis of plaster (of calcined gypsum or calcium sulphate)		
3826	Biodiesel and mixtures thereof, not containing or containing less than 70 % by weight of petroleum oils or oils obtained from bituminous minerals		
9503	Tricycles, scooters, pedal cars and similar wheeled toys; dolls' carriages; dolls; other toys; reduced-size ('scale') models and similar recreational models, working or not; puzzles of all kinds		
9608	Ballpoint pens; felt-tipped and other porous-tipped pens and markers; fountain pens, stylograph pens and other pens; duplicating stylos; propelling or sliding pencils; pen-holders, pencil-holders and similar holders; parts (including caps and clips) of the foregoing articles, other than those of heading 9609		

Bovine

HS codes	Description	Examples of more detailed CN codes	Description
0102	Live bovine animal		
0201	Meat of bovine animals, fresh or chilled		
0202	Meat of bovine animals, frozen		
0206	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen	0206 10	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen: Of bovine animals, fresh or chilled
		0206 21	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen: Of bovine animals, frozen: Tongues
		0206 22	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen: Of bovine animals, frozen: Livers
		0206 29	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen: Of bovine animals, frozen: Other

HS codes	Description	Examples of more detailed CN codes	Description
0210	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal	0210 20	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal: Meat of bovine animals
0406	Cheese and curd		
0511	Animal products not elsewhere specified or included; dead animals of Chapter 1 or 3, unfit for human consumption	0511 10	Animal products not elsewhere specified or included; dead animals of Chapter 1 or 3, unfit for human consumption: Bovine semen
1503	Lard stearin, lard oil, oleostearin, oleo-oil and tallow oil, not emulsified or mixed or otherwise prepared		
1517	Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this chapter, other than edible fats or oils or their fractions of heading 1516		
1601	Sausages and similar products, of meat, meat offal or blood; food preparations based on these products		
1602	Other prepared or preserved meat, meat offal or blood	1602 50	Other prepared or preserved meat, meat offal or blood: Of bovine animals
		1602 90 10	Other, including preparations of blood of any animal: Preparations of blood of any animal
		1602 90 51	Other, including preparations of blood of any animal: Preparations of blood of any animal: Containing bovine meat or offal
1703	Sugar confectionery (including white chocolate), not containing cocoa		
1902	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared		
2309	Preparations of a kind used in animal feeding		
3304	Beauty or make-up preparations and preparations for the care of the skin (other than medicaments), including sunscreen or suntan preparations; manicure or pedicure preparations		
3404	Artificial waxes and prepared waxes		
3406	Candles, tapers and the like		

HS codes	Description	Examples of more detailed CN codes	Description
4101	Raw hides and skins of bovine (including buffalo) or equine animals (fresh, or salted, dried, limed, pickled or otherwise preserved, but not tanned, parchment-dressed or further prepared), whether or not dehaired or split		
4104	Tanned or crust hides and skins of bovine (including buffalo) or equine animals, without hair on, whether or not split, but not further prepared		
4107	Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine (including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 4114	4107 11	Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine (including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 4114: Whole hides and skins: Full grains, unsplit
		4107 12 11	Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine (including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 4114: Whole hides and skins: Grain splits: Bovine (including buffalo) leather, of a unit surface area not exceeding 28 square feet (2,6 m2): Boxcalf
		4107 12 19	Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine (including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 4114: Whole hides and skins: Grain splits: Bovine (including buffalo) leather, of a unit surface area not exceeding 28 square feet (2,6 m2): Other
		4107 12 91	Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine (including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 4114: Whole hides and skins: Grain splits: Other: Bovine (inlcuding buffalo) leather
		4107 19 10	Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine (including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 4114: Whole hides and skins: Other: – Bovine (including buffalo) leather, of a unit surface area not exceeding 28 square feet (2,6 m2)

HS codes	Description	Examples of more detailed CN codes	Description
		4107 91 10	Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine (including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 4114: Other, including sides: Full grains, unsplit
		4107 92 10	Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine (including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 4114: Other, including sides: Grain splits: Bovine (including buffalo) leather
		4107 99 10	Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine (including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 4114: Other, including sides: Other: Bovine (including buffalo) leather
4114	Chamois (including combination chamois) leather; patent leather and patent laminated leather; metallised leather	4114 10 90	Chamois (including combination chamois) leather; patent leather and patent laminated leather; metallised leather: Chamois (including combination chamois) leather: Of other animals
		4114 20	Chamois (including combination chamois) leather; patent leather and patent laminated leather; metallised leather: Patent leather and patent laminated leather; metallised leather (excl. lacquered or metallised reconstituted leather)
4115	Composition leather with a basis of leather or leather fibre, in slabs, sheets or strip, whether or not in rolls; parings and other waste of leather or of composition leather, not suitable for the manufacture of leather articles; leather dust, powder and flour	4115 10	Composition leather with a basis of leather or leather fibre, in slabs, sheets or strip, whether or not in rolls
		4115 20	Parings and other waste of leather or of composition leather, not suitable for the manufacture of leather articles; leather dust, powder and flour
4201	Saddlery and harness for any animal (including traces, leads, knee pads, muzzles, saddle-cloths, saddlebags, dog coats and the like), of any material		
4202	Trunks, suitcases, vanity cases, executive-cases, briefcases, school satchels, spectacle cases, binocular cases, camera cases, musical instrument cases, gun cases, holsters and similar containers; travelling-bags, insulated food or beverages bags, toilet bags, rucksacks, handbags, shopping-bags, wallets,		

HS codes	Description	Examples of more detailed CN codes	Description
	purses, map-cases, cigarette-cases, tobacco-pouches, tool bags, sports bags, bottle-cases, jewellery boxes, powder boxes, cutlery cases and similar containers, of leather or of composition leather, of sheeting of plastics, of textile materials, of vulcanised fibre or of paperboard, or wholly or mainly covered with such materials or with paper		

Coffee

HS codes	Description	Examples of more detailed CN codes	Description
0401	Milk and cream, not concentrated nor containing added sugar or other sweetening matter		
0402	Milk and cream, concentrated or containing added sugar or other sweetening matter		
0403	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavoured or containing added fruit, nuts or cocoa		
0901	Coffee, whether or not roasted or decaffeinated; coffee husks		
1703	Sugar confectionery (including white chocolate), not containing cocoa		
1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products		
2101	Extracts, essences and concentrates, of coffee, tea or maté and preparations with a basis of these products or with a basis of coffee, tea or maté; roasted chicory and other roasted coffee substitutes, and extracts, essences and concentrates thereof	2101 11	Extracts, essences and concentrates, of coffee, tea or maté and preparations with a basis of these products or with a basis of coffee, tea or maté; roasted chicory and other roasted coffee substitutes, and extracts, essences and concentrates thereof: Extracts, essences and concentrates, of coffee
		2101 12	Extracts, essences and concentrates, of coffee, tea or maté and preparations with a basis of these products or with a basis of coffee, tea or maté; roasted chicory and other roasted coffee substitutes, and extracts, essences and

HS codes	Description	Examples of more detailed CN codes	Description
			concentrates thereof: Preparations with a basis of these extracts, essences or concentrates or with a basis of coffee
2105	Ice cream and other edible ice, whether or not containing cocoa		
2106	Food preparations not elsewhere specified or included		
2208	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80 % vol; spirits, liqueurs and other spirituous beverages		

Cocoa

HS codes	Description	Examples of more detailed CN codes	Description
0401	Milk and cream, not concentrated nor containing added sugar or other sweetening matter		
0402	Milk and cream, concentrated or containing added sugar or other sweetening matter		
0403	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavoured or containing added fruit, nuts or cocoa		
1806	Chocolate and other food preparations containing cocoa		
1901	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing cocoa or containing less than 40 % by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations of goods of headings 0401 to 0404, not containing cocoa or containing less than 5 % by weight of cocoa calculated on a totally defatted basis, not elsewhere specified or included		
1904	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal), pre-cooked or otherwise prepared, not elsewhere specified or included		

HS codes	Description	Examples of more detailed CN codes	Description
1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products	1905 31 11	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products: Sweet biscuits: Completely or partially coated or covered with chocolate or other preparations containing cocoa in immediate packings of a net content not exceeding 85 g
2105	Ice cream and other edible ice, whether or not containing cocoa		
2106	Food preparations not elsewhere specified or included		
2202	Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavoured, and other non-alcoholic beverages, not including fruit or vegetable juices of heading 2009		
2208	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80 % vol; spirits, liqueurs and other spirituous beverages		
3304	Beauty or make-up preparations and preparations for the care of the skin (other than medicaments), including sunscreen or suntan preparations; manicure or pedicure preparations		
3401	Soap; organic surface-active products and preparations for use as soap, in the form of bars, cakes, moulded pieces or shapes, whether or not containing soap; organic surface-active products and preparations for washing the skin, in the form of liquid or cream and put up for retail sale, whether or not containing soap; paper, wadding, felt and nonwovens, impregnated, coated or covered with soap or detergent		

Wood

HS codes	Description	Examples of more detailed CN codes	Description
3804	Residual lyes from the manufacture of wood pulp, whether or not concentrated, desugared or chemically treated, including lignin sulphonates, but excluding tall oil of heading 3803		
4410	Particle board, oriented strand board (OSB) and similar board (for example, waferboard) of		

HS codes	Description	Examples of more detailed CN codes	Description
	wood or other ligneous materials, whether or not agglomerated with resins or other organic binding substances		
4411	Fibreboard of wood or other ligneous materials, whether or not bonded with resins or other organic substances		
4412	Plywood, veneered panels and similar laminated wood		
4414	Wooden frames for paintings, photographs, mirrors or similar objects		
4415	Packing cases, boxes, crates, drums and similar packings, of wood; cable-drums of wood; pallets, box pallets and other load boards, of wood; pallet collars of wood		
4416	Casks, barrels, vats, tubs and other coopers' products and parts thereof, of wood, including staves		
4417	Tools, tool bodies, tool handles, broom or brush bodies and handles, of wood; boot or shoe lasts and trees, of wood		
4418	Builders' joinery and carpentry of wood, including cellular wood panels, assembled flooring panels, shingles and shakes		
4419	Tableware and kitchenware, of wood		
4420	Wood marquetry and inlaid wood; caskets and cases for jewellery or cutlery, and similar articles, of wood; statuettes and other ornaments, of wood; wooden articles of furniture not falling in Chapter 94		
4421	Other articles of wood		
4701	Mechanical wood pulp		
4702	Chemical wood pulp, dissolving grades		
4703	Chemical wood pulp, soda or sulphate, other than dissolving grades		
4704	Chemical wood pulp, sulphite, other than dissolving grades		
4705	Wood pulp obtained by a combination of mechanical and chemical pulping processes		
4801	Newsprint, in rolls or sheets		
4802	Uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes, and non-perforated punchcards and		

HS codes	Description	Examples of more detailed CN codes	Description
	punch-tape paper, in rolls or rectangular (including square) sheets, of any size, other than paper of heading 4801 or 4803; handmade paper and paperboard		
4803	Toilet or facial tissue stock, towel or napkin stock and similar paper of a kind used for household or sanitary purposes, cellulose wadding and webs of cellulose fibres, whether or not creped, crinkled, embossed, perforated, surface-coloured, surface-decorated or printed, in rolls or sheets		
4804	Uncoated kraft paper and paperboard, in rolls or sheets, other than that of heading 4802 or 4803		
4805	Other uncoated paper and paperboard, in rolls or sheets, not further worked or processed than as specified in note 3 to this chapter		
4806	Vegetable parchment, greaseproof papers, tracing papers and glassine and other glazed transparent or translucent papers, in rolls or sheets		
4807	Composite paper and paperboard (made by sticking flat layers of paper or paperboard together with an adhesive), not surface-coated or impregnated, whether or not internally reinforced, in rolls or sheets		
4808	Paper and paperboard, corrugated (with or without glued flat surface sheets), creped, crinkled, embossed or perforated, in rolls or sheets, other than paper of the kind described in heading 4803		
4809	Carbon paper, self-copy paper and other copying or transfer papers (including coated or impregnated paper for duplicator stencils or offset plates), whether or not printed, in rolls or sheets		
4810	Paper and paperboard, coated on one or both sides with kaolin (China clay) or other inorganic substances, with or without a binder, and with no other coating, whether or not surface-coloured, surface-decorated or printed, in rolls or rectangular (including square) sheets, of any size		
4811	Paper, paperboard, cellulose wadding and webs of cellulose fibres, coated, impregnated, covered, surface-coloured, surface-decorated or printed, in rolls or rectangular (including square) sheets, of any size, other than goods of the kind described in heading 4803, 4809 or 4810		

HS codes	Description	Examples of more detailed CN codes	Description
4812	Filter blocks, slabs and plates, of paper pulp		
4813	Cigarette paper, whether or not cut to size or in the form of booklets or tubes		
4814	Wallpaper and similar wallcoverings; window transparencies of paper		
4816	Carbon paper, self-copy paper and other copying or transfer papers (other than those of heading 4809), duplicator stencils and offset plates, of paper, whether or not put up in boxes		
4817	Envelopes, letter cards, plain postcards and correspondence cards, of paper or paperboard; boxes, pouches, wallets and writing compendiums, of paper or paperboard, containing an assortment of paper stationery		
4818	Toilet paper and similar paper, cellulose wadding or webs of cellulose fibres, of a kind used for household or sanitary purposes, in rolls of a width not exceeding 36 cm, or cut to size or shape; handkerchiefs, cleansing tissues, towels, tablecloths, serviettes, bedsheets and similar household, sanitary or hospital articles, articles of apparel and clothing accessories, of paper pulp, paper, cellulose wadding or webs of cellulose fibres		
4819	Cartons, boxes, cases, bags and other packing containers, of paper, paperboard, cellulose wadding or webs of cellulose fibres; box files, letter trays, and similar articles, of paper or paperboard, of a kind used in offices, shops or the like		
4820	Registers, account books, notebooks, order books, receipt books, letter pads, memorandum pads, diaries and similar articles, exercise books, blotting pads, binders (loose-leaf or other), folders, file covers, manifold business forms, interleaved carbon sets and other articles of stationery, of paper or paperboard; albums for samples or for collections and book covers, of paper or paperboard		
4821	Paper or paperboard labels of all kinds, whether or not printed		
4822	Bobbins, spools, cops and similar supports, of paper pulp, paper or paperboard (whether or not perforated or hardened)		
4823	Other paper, paperboard, cellulose wadding and webs of cellulose fibres, cut to size or shape; other articles of paper pulp, paper,		

HS codes	Description	Examples of more detailed CN codes	Description
	paperboard, cellulose wadding or webs of cellulose fibres		
6403	Footwear with outer soles of rubber, plastics, leather or composition leather and uppers of leather	6403 51 05	Footwear with outer soles of rubber, plastics, leather or composition leather and uppers of leather: Covering the ankle: Made on a base or platform of wood, not having an inner sole
6808	Panels, boards, tiles, blocks and similar articles of vegetable fibre, of straw or of shavings, chips, particles, sawdust or other waste of wood, agglomerated with cement, plaster or other mineral binders		
7318	Screws, bolts, nuts, coach screws, screw hooks, rivets, cotters, cotter pins, washers (including spring washers) and similar articles, of iron or steel	7318 12	Screws, bolts, nuts, coach screws, screw hooks, rivets, cotters, cotter pins, washers (including spring washers) and similar articles, of iron or steel: Other wood screws
8480	Moulding boxes for metal foundry; mould bases; moulding patterns; moulds for metal (other than ingot moulds), metal carbides, glass, mineral materials, rubber or plastics	8480 30 10	Moulding boxes for metal foundry; mould bases; moulding patterns; moulds for metal (other than ingot moulds), metal carbides, glass, mineral materials, rubber or plastics: Moulding patterns: Of wood
9401	Seats (other than those of heading 9402), whether or not convertible into beds, and parts thereof		
9403	Other furniture and parts thereof		
9406	Prefabricated buildings		
9503	Tricycles, scooters, pedal cars and similar wheeled toys; dolls' carriages; dolls; other toys; reduced-size ('scale') models and similar recreational models, working or not; puzzles of all kinds		
9504	Video game consoles and machines, articles for funfair, table or parlour games, including pintables, billiards, special tables for casino games and automatic bowling alley equipment		
9505	Festive, carnival or other entertainment articles, including conjuring tricks and novelty jokes:		
9506	Articles and equipment for general physical exercise, gymnastics, athletics, other sports (including table tennis) or outdoor games, not specified or included elsewhere in this chapter; swimming pools and paddling pools		
9603	Brooms, brushes (including brushes constituting parts of machines, appliances or		

HS codes	Description	Examples of more detailed CN codes	Description
	vehicles), hand-operated mechanical floor sweepers, not motorised, mops and feather dusters; prepared knots and tufts for broom or brush making; paint pads and rollers; squeegees (other than roller squeegees)		
9608	Ballpoint pens; felt-tipped and other porous-tipped pens and markers; fountain pens, stylograph pens and other pens; duplicating stylos; propelling or sliding pencils; pen-holders, pencil-holders and similar holders; parts (including caps and clips) of the foregoing articles, other than those of heading 9609		
9609	Pencils (other than pencils of heading 9608), crayons, pencil leads, pastels, drawing charcoals, writing or drawing chalks and tailors' chalks		
9614	Smoking pipes (including pipe bowls) and cigar or cigarette holders, and parts thereof		

Sugar

HS codes	Description	Examples of more detailed CN codes	Description
0402	Milk and cream, concentrated or containing added sugar or other sweetening matter		
0403	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavoured or containing added fruit, nuts or cocoa		
0404	Whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included		
0405	Butter and other fats and oils derived from milk; dairy spread		
0406	Cheese and curd		
0408	Birds' eggs, not in shell, and egg yolks, fresh, dried, cooked by steaming or by boiling in water, moulded, frozen or otherwise preserved, whether or not containing added sugar or other sweetening matter		

HS codes	Description	Examples of more detailed CN codes	Description
0811	Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter		
0812	Fruit and nuts, provisionally preserved (for example, by sulphur dioxide gas, in brine, in sulphur water or in other preservative solutions), but unsuitable in that state for immediate consumption		
0813	Fruit, dried, other than that of headings 0801 to 0806 ; mixtures of nuts or dried fruits of this chapter		
0814	Peel of citrus fruit or melons (including watermelons), fresh, frozen, dried or provisionally preserved in brine, in sulphur water or in other preservative solutions		
1701	Cane or beet sugar and chemically pure sucrose, in solid form		
1702	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavouring or colouring matter; artificial honey, whether or not mixed with natural honey; caramel		
1703	Molasses resulting from the extraction or refining of sugar		
1704	Sugar confectionery (including white chocolate), not containing cocoa		
1806	Chocolate and other food preparations containing cocoa	1806 10	Cocoa powder, containing added sugar or other sweetening matter
1902	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared		
1904	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal), pre-cooked or otherwise prepared, not elsewhere specified or included		
1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products		

HS codes	Description	Examples of more detailed CN codes	Description
2001	Vegetables, fruit, nuts and other edible parts of plants, prepared or preserved by vinegar or acetic acid		
2006	Vegetables, fruit, nuts, fruit-peel and other parts of plants, preserved by sugar (drained, glacé or crystallised)		
2007	Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, whether or not containing added sugar or other sweetening matter		
2008	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included		
2009	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter:		
2103	Sauces and preparations therefor; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard		
2104	Soups and broths and preparations therefor; homogenised composite food preparations		
2105	Ice cream and other edible ice, whether or not containing cocoa		
2106	Food preparations not elsewhere specified or included		
2202	Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavoured, and other non-alcoholic beverages, not including fruit or vegetable juices of heading 2009		
2207	Undenatured ethyl alcohol of an alcoholic strength by volume of 80 % vol or higher; ethyl alcohol and other spirits, denatured, of any strength	2207 10	Undenatured ethyl alcohol of an alcoholic strength by volume of 80 % vol or higher; ethyl alcohol and other spirits, denatured, of any strength: Undenatured ethyl alcohol of an alcoholic strength by volume of 80 % vol or higher
2208	Undenatured ethyl alcohol of an alcoholic strength by volume of less than 80 % vol; spirits, liqueurs and other spirituous beverages		
2209	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not		

HS codes	Description	Examples of more detailed CN codes	Description
	containing added sugar or other sweetening matter		
2303	Residues of starch manufacture and similar residues, beet-pulp, bagasse and other waste of sugar manufacture, brewing or distilling dregs and waste, whether or not in the form of pellets		
2309	Preparations of a kind used in animal feeding		
3826	Biodiesel and mixtures thereof, not containing or containing less than 70 % by weight of petroleum oils or oils obtained from bituminous minerals		

Rubber

HS codes	Description	Examples of more detailed CN codes	Description
3506	Prepared glues and other prepared adhesives, not elsewhere specified or included; products suitable for use as glues or adhesives, put up for retail sale as glues or adhesives, not exceeding a net weight of 1 kg:	3506 91	Prepared glues and other prepared adhesives, not elsewhere specified or included; products suitable for use as glues or adhesives, put up for retail sale as glues or adhesives, not exceeding a net weight of 1 kg: Adhesives based on polymers of headings 3901 to 3913 or on rubber
4005	Compounded rubber, unvulcanised, in primary forms or in plates, sheets or strip		
4006	Other forms (for example, rods, tubes and profile shapes) and articles (for example, discs and rings), of unvulcanised rubber		
4007	Vulcanised rubber thread and cord		
4008	Plates, sheets, strip, rods and profile shapes, of vulcanised rubber other than hard rubber		
4009	Tubes, pipes and hoses, of vulcanised rubber other than hard rubber, with or without their fittings (for example, joints, elbows, flanges)		
4010	Conveyor or transmission belts or belting, of vulcanised rubber		
4011	New pneumatic tyres, of rubber		
4012	Retreaded or used pneumatic tyres of rubber; solid or cushion tyres, tyre treads and tyre flaps, of rubber		
4013	Inner tubes, of rubber		

HS codes	Description	Examples of more detailed CN codes	Description
4014	Hygienic or pharmaceutical articles (including teats), of vulcanised rubber other than hard rubber, with or without fittings of hard rubber		
4015	Articles of apparel and clothing accessories (including gloves, mittens and mitts), for all purposes, of vulcanised rubber other than hard rubber: Gloves, mittens and mitts		
4016	Other articles of vulcanised rubber other than hard rubber		
4017	Hard rubber (for example, ebonite) in all forms, including waste and scrap; articles of hard rubber		
5604	Rubber thread and cord, textile covered; textile yarn, and strip and the like of heading 5404 or 5405, impregnated, coated, covered or sheathed with rubber or plastics		
5607	Twine, cordage, ropes and cables, whether or not plaited or braided and whether or not impregnated, coated, covered or sheathed with rubber or plastics		
5902	Tyre cord fabric of high-tenacity yarn of nylon or other polyamides, polyesters or viscose rayon		
5906	Rubberised textile fabrics, other than those of heading 5902		
5911	Textile products and articles, for technical uses, specified in note 7 to this chapter	5911 10	Textile products and articles, for technical uses, specified in note 7 to this chapter: Textile fabrics, felt and felt-lined woven fabrics, coated, covered or laminated with rubber, leather or other material, of a kind used for card clothing, and similar fabrics of a kind used for other technical purposes, including narrow fabrics made of velvet impregnated with rubber, for covering weaving spindles (weaving beams)
6116	Gloves, mittens and mitts, knitted or crocheted		
6117	Other made-up clothing accessories, knitted or crocheted; knitted or crocheted parts of garments or of clothing accessories		
6401	Waterproof footwear with outer soles and uppers of rubber or of plastics, the uppers of which are neither fixed to the sole nor assembled by stitching, riveting, nailing, screwing, plugging or similar processes maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats		

HS codes	Description	Examples of more detailed CN codes	Description
	and meal), pre-cooked or otherwise prepared, not elsewhere specified or included		
6402	Other footwear with outer soles and uppers of rubber or plastics		
6403	Footwear with outer soles of rubber, plastics, leather or composition leather and uppers of leather		
6404	Footwear with outer soles of rubber, plastics, leather or composition leather and uppers of textile materials		
6405	Other footwear		
6406	Parts of footwear (including uppers whether or not attached to soles other than outer soles); removable insoles, heel cushions and similar articles; gaiters, leggings and similar articles, and parts thereof	6406 20 10	Parts of footwear (including uppers whether or not attached to soles other than outer soles); removable insoles, heel cushions and similar articles; gaiters, leggings and similar articles, and parts thereof: Outer soles and heels, of rubber or plastics: Of rubber
6506	Other headgear, whether or not lined or trimmed		
9404	Mattress supports; articles of bedding and similar furnishing (for example, mattresses, quilts, eiderdowns, cushions, pouffes and pillows) fitted with springs or stuffed or internally fitted with any material or of cellular rubber or plastics, whether or not covered		
9615	Combs, hair-slides and the like; hairpins, curling pins, curling grips, hair-curlers and the like, other than those of heading 8516, and parts thereof		

Cereals

HS codes	Description	Examples of more detailed CN codes	Description
1101	Wheat or meslin flour		
1102	Cereal flours other than of wheat or meslin		
1104	Cereal grains otherwise worked (for example, hulled, rolled, flaked, pearled, sliced or kibbled), except rice of heading 1006; germ of cereals, whole, rolled, flaked or ground		
1108	Starches; inulin		

HS codes	Description	Examples of more detailed CN codes	Description
1902	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagne, gnocchi, ravioli, cannelloni; couscous, whether or not prepared		
1904	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, corn flakes); cereals (other than maize (corn)) in grain form or in the form of flakes or other worked grains (except flour, groats and meal), pre-cooked or otherwise prepared, not elsewhere specified or included	1904 30	Bulgur wheat
1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products		
2106	Food preparations not elsewhere specified or included		
2202	Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavoured, and other non-alcoholic beverages, not including fruit or vegetable juices of heading 2009		
2203	Beer made from malt		
2309	Preparations of a kind used in animal feeding		

Information received from stakeholders

The table below shows an overview of stakeholders consulted and the literature resources reviewed to build the above list of derived products with HS codes. In addition, the Commission has been provided separately with the list of HS/CN codes submitted by stakeholders.

Table D-10 Overview of stakeholders consulted and literature sources reviewed to prepare the list of derived products

Commodity	Stakeholders	Literature sources
Palm oil	Roundtable on Sustainable Palm Oil (RSPO): not-for-profit organisation composed by different palm oil-sector stakeholders, developing and implementing global standards for sustainable palm oil FEDIOL: the EU vegetable oil and proteinmeal industry association, representing the interests of the European oilseed crushers, vegetable oil refiners and bottlers Netherlands Oils and Fats Industry (MVO): represents the industry of 95% of companies in the Netherlands that are active in the production, processing and trade of vegetable and animal oils and fats	Products without palm oil.com, What Types Of Products Is Palm Oil In? European Commission (2016), Study on the environmental impact of palm oil consumption and on existing sustainability standards Green Palm.org, What is palm oil used for?

Commodity	Stakeholders	Literature sources
Soy	Round Table on Responsible Soy Association (RTRS): a non-profit organisation promoting the growth of production, trade, and use of responsible soy. It works through cooperation with those in, and related to, the soy value chain, from production to consumption	WWF, Soy IDH (2020), European Soy Monitor Bothends (2014), Soy barometer 2014 John Hopkins Medicine, General guidelines for soy allergy
Bovine	The European Feed Manufacturers' Federation (FEFAC): represents the interests of the European compound feed and premix industry with the European Institutions, international bodies, and stakeholders platforms and encourages the sustainable development of livestock production European Livestock and Meat Trades Union (UECBV): represents the interests of livestock trade and markets, the meat industry, wholesale meat trade, and international meat traders	Government of Canada, Market intelligence reports Viva.org, List of Beef products
Coffee	European Coffee Federation (ECF): representative organisation of the coffee industry in the EU, facilitating the development of an environment in which the coffee industry can meet the needs of consumers and society, while competing effectively for sustainable growth. Nestle: the world's largest multinational food and drink processing company	Government of UK, UK Integrated Online Tariff Delish.com, 21 Creative Coffee-Flavoured Products for Java Junkies
Cocoa	Association of Chocolate, Biscuit and Confectionery Industries of Europe (CAOBISCO): represents more than 13 000 European chocolate, biscuits and confectionery manufacturing companies. European Cocoa Association (ECA): has the objective to study, research and implement adequate solutions to any matter affecting the industry, the trading and the logistics of the cocoa sector, as well as to promote close cooperation on these matters between its members at European level Ferrero: manufacturer of branded chocolate and confectionery products International Cocoa Organization (ICCO): inter-governmental organisation supporting the Sustainable Development of the global cocoa sector by fostering cooperation amongst its Member Countries and between the later and other cocoa stakeholders World Cocoa Foundation (WCF): non-profit international membership organisation promoting a sustainable cocoa sector, where farmers prosper, communities are empowered, and the planet is healthy. Nestle: the world's largest multinational food and drink processing company	Eurlex, cocoa and chocolate
Wood	European Confederation of the Woodworking Industries (CEI-bois): a non-profit organisation promoting the interests of the European wood sector and to this end to contribute to the EU policy-making process and highlighting the natural sustainability of wood and wood-based products. The European association representing the paper industry (Cepi): a non-profit-making organisation representing the paper industry with EU institutions and Brussels based stakeholders and securing pulp and paper industries competitiveness towards EU policy makers IKEA: a retail business selling wood furniture Gesamtverband Deutscher Holzhandel e. V. (GD Holz): representative branch association of the German timber trade bundling the economic interests of 800 member companies and representing the industry towards politics, organizations, the media and society	UK Cooperative Extension Service, Products Made From Wood Preferred by Nature, EUTR which products are covered?
Sugar	European Association of Sugar Manufacturers (CEFS) is an international non-profit organisation and a recognised interlocutor for the EU Institutions, sharing knowledge and technical expertise on sugar Association of Chocolate, Biscuit and Confectionery Industries of Europe (CAOBISCO): represents more than 13 000 European chocolate, biscuits and confectionery manufacturing companies.	

Commodity	Stakeholders	Literature sources
	Joint Secretariat of Agricultural Trade Associations (SACAR): not-for-profit umbrella organisation serving and promoting the interests of its members, all active in the EU and international agriculture and agri-food sector. European Association of Sugar Traders (ASSUC): the representative body of the European sugar trade, focusing on continuously improving technical details of EU policies in order to promote a well-functioning sugar market. Nestle: the world's largest multinational food and drink processing company	
Rubber	The European Tyre and Rubber Manufacturers' Association (ETRMA): represents the regulatory and related interests of the European tyre and rubber manufacturers at both the European and international level Bridgestone: a manufacturer of tires and tubes, and a provider of automotive parts, automotive maintenance and repair services, raw materials for tires and other products Goodyear: producer of a wide range of tires for consumers all over the world Continental AG: develops pioneering technologies and services for sustainable and connected mobility of people and their goods, offering solutions for vehicles, machines, traffic and transportation.	Business-biodiversity.eu, Natural rubber products Fair rubber.org, What is rubber? Premier Safety Institute, Products Containing Latex
Cereals	European Breakfast Cereal Association (CEEREAL): represents the breakfast cereal and oat milling industry towards the European Union and its institutions, industry and consumers associations as well as consumers, promoting sustainable growth and innovation for its industry representatives. Nestle: the world's largest multinational food and drink processing company	FAO, Definition and classification of commodities

Appendix E Data underpinning the baseline results

Information on sources

The sources in the tables below are as follows (the methodology is described in Chapter 7 of the report):

- Past data on production was sourced from FAOSTAT (http://www.fao.org/faostat/en/#data);
- Past data on deforestation rates was sourced from the FAO Forest Resource Assessment database (https://fra-data.fao.org/EU27/fra2020/home/);
- Past data on emissions was sourced from the Global Forest Watch (GFW) database (https://data.globalforestwatch.org/);
- Expected growth rates of consumption (CAGR) were used to make projections. They were calculated based on the following sources:
  - DG AGRI EU Agricultural Outlook (https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/agricultural-outlook-2020-report_en.pdf);
  - OECD-FAO Agricultural Outlook 2020-2029 (https://stats.oecd.org/Index.aspx?datasetcode=HIGH_AGLINK_2019); and,
  - Jonsson et al. (2021), Boosting the EU forest-based bioeconomy: Market, climate, and employment impacts, https://www.sciencedirect.com/science/article/pii/S0040162520313044.

Volume of key commodities produced annually in EU27, in million tonnes

2009-2019

Total production	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Production (Mtonnes)	134.2	150.8	150.9	142.0	143.5	153.7	154.6	157.2	162.3	176.8	179.3

2020-2030

Total production	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Production (Mtonnes)	179.4	179.6	179.8	179.9	180.1	180.3	180.4	180.6	180.8	180.9	181.1

Volume of key commodities produced annually in Member States (disaggregated), in million tonnes and share (%) of total

2009-2019

	Quantity produced 2019-2019 (Mtonnes)			Quantity produced 2019-2019 (%)		
	Soybeans	Cattle meat	Wood products	Soybeans	Cattle meat	Wood products
Austria	1.5	2.5	90.7	7%	3%	6%
Belgium	-	3.0	20.4	0%	4%	1%
Bulgaria	0.1	0.2	10.3	0%	0%	1%
Croatia	1.9	0.5	5.3	9%	1%	0%
Cyprus	-	0.1	0.0	0%	0%	0%
Czechia	0.2	0.8	98.4	1%	1%	6%
Denmark	-	1.4	7.9	0%	2%	0%
Estonia	-	0.1	29.7	0%	0%	2%
Finland	-	0.9	200.4	0%	1%	12%
France	2.7	16.2	120.1	13%	21%	7%
Germany	0.3	12.6	309.5	2%	17%	19%
Greece	0.0	0.6	2.1	0%	1%	0%
Hungary	1.4	0.3	1.5	7%	0%	0%
Ireland	-	6.2	15.9	0%	8%	1%
Italy	9.0	9.5	12.4	44%	12%	1%
Latvia	-	0.2	51.5	0%	0%	3%
Lithuania	0.0	0.5	22.0	0%	1%	1%
Luxembourg	-	0.1	0.8	0%	0%	0%
Malta	-	0.0	-	0%	0%	0%
Netherlands	-	4.4	2.5	0%	6%	0%
Poland	0.1	5.1	126.8	0%	7%	8%
Portugal	-	1.0	19.8	0%	1%	1%
Romania	2.7	1.3	41.8	13%	2%	3%
Slovakia	0.7	0.1	34.6	4%	0%	2%

Slovenia	0.0	0.4	17.7	0%	0%	1%
Spain	0.0	6.8	29.3	0%	9%	2%
Sweden	-	1.5	336.8	0%	2%	21%
Total	20.7	76.3	1 608.3	100%	100%	100%

2020-2030

	Quantity produced 2020-2030 (Mtonnes)			Quantity produced 2020-2030 (%)		
	Soybeans	**Cattle meat**	**Wood products**	**Soybeans**	**Cattle meat**	**Wood products**
Austria	2.5	2.4	93.8	8%	3%	5%
Belgium	-	2.8	20.6	0%	4%	1%
Bulgaria	0.1	0.2	11.6	0%	0%	1%
Croatia	2.8	0.5	5.2	9%	1%	0%
Cyprus	-	0.1	0.0	0%	0%	0%
Czechia	0.3	0.8	183.5	1%	1%	10%
Denmark	-	1.3	9.1	0%	2%	0%
Estonia	-	0.1	32.7	0%	0%	2%
Finland	-	0.9	219.0	0%	1%	12%
France	4.9	15.1	119.2	15%	20%	6%
Germany	1.0	11.7	366.9	3%	16%	20%
Greece	0.0	0.4	1.3	0%	0%	0%
Hungary	1.9	0.3	1.5	6%	0%	0%
Ireland	-	6.5	20.5	0%	9%	1%
Italy	11.9	8.2	57.7	37%	11%	3%
Latvia	-	0.2	53.9	0%	0%	3%
Lithuania	0.0	0.4	23.4	0%	1%	1%
Luxembourg	-	0.1	1.0	0%	0%	0%
Malta	-	0.0	-	0%	0%	0%
Netherlands	-	4.5	1.7	0%	6%	0%
Poland	0.2	5.9	140.6	1%	8%	7%

Portugal	-	1.0	18.6	0%	1%	1%
Romania	5.0	1.1	36.8	16%	1%	2%
Slovakia	1.4	0.1	34.7	4%	0%	2%
Slovenia	0.0	0.4	19.9	0%	1%	1%
Spain	0.1	7.3	43.1	0%	10%	2%
Sweden	-	1.5	360.8	0%	2%	19%
Total	**32.0**	**73.7**	**1 877.2**	**100%**	**100%**	**100%**

Total embodied deforestation and emissions in EU27 (cumulated), in kha and Mtonnes CO_2, respectively

2009-2019

Impact	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total deforestation	55	118	118	118	118	118	46	46	46	46	46
Total emissions	20	41	41	41	41	41	18	18	18	18	18
Total deforestation (excl. IT and PT)	55	75	75	75	75	75	46	46	46	46	46
Total emissions (excl. IT and PT)	20	26	26	26	26	26	18	18	18	18	18

2020-2030

Impact	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total deforestation	47	47	47	48	48	48	48	48	48	48	48
Total emissions	19	19	19	19	19	19	19	19	19	19	19
Total deforestation (excl. IT and PT)	47	47	47	48	48	48	48	48	48	48	48
Total emissions (excl. IT and PT)	19	19	19	19	19	19	19	19	19	19	19

Total embodied deforestation and emissions in Member States (disaggregated), in kha and Mtonnes CO_2, respectively

	Deforestation, kha		Emissions, Mtonnes CO_2	
	2009-2019	2020-2030	2009-2019	2020-2030
Austria	65.8	66.2	32.9	33.0
Belgium	16.6	15.9	8.5	8.2
Bulgaria	-	-	-	-
Croatia	1.0	0.6	0.3	0.2
Cyprus	-	-	-	-
Czechia	-	-	-	-
Denmark	4.6	6.9	1.5	2.3
Estonia	87.5	53.3	25.3	15.4
Finland	4.8	-	1.1	-
France	-	-	-	-
Germany	75.8	87.8	42.7	49.5
Greece	-	-	-	-
Hungary	24.9	34.6	9.7	13.5
Ireland	6.8	7.6	3.3	3.7
Italy	18.5	-	5.2	-
Latvia	3.8	4.0	1.3	1.4
Lithuania	1.5	1.6	0.5	0.5
Luxembourg	-	-	-	-
Malta	-	-	-	-
Netherlands	36.2	21.5	16.0	9.6
Poland	7.5	8.6	2.8	3.2
Portugal	198.0	-	68.7	-
Romania	0.8	0.2	0.3	0.1
Slovakia	-	-	-	-
Slovenia	12.0	19.8	6.3	10.4

	Deforestation, kha		Emissions, Mtonnes CO_2	
Spain	34.3	48.2	13.2	18.5
Sweden	276.8	146.9	74.6	39.6
Total	877.3	523.5	314.4	208.9