

Feasibility study on options to step up EU action against deforestation

PART I: Background analysis: scale and trends of global deforestation and
assessment of EU contribution

and

PART II: A potential EU initiative on deforestation: Possible interventions

FINAL REPORT

ECOFYS



COWI

Feasibility study on options to step up EU action against de- forestation

PART I

BACKGROUND ANALYSIS AND SETTING THE SCENE: SCALE AND TRENDS OF GLOBAL DEFORESTATION AND ASSESSMENT OF EU CONTRIBUTION

FINAL REPORT

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ABSTRACT

This study explores the feasibility of options to step up EU action against deforestation. Its results are presented in two reports: 'Part I: Background analysis and setting the scene: scale and trends of global deforestation and assessment of EU contribution' and 'Part II: A potential EU initiative on deforestation: possible interventions'. Part I analyses recent global and regional trends in deforestation and the linkages with the production and consumption of twelve key Forest Risk Commodities, with a focus on the role of the EU and its impacts. Further, the study reviews relevant EU policies, legislation and initiatives and ongoing international and regional efforts by private sector, governments and civil society. Building on the analytical insights gained in Part I, the Part II report makes suggestions on the framing of a possible EU initiative to tackle deforestation and its root causes and drivers. This includes specific objectives and a range of potential EU interventions tackling different dimension of the problem (supply and demand side drivers, as well as the role of finance & investments). All identified interventions are assessed against a shared set of assessment criteria: feasibility and effectiveness; political acceptance, technical complexity; and administrative costs. Given the complexity of the problem, any potential EU initiative should consider a package of interventions which addresses the supply, demand and finance dimensions, building on and reinforcing existing EU action as well as government and private sector commitments on zero deforestation and other relevant international initiatives.

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ABBREVIATIONS AND DEFINITIONS

Abbreviations

ASC	Aquaculture Stewardship Council
BCM	Bilateral Coordination Mechanism
CAP	Common Agricultural Policy
CBD	United Nations Convention on Biological Diversity
CIFOR	Center for International Forestry Research
CITES	UN Convention on International Trade in Endangered Species of Wild Fauna and Flora
CoC	Chain-of-Custody
COM	European Commission
COP	Conference of the Parties (to UNFCCC)
CSR	Corporate Social Responsibility
DCI	Development Cooperation Instrument
DG	Directorate-General
EU	European Union
EUTR	EU Timber Regulation
EU-ETS	European Union Emission Trading Scheme
FAO	United Nations Food and Agriculture Organization
FAOSTAT	FAO Statistical Database
FLEGT	Forest Law Enforcement, Governance, and Trade
FLEGT-AP	FLEGT-Action Plan
FRC	Forest Risk Commodities
FSC	Forest Stewardship Council
FTA	Foreign Trade Agreement
GEF	Global Environment Facility
GFRA	FAO Global Forest Resource Assessment
GHG	Greenhouse Gases
GPGC	Global Public Goods and Challenges Programme
GPP	Green Public Procurement
GTPS	Brazilian Roundtable on Sustainable Livestock
HCV	High Conservation Value
HS	WTO Harmonised System
IGC	International Grains Council
ISCC	International Sustainability & Carbon Certification
IFI	International Financing Institution
ILUC	Indirect Land Use Change
IOM	International Organization for Migration

IPCC	Intergovernmental Panel on Climate Change
ITTO	International Tropical Timber Organization
IUU	Illegal, Unreported and Unregulated Fishing
JA-ZDC	Jurisdictional Approach to Zero Deforestation Commodities
LA	Latin America
LCA	Life Cycle Analysis
LUC	Land Use Change
LULUCF	Land Use, Land Use Change, and Forestry
Mha	Million hectares
MIP	Multiannual Indicative Programme
MRV	Monitoring, Reporting and Verification
MS	Member State
Mt	Megatonnes (1 million metric tonnes)
NGO	Non-Governmental Organisation
NYDF	New York Declaration on Forests
OEC	The Observatory of Economic Complexity
OECD	Organisation for Economic Cooperation and Development
PEFC	Programme for the Endorsement of Forest Certification
RDP	Rural Development Programme
RE	Renewable Energy
RED	Renewable Energy Directive
REDD+	Reduced Emissions from Deforestation and forest Degradation, and fostering conservation, sustainable management of forests, and enhancement of forest carbon stocks.
RSB	Roundtable on Sustainable Biomaterials
RSPO	Roundtable on Sustainable Palm Oil
RTRS	Round Table on Responsible Soy
SDG	Sustainable Development Goals
SEA	South East Asia
SIA	Sustainable Impact Assessment
SITC	Standard International Trade Classification
SSA	Sub-Saharan Africa
TRASE	Transparency for Sustainable Economies
UNCOMTRADE	The United Nations Commodity Trade Statistics Database
UNEP	The United Nations Environment Programme
UNFCCC	The United Nations Framework Convention on Climate Change
UNGP	UN Guiding Principles on Business and Human Rights
USDA	United States Department of Agriculture
VPA	Voluntary Partnership Agreement
WTO	World Trade Organisation

Definitions

Deforestation	The conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold
Forest degradation	The reduction of the capacity of a forest to provide goods and services.
Gross Forest Loss	Gross Forest Loss is the total loss of forest (in a given time period), i.e. not taking into account any reforestation or afforestation.
Net Forest Loss	Net Forest Loss is equal to the Gross Forest Loss minus any reforestation and afforestation, i.e. this number takes into account that reforestation or afforestation has compensated for some of the forest lost to deforestation. It shows the total area by which the forest size has shrunken in a given period.

EXECUTIVE SUMMARY

This study, entitled 'Feasibility study on options to step up EU action against deforestation', explores the feasibility of options for stepping up EU action against deforestation and forest degradation in tropical forests. It is divided into two parts:

- Part I, 'Background analysis and setting the scene: scale and trends of global deforestation and assessment of EU contribution', provides detailed background information. It summarises research and data on recent trends in global deforestation, the extent to which activities in the EU contribute to the problem and forward projections for likely future developments. It also summarises the initiatives undertaken by international and EU actors to influence the drivers, causes and trends in deforestation.
- Part II, 'A potential EU initiative on deforestation: possible interventions', analyses the problem of deforestation and forest degradation, its root causes and drivers. Based on this analysis, it develops objectives for a possible EU initiative to address the problem, identifies a range of potential interventions and analyses them in terms of feasibility and effectiveness, political acceptance, technical complexity and administrative costs. Finally, it makes proposals on how different interventions could be combined around different options.

Preliminary findings from the work were presented during a stakeholders' conference on 'Tackling illegal logging and deforestation: progress made and opportunities for future action' organised by the European Commission on 21–23 June 2017 in Brussels¹. The reflections of stakeholders during the event and subsequent written contributions submitted through the European Commission have informed the report. A list of stakeholders that provided written inputs and considerations is provided in Annex II.

The methodology used for the identification and analysis of options aims to follow the logic of the EC Better Regulation Guidelines for impact assessments. As a feasibility study, the study concentrates on: a) providing a **solid background** against which to identify problems, drivers, objectives, and assess the feasibility of any potential interventions (Part I); b) conduct the **feasibility assessment** in terms of identifying the problems to be addressed, its drivers and the objectives to pursue; as well as selecting a number of relevant interventions, assess them against a set of pre-defined criteria and consider how to combine them into options (Part II).

The problem of deforestation

The overall problem is framed as the continued loss of forests and forest ecosystem services through deforestation and forest degradation in the tropics².

According to FAO estimates, around 7.6 million ha of forests were lost every year at the global level between 2010 and 2015.³ While the rate of deforestation appears to have slowed compared to previous decades, it nevertheless remains alarmingly high. Furthermore, there are substantial regional differences, with deforestation at its highest in tropical and sub-tropical regions, particularly in the three major forest basins of the Amazon (South America), Congo (Central Africa) and Southeast Asia.

¹ <http://illegallogging-deforestation-conference.eu>

² Although deforestation and forest degradation is not limited to the tropics, but also take place in some temperate and boreal areas, the scope of this study is limited to the tropics. The reasoning behind this is that most of the global forest loss is found in tropical countries, while the forest area is growing in boreal countries. Further, the commodities driving deforestation are (for the most part) produced in tropical areas.

³ Food and Agriculture Organization of the United Nations, *Global forest resources assessment 2015*. Rome, Italy: FAO. Available at: www.fao.org/forest-resources-assessment/en.

The associated environmental, economic and social impacts are significant. The livelihoods of more than 1.6 billion people are estimated to be dependent on forest resources. Forests are not only an essential source of timber, food and fibres, but they are also home to 80% of the world’s terrestrial biodiversity, are a major provider of various ecosystem services, and play a significant role in the global carbon cycle. Deforestation accounts annually for more greenhouse emissions than the total EU economy.⁴

This loss of forest can be categorised as both deforestation (i.e. ‘The conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold.’, by FAO) and forest degradation (i.e. ‘the reduction of the capacity of a forest to provide goods and services’, according to the FAO).

There are many underlying drivers of deforestation, but agricultural expansion for the production of a number of key commodities is a key driver across all geographies. This in turn is linked to a growth in global demand for commodities such as palm oil, soy and beef. Forest degradation is linked more to the extraction of timber and non-timber forest products than to agriculture.

Table 1 Simplified overview of the key causalities of deforestation and of degradation

	Deforestation	Forest degradation
Agricultural expansion	Dominant	Only indirectly through subsistence and small-scale farming or shifting cultivation.
Forest products extraction	Yes, mainly linked to (commercial) timber extraction and subsequent land use change	Dominant
Infrastructure	Yes, <10%	Only indirectly, e.g. through expanding transportation networks (road, rail, etc.), thus making forest areas accessible to harvesting
Urban sprawl	Yes, <10%	Only indirectly, e.g. by harvest in forest by urban dwellers
Mining	Yes, <10%	Only indirectly, e.g. by release of pollutants
Natural causes (forest fires, climate change, pests & disease)	Only indirectly	Yes

The cultivation of crops or maintaining animal pasture can be the cause of deforestation or forest degradation to the extent that this involves land-use change or has a significant impact on forest ecosystem. The term ‘forest risk commodity’ (FRC) is used in this study to refer to those commodities that are most commonly related to deforestation and degradation. FRCs are defined as: *“globally traded goods and raw materials that originate from tropical forest ecosystems, either directly from within forest areas, or from areas previously under forest cover, whose extraction or production contributes significantly to global tropical deforestation and degradation”*.⁵ It should nevertheless be emphasised that production of forest risk commodities does not necessarily cause deforestation or forest degradation, but in practice they are often associated.

⁴ Grassi G, House J, Dentener F, Federici S, den Elzen M, Penman J. (2017) The key role of forests in meeting climate targets requires science for credible mitigation. *Nature Climate Change*, 7:220-226

⁵ Rautner et al., (2013)

This study focuses mainly on seven key forest risk commodities: palm oil, soy, rubber, beef, maize, cocoa and coffee. The focus on these seven commodities is motivated by the result of the analyses undertaken in the context of this work and available in Part I of this report. These analyses build on a wealth of literature covering matters such as traded volumes, past and projected deforestation rates, the EU's share of global demand, and the extent to which EU imports originate from areas defined as risk geographies. Other studies suggest that among the seven commodities, beef, soy and palm oil are the main contributors to deforestation, though beef is more likely to be consumed in its country of origin than palm oil and soy, which are more extensively exported.

The role of a possible EU action – problem, drivers and objectives

A possible EU initiative would be concerned with addressing the global problem by focusing on EU's contribution to deforestation and forest degradation associated with the production of FRCs or products made from them. This includes also the contribution generated through flows of finance and investment from the EU to activities associated with deforestation overseas. More specifically the problem to be addressed is formulated as:

The problem is a continued loss of tropical and subtropical forests and forest ecosystem services. This is a result of both legal and illegal deforestation and forest degradation, though mostly for the permanent conversion of forest land into agriculture and pasture for the production of commodities, such as soy, beef and palm oil. The EU demands (imports and consumes) a range of commodities (and commodity-based products), while a range of EU-based actors plays a role in investments in forest risk sectors and supply chains. This translates into an EU land footprint that contributes to global land pressure.

Possible steps taken to address this problem will also be supportive of the EU's commitment to the Paris Agreement on climate change and to the 2030 Agenda for Sustainable Development, particularly SDG 15. SDG 15 requires countries to protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, halt and reverse land degradation and halt biodiversity loss.

Deforestation associated with the cultivation of forest risk commodities can be driven by factors on the supply side, i.e. in the country of origin; by factors on the demand side, e.g. in the EU; and by flows of investments and finance from the EU to producer countries.

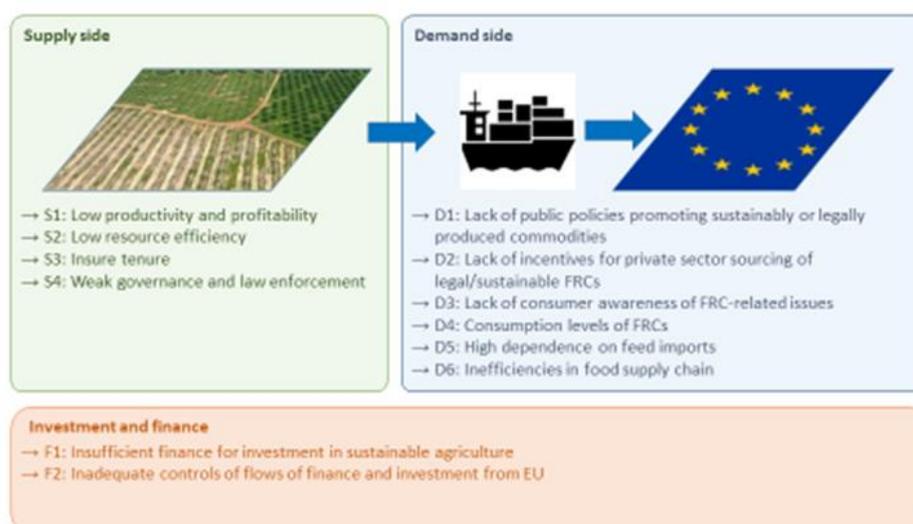


Figure 1 Overview of drivers of deforestation and forest degradation

This study identifies specific drivers of the problem. The drivers are categorised according to whether they are demand-side drivers, supply-side drivers or drivers related to finance and investment.

Table 2 Detailed overview of categories of drivers

Category, driver and brief explanation		
Supply	Low productivity	Low productivity (below the technical optimal production) at farm, plot or plantation level or in processing implies a need for more land in order to increase production to meet demand.
	Low resource efficiency, resulting in waste and loss	Commodities are lost in production, storage or treatment (at the farm, plantation, or in the forest). This may be due to insufficient knowledge, care, or equipment. The loss implies a need for more land to produce a given final output than what would be needed if waste and loss was reduced.
	Insecure tenure	Investments in land and produce from land are difficult to safeguard. In particular, the right to the goods and services provided by land is difficult to compensate for (in case of loss) or incentivise (e.g. to encourage certain uses of land) when ownership is unclear or uncertain. Use and access rights to forests by indigenous and forest communities are more difficult to safeguard when tenure rights are insecure or undefined.
	Weak governance and law enforcement	Lack of cross-sectoral coordination, and illegality and weak law enforcement. This includes unclear or inappropriate legal and policy frameworks, poor or absent land-use planning, land grabs and illegal deforestation, corruption, low capacity of public agencies, no rule of law, lack of law enforcement, limited capacity to monitor.
Demand	Lack of public policies promoting commodities produced with less impact on deforestation	Lack of multilateral frameworks/international standards; no policy in place to promote trade in legally and sustainably produced commodities and to act against illegal commodities (other than timber and biofuels).
	Lack of incentives for private sector sourcing of FRCs produced with less impact on deforestation	Lack of a level playing field; best practices not always recognized by the markets; efforts by progressive market players can be frustrated by the difficulties and/or the high costs of demonstrating compliance in producer countries (i.e. traceability/certification) and/or uncondusive legal and policy frameworks.
	Lack of consumer awareness	Unrealised potential in affecting the behaviour of consumers and companies because of lack of awareness of the issues.
	Consumption levels of FRCs	High levels of human consumption of animal-derived protein drive higher production of meat, which requires more land per unit of output than crops: meat consumption (in particular beef) increases the demand for land and thus the pressure on forests.
	High EU dependence on feed imports	High levels of agricultural productivity in the EU (and other developed countries) rely (to some extent) on imported protein feed, such as soy cake from South America for pigs and cattle. The so-called 'protein deficiency' leads to demand for land to produce soy in third countries.
	Inefficiencies in food supply chains	Losses in the later stages of the supply chain, during transport, processing and consumption, mean that additional production – and therefore pressure on land use and forests – is needed to meet demand.
	Policy-driven increase in demand for com-	Policies in other areas can force or incite market actors to change behaviour with spill-over effects on deforestation. Renewable energy policy is one such possible example. It promotes increased consumption of conventional biofuels, which can

Category, driver and brief explanation		
Demand	modities	place more demand on productive land and indirectly foster deforestation and other land-use change. (Direct land use change is not allowed under the EU bio-fuel sustainability criteria, but indirect land use change may still take place.)
	Insufficient finance for investment in sustainable agriculture	Lack of access to finance can be an important barrier in producer countries, preventing actors throughout the supply chain from being able to take steps to engage in production that reduces or halts the impact on forests.
	Inadequate controls of flows of finance and investments from EU	In the absence of adequate scrutiny, investments and finance originating from the EU can fund activities that contribute to deforestation.

Having established the problem and its drivers the study formulates the overall objective of a possible EU action as follows:

The overall objective of the actions proposed in this report is to reduce tropical commodity-driven deforestation and forest degradation by developing a more coherent and comprehensive EU approach and stepping up EU action. The action should also contribute to the EU’s efforts towards the implementation of the Paris Agreement and the Agenda 2030 for Sustainable Development, particularly SDG 15’s target.

This overall objective is translated into more specific objectives designed to address the three groups of drivers of deforestation described above:

Table 3 Specific objectives addressing each of the groups of drivers

Driver category	Specific objective	Specific thematic objectives
Supply	Achieve broader uptake of sustainable or deforestation-free agricultural practices in producer countries, and promoting better protection of forests in tropical countries	<ul style="list-style-type: none"> • Support sustainable/deforestation-free agriculture in tropical forests • Promote better protection of tropical forests • Working in partnership to increase the flow of sustainable forest risk commodities from tropical countries to the EU
Demand	Achieve more sustainable supply chains, including reduced EU demand for FRCs associated with deforestation, and increased EU demand for sustainable and deforestation-free products	<ul style="list-style-type: none"> • Support private sector initiatives • Encourage the consumption of sustainable and deforestation-free products through improved transparency and information • Regulate EU market access to promote sustainable and deforestation-free products • Reduce EU demand for forest risk commodities
Investment & Finance	Achieve improved access to public and private investment and financial support, in particular to smallholders, that can promote sustainable landscapes, and achieve enhanced transparency of investment in and financing of activities associated with deforestation and forest degradation	<ul style="list-style-type: none"> • Increase availability of finance to smallholders • Increase transparency in financing of high-deforestation-risk sectors

Existing EU policies on deforestation and forest degradation

A range of existing EU initiatives already addresses some of these drivers of deforestation. They do so directly or indirectly:

- The EU FLEGT Action Plan, designed to tackle illegal logging and strengthen forest governance in producer countries, including the EU Timber Regulation and Voluntary Partnership Agreements between the EU and timber-producing countries. While not addressing deforestation caused by agricultural expansion, these measures may nevertheless improve countries' ability to govern land use and reduce deforestation.
- REDD+ activities aim to reduce greenhouse gas emissions from deforestation and forest degradation and improve the sustainable management of forests and the conservation and management of forest stocks, through delivering results-based finance.
- EU development cooperation provides a significant flow of financial support for agriculture, forestry, domestic energy, environment and other sectors relevant to deforestation. The EU and its Member States account for over half of global spending on development aid, and their development cooperation programmes are increasingly more aligned with the UN Sustainable Development Goals, including the goal of ending deforestation by 2020.

- EU Renewable Energy Policy specifies sustainability criteria which liquid biofuel feedstocks must meet if they are to qualify for financial and regulatory support (criteria for solid biomass are under development); these include requirements related to the supply chain and direct land-use change, and affect demand for biofuels and feedstocks, including palm oil and soybean oil, in the EU.
- Other policy areas relevant to deforestation include Green Public Procurement, the Circular Economy Package, the EU Forest Strategy (all in the area of environment), trade policies (such as free trade agreements and Aid for Trade) and the Common Agricultural Policy. Research and consumer protection policies are also relevant.

Modifying these policies, or implementing them in different ways or alongside complementary activities, provide possible means of affecting the EU's impact on forests. This may be just as important as establishing entirely new policy interventions.

Selected possible interventions

This report identifies and assesses 20 specific possible interventions that could be implemented as part of an EU initiative to step up action against deforestation. Their identification has been informed by consulting a wide spectrum of publications and research in the area, together with discussions among stakeholders at the conference on tackling illegal logging and deforestation organised by the EC in June 2017.

In identifying the possible interventions, a range of dimensions has been considered. This includes for example alignment with the international policy architecture, including WTO rules, and an aspiration to build on the efforts and momentum of the EU's current engagement in bilateral and multilateral initiatives. Further, the aspiration has been to provide for a variety of approaches and underlying intervention logics. Other factors taken into consideration include the potential impact on SMEs and on small-holder producers in developing countries. Finally, the selection of interventions has paid attention to the already existing wide range of privately driven initiatives and to the importance of the private sector in achieving the objective.

The identified interventions listed below are assessed with a particular view to five specific elements: the objective, i.e. the extent to which the intervention delivers on the objective; the feasibility of the intervention; the likelihood of its political acceptance; the ease of its technical design and implementation; and the extent to which it is likely to generate high administrative costs, in particular for SMEs. It is important to note that the assessment of individual interventions disregards the mutually supportive effects that can emerge from the combined use of several interventions.

The assessments of the interventions build on existing literature and on feedback received from within the Commission services and from stakeholders. Further in-depth assessments would be needed to provide stronger and more comparable results that also consider other elements, such as wider social and economic impacts.

Specific thematic objective	Identified and assessed intervention	Drivers affected	Key points on assessment criteria
SUPPLY-SIDE INTERVENTIONS			
Support sustainable / deforestation-free agriculture in tropical countries	Best practice support to small-holder producers in risk geographies via technical assistance	Low productivity Low resource efficiency	High feasibility and some contribution to the objective
	Using jurisdictional REDD+ projects to promote sustainable and deforestation-free agricultural production	Weak governance and law enforcement	High feasibility and some contribution to the objective
Promote better protection of tropical forests	Support to jurisdictions to strengthen sustainable forest management and land use planning, governance, and law enforcement	Weak governance and law enforcement	High contribution to the objective, and only technical complexity involved
	Support jurisdictions to improve monitoring of deforestation and illegal activities	Weak governance and law enforcement	Some contribution to the objective, legally simple and high probability of acceptance. Some complexity in implementation
Working in partnership to increase the flow of sustainable forest risk commodities from tropical countries to the EU	Bilateral partnership agreements on forest risk commodities	Weak governance and law enforcement (but potentially relevant to all other supply-side drivers)	High contribution to the objective, but also high complexity in design and implementation as well as high administrative cost impacts, and some legal complexity
DEMAND-SIDE INTERVENTIONS			
Regulate EU market access to promote sustainable and deforestation-free products	Due diligence regulation for forest risk commodities	Lack of public policies promoting commodities produced with less impact on deforestation Lack of incentives for private sector sourcing FRCs produced with less impact on deforestation	High contribution to the objective, but technically and politically very challenging
	Public procurement policies for sustainably produced forest risk commodities	Lack of public policies promoting commodities produced with less impact on deforestation	Some contribution to the objective and fairly feasible, although administrative costs and legal complexities may be high
	Lower import duties for commodities complying with certain sustainable production and/or deforestation-free criteria	Lack of incentives for private sector sourcing FRCs produced with less impact on deforestation	Rather low contribution to the objective and low feasibility
	Encouragement for similar actions by other countries	Lack of public policies promoting commodities produced with less impact on deforestation Lack of incentives for private sector sourcing FRCs produced with less impact on deforestation	N.A. (Supporting intervention)

Specific thematic objective	Identified and assessed intervention	Drivers affected	Key points on assessment criteria
Encourage the consumption of sustainable and deforestation-free products through improved transparency and information and/or private sector initiatives	Support for a sustainable agricultural commodity trader platform	Lack of incentives for private sector sourcing FRCs produced with less impact on deforestation	Small contribution to the objective, but fairly feasible in particular as regards the ease of design and implementation
	Encouragement for private sector initiatives on forest risk commodities	Lack of incentives for private sector sourcing FRCs produced with less impact on deforestation	Medium contribution to the objective, but high feasibility
	Strengthen and expand existing transparency platforms through voluntary reporting and data compilation	Lack of consumer awareness of FRC related issues	Low contribution to the objective, but fairly feasible although there may be some reluctance in achieving political acceptance
	Consumer information campaign in partnership with industries and NGOs	Lack of consumer awareness of FRC related issues	Low contribution to the objective, but fairly feasible in particular as regards acceptance of the intervention
	Incubating new certification schemes via partnerships with industry and NGOs	Lack of consumer awareness of FRC related issues	Fairly small contribution to the objective, but somewhat feasible, in particular administrative cost impact is small
Promote trade in legal and sustainable forest risk commodities through cross-cutting means	Promotion of trade in legal and sustainable forest risk commodities through trade and investment agreements	Low productivity Low resource efficiency	Low contribution to the objective, but fairly feasible in particular administrative costs impacts are small and the intervention is legally simple
		Lack of public policies promoting commodities produced with less impact on deforestation	
Reduce EU demand for forest risk commodities	Encouragement for lower consumption of forest risk commodities in food	Consumption levels of FRCs Inefficiencies in food supply chains	Low contribution to the objective and low level of political acceptance. Otherwise high level of feasibility
	Extending sustainability criteria for bioenergy feedstocks to uses other than energy	Lack of public policies promoting commodities produced with less impact on deforestation	Low contribution to the objective and low feasibility
	Rural Development (CAP) Focus Area dedicated to actions that reduce the protein deficit of the EU livestock sector	High dependence on feed imports	Low contribution to the objective and fairly feasible in particular with regards to administrative costs where the impact is small
FINANCE AND INVESTMENT			
Increase availability of finance to small-holders	Financing mechanism for sustainable agriculture	Insufficient finance for investment in sustainable agriculture	Some contribution to the objective and high feasibility in particular as regards acceptance and administrative cost impacts
Increase transparency in financing of high	Mandatory disclosure of information on deforestation proof-	Inadequate controls on flows of finance	Low contribution to the objective, some feasibility

Specific thematic objective	Identified and assessed intervention	Drivers affected	Key points on assessment criteria
deforestation risk sectors	ing on financial investments linked to production or processing of FRCs	and investment from EU	ity

Conclusion

As a major importer of many FRCs, the EU is clearly part of the problem of global deforestation. Yet it can also be part of the solution, by stepping up its efforts to address the impacts of its consumption and adopting a coherent and comprehensive approach.

Given the complexity of the problem of global deforestation, its multiple underlying causes and proximate drivers and the complex dynamics of FRC supply chains, it should be clear that no single intervention on its own can tackle the problem. What is needed in a potential EU initiative is a package of interventions which address the supply, demand and finance dimensions, building on and reinforcing existing EU action as well as government and private sector commitments on zero deforestation and other relevant international initiatives.

Three possible options are identified in this study:

- **Option A** builds on existing measures and legislation, without requiring any new measures – a ‘better implementation’ option, potentially consisting of a new EU Communication on deforestation reflecting the significant global developments over the last ten years and presenting a coherent EU response based on current action as well as better use of existing policies, legislation and mechanisms to tackle deforestation. The potential interventions in this option include:
 - Best practice support to smallholder producers in risk geographies via technical assistance.
 - Support jurisdictions to improve forest and land use planning, governance and land enforcement.
 - Support jurisdictions to improve monitoring of deforestation and illegal activities
 - Strengthen and expand existing transparency platforms through voluntary reporting and data compilation
 - Rural development (CAP) Focus Areas dedicated to actions that that reduce the protein deficit of the EU livestock sector
 - Financing mechanism for sustainable agriculture.
- **Option B** includes the introduction of new measures not requiring new legislation – with, accordingly, a greater impact on the objective but requiring a greater expenditure of resources. This can be seen as Option A (a new EU Communication) plus an EU Deforestation Action Plan, potentially including the following interventions:
 - Using jurisdictional REDD+ projects to promote sustainable and deforestation-free agricultural production.
 - Public procurement policies for sustainably produced forest risk commodities.
 - Support for a sustainable Agricultural Commodity trader platform.
 - Encouragement for private sector initiatives on forest risk commodities.

- Consumer information campaign in partnership with industries and NGOs.
- Incubating new certification schemes via partnership with industry and NGOs.
- Promotion of trade in legal and sustainable forest risk commodities through trade and investment agreements.
- Encouragement for lower consumption of forest risk commodities in food.
- **Option C** includes new legislative action – it combines Option A and Option B with interventions requiring new legislation or regulation. This should have the greatest impact on the objective while at the same time requiring the largest effort and time on the part of the EU. The potential interventions in this option include:
 - Bilateral partnership agreements on forest risk commodities.
 - Due diligence regulation for forest risk commodities.
 - Lower import duties for commodities complying with certain sustainable production and/or deforestation criteria.
 - Extending sustainability criteria for bioenergy feedstocks to uses other than energy.
 - Mandatory disclosure of information on deforestation proofing of financial investments linked to production or processing of FRCs.

The remaining intervention – encouragement for similar actions by other countries – fits into all the three options, as the EU should aim to encourage other countries to follow similar actions, whatever they are.

1 INTRODUCTION

1.1 Study objective

This report has been prepared by COWI A/S, Milieu and Ecofys as part of the project concerning a 'Feasibility study on an EU Action Plan on deforestation', commissioned by the European Commission's Directorate General for Environment (DG ENV) under framework contract (ENV.F.1/FRA/2014/0063).

This study provides inputs for answering the call in the 7th Environment Action Programme (7EAP) for 'assessing the environmental impact, in a global context, of Union consumption of food and non-food commodities and, if appropriate, developing policy proposals to address the findings of such assessments, and considering the development of a Union action plan on deforestation and forest degradation.'

1.2 Study outputs

The study will provide the following outputs:

Part I: Background and setting the scene – this report, the contents of which are further explained below

Part II: Feasibility study. This work is framed around the intervention logic from problem definition over the setting of objectives to assessing impacts and comparing options. While the Part I report will be a stand-alone report, it will nevertheless draw on the findings contained in this report and on the initiatives mapped in Appendix A.

Appendix A: Providing an inventory of initiatives – public and private – addressing deforestation.

The study will also provide inputs for possible use in a future public consultation on the issue.

This report constitutes the Part I report. It is a background study report, which essentially sets the scene for the above Part II report. In preparing it, a wealth of literature and data have been identified, analysed and compiled in order to assess the current landscape of deforestation – its problems, stakeholders and initiatives.

1.3 Structure of this report

This report is organised as follows:

Chapter 2 provides a brief introduction to the issue of deforestation. It describes past trends and the role of the EU. **Chapter 3** provides a quantitative analysis of deforestation trends and geographies, whereas **Chapter 4** looks into the situation for the identified Forest Risk Commodities (FRC) considering production, trade and EU impacts. Thereafter, **Chapter 5** provides a forward-looking analysis based on projections of deforestation for the Forest Risk Commodities. **Chapter 6** provides an analysis of existing initiatives, particularly at the EU level.

The overall problem definition is framed in Part II. Below provides the problem definition:

The problem is a continued loss of tropical and subtropical forests and forest ecosystem services. This is a result of both legal and illegal deforestation and forest degradation, though mostly for the permanent conversion of forest land into agriculture and pasture for the production of commodities, such as soy, beef and palm oil. The EU demands (imports and consumes) a range of commodities (and commodity-based) products, while a range of EU-based actors plays a role in investments in forest risk sectors and supply chains. This translates into an EU land footprint that contributes to global land pressure.

The EU has committed to the Paris Agreement and to the 2030 Agenda for Sustainable Development, particularly SDG 15 requiring countries to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, halt and reverse land degradation and halt biodiversity loss. Efforts are needed at the EU level to support the fulfilment of these commitments and to support the EU's own target to reduce the impact of EU consumption on the environment beyond its borders and to step up the EU contribution to avert global biodiversity loss as laid down in the 7th EAP. The EU can play a key role in addressing all these elements through mutually supportive and coordinated initiatives that build on existing policies and stepping up action to address gaps and build partnerships with both producers and other consumer countries, as well as the private sector.

2 SCOPE AND METHODOLOGY

This report investigates deforestation rates, trends, drivers and proximate causes; the factors behind the rates and trends; and the initiatives undertaken by international and EU actors to influence drivers, causes and trends.

2.1 Terminological considerations

A number of key terms and concepts are introduced below:

In the definition by FAO, deforestation is understood as ‘The conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold.’ This is the definition applied in the context of this study⁶. Forest degradation can be defined as ‘the reduction of the capacity of a forest to provide goods and services’ (FAO, 2011a following FAO, 2002), meaning that those ecosystem services that the forest area provides, e.g. water filtration, soil protection, and climate change mitigation, are reduced or lost. Unless otherwise stated, ‘**deforestation**’ is understood to cover forest degradation as well as deforestation. Furthermore, in this report, ‘deforestation’ means loss of tropical forests and forest ecosystem services because the deforestation problem is particularly affecting the tropics and because most soft commodities associated with deforestation (e.g. soy, palm oil, coffee, cocoa) are produced predominantly in tropical countries.

Using the concept of forest transition, deforestation hence refers to activities that transform (old growth) forest into logged-over and secondary forest, agroforest, cropland or grassland. However, it should be well noted that the trajectory presented below it not always the rule and that the direct conversion of forests to other land uses, such as agriculture or timber plantations is common.

This is shown in Figure 2-1 below:

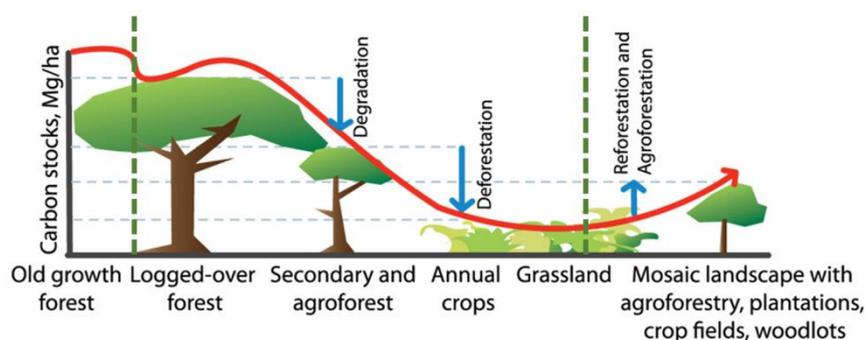


Figure 2-1: The green dotted lines indicates the (tropical= lands within scope of this report. Source: CIFOR, 2011.

⁶ It should be noted that an alternative definition is given by the UNFCCC (Decision 11/CP.7, UNFCCC, 2001): Deforestation is ‘the direct human-induced conversion of forested land to non-forested land’ (see FAO, 2007 for additional information).

2.2 Methodological framework

In order to combat deforestation and the degradation of forest areas, it is necessary to understand what drives the changes in land use that leads to loss of forest areas, as this is fundamental when developing plans, policies and measures addressing deforestation.

2.2.1 Drivers, underlying and proximate causes

Drivers of deforestation and forest degradation

As such, deforestation and forest degradation can be seen as the outcome of multiple effects driven by multiple causes that occur at various scales – temporal and spatial (FAO, 2016), which makes it difficult to pinpoint the exact changes needed to revert the loss of forest. However, since a seminal paper by Geist and Lambin (2002), drivers of deforestation have been discussed in a context of proximate causes and underlying drivers (see e.g. GCP, 2013; Rautner et al., 2013; Kissinger et al., 2012). Proximate causes can be understood as the activities that lead to the clearing of land or degradation of forest, e.g. through the construction of a road or expansion of an agricultural area. In turn, underlying causes are factors that control the demand for commodities, products or services that result from the activities. This includes economic factors, demographic factors, policy and institutional factors, technological factors and cultural factors (see Figure 2-2 below.). However, it should be noted that the sub-drivers listed in the figure below are not complete. For instance, changes in diets, which are a major driver toward food demand (and thus increasing agricultural area potentially causing deforestation), could be explicitly listed under cultural factors. For a further explanation of proximate causes and underlying drivers, including sub-drivers, see report Part II, as well as Geist & Lambin (2001; 2002).

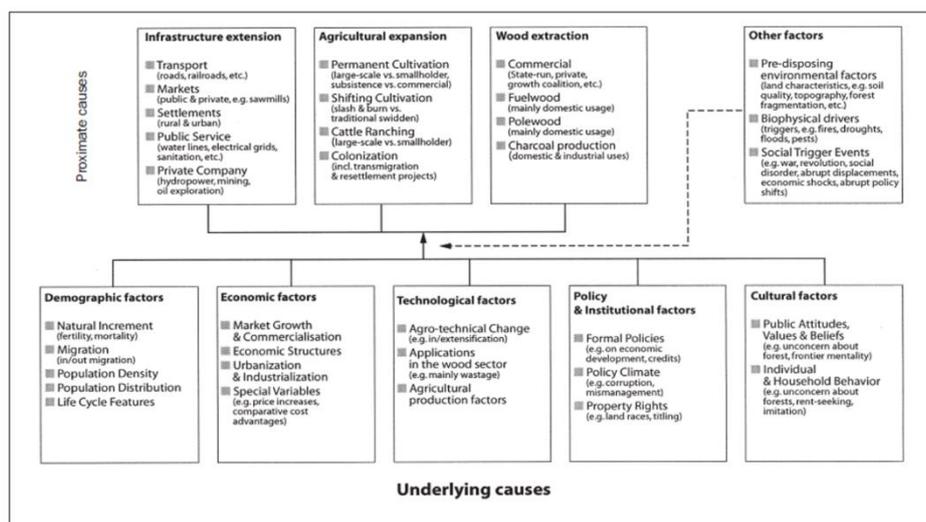


Figure 2-2: Overview of proximate causes and underlying causes as explained in Geist and Lambin (2002).

Proximate causes

'Infrastructure extension' is identified as one of the proximate causes of deforestation and forest degradation. Roads and other transport infrastructure, in particular, are responsible for about 10 % of total deforestation in the tropics⁷. Transport infrastructure is at the same time a by-product of, and a precursor to, other infrastructure, e.g. min-

⁷ FAO State of the world Forests 2016.

ing and settlements. When taken together, the combination of these infrastructural drivers accounts for over a quarter of all deforestation in the tropics⁽⁸⁾. Figure 2-3 below visualises the pervasiveness of roads across the globe⁽⁹⁾. Looking into the future, 25 million kilometres of new roads are expected to be built by 2050, 90 % of which will be in developing countries⁽¹⁰⁾.

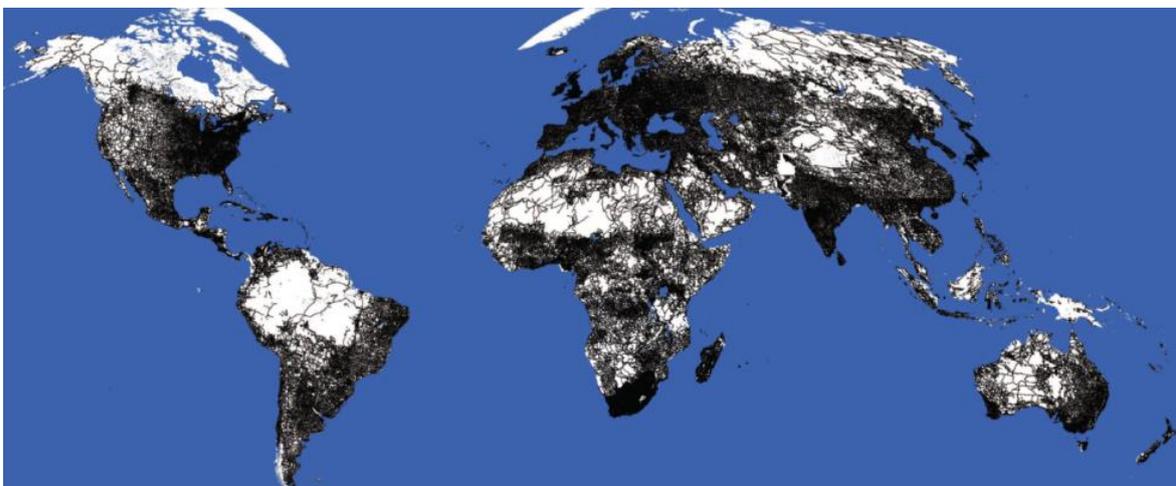


Figure 2-3: The world's roads⁽¹¹⁾.

Roads and other linear infrastructure (e.g. railroads, power and gas lines, and canals) have both direct and indirect impacts on forests. Direct impacts include

- physical disturbances to the water system, with increased risk of flooding or desiccation, and soils, with associated erosion and landslides; chemical and nutrient pollution due to e.g. dust and lead from car exhaust;
- road-related mortality;
- barrier effects as some species avoid clearings and forest edges;
- edge effects through light, temperature and humidity changes close to roads that impact local fauna; and
- the invasion of alien species⁽¹²⁾.

In addition, the development of transport infrastructure often acts as a key enabling factor for other drivers, thus causing further indirect impacts. For example, the construction of roads can give access to previously unreachable forest areas⁽¹³⁾, allowing for their (authorised or informal) exploitation by companies or individuals. Moreover,

⁽⁸⁾ International Sustainability Unit, Tropical forests: A review, 2015, and literature cited therein.

⁽⁹⁾ The figure underrepresents the issue, as the roads shown (in black) do not include unmapped roads. Unofficial roads can be even more extensive than official roads, especially in developing countries. For example, it has been estimated that the total length of unofficial roads in the Brazilian Amazon is three times that of official roads. See Barber, C. P. et al., Roads, deforestation, and the mitigating effect of protected areas in the Amazon, *Biological Conservation*, Vol. 177, pp. 203-209, 2014.

⁽¹⁰⁾ Dulac, J. (International Energy Agency), *Global Land Transport Infrastructure Requirements: Estimating Road and Railway Infrastructure Capacity and Costs to 2050*, 2013.

⁽¹¹⁾ The map is drawn from Laurence, William F. et al., A global strategy for road building, *Nature* 513, pp. 229-232 (11 September 2014), 2014 and was slightly cropped on the right- and left-side to improve readability. Please consult the source for the original.

⁽¹²⁾ See Laurance W. F. et al., Impacts of roads and linear clearings on tropical forests, 2009.

⁽¹³⁾ For example, it has been argued that the destruction of the Amazon was triggered by a road – the Trans-Amazonian Highway – that Brazil began constructing in the 1970s. See Fraser B., Deforestation: Carving up the Amazon, *Nature*, 21 May 2014.

the presence of roads spawns the creation of (legal or illegal) secondary and tertiary roads that penetrate further into the forest and cause additional deforestation and forest degradation⁽¹⁴⁾. It has become popular to say that road building opens a 'Pandora's box' of deforestation and other negative environmental impacts⁽¹⁵⁾. This is confirmed by literature showing that nearly all (~95 %) of deforestation in the Brazilian Amazon has occurred within 5.5 km of a road or 1 km of a navigable river⁽¹⁶⁾.

EU's development and cooperation policy supports a wide range of projects, including infrastructure in partner countries, in particular in Africa. Infrastructure development has had a minor role in Asia and Latin America. The final aim of the policy is to reduce poverty, encourage economic development and improve life conditions in developing countries⁽¹⁷⁾.

The majority of infrastructure investments were devoted in the past to the transport sector: between 1995 and 2006, the EU spent EUR 6.5 billion on transport projects⁽¹⁸⁾. However, the importance of transport infrastructure in EU development and cooperation policy is decreasing. During the 2007-2012 period, EU funding to transport projects was almost halved – EUR 3.5 billion⁽¹⁹⁾. While transport infrastructure is getting less important in EU development and cooperation policy, the role of energy – particularly sustainable energy – is increasing.

For a few years, the EU has increasingly relied on blending facilities⁽²⁰⁾ to finance infrastructure projects. In this context, the role of investment banks such as the European Investment Bank (EIB) and the European Bank of Reconstruction and Development (EBRD) is key. The impacts of EU sectoral policies and EU funding initiatives on tropical deforestation and forest degradation, particularly due to road building, was investigated in more detail in the study "Impacts of EU policies on tropical forests" conducted by Milieu Ltd for the European Commission's Joint Research Centre⁽²¹⁾. On the subject matter of infrastructure support as part of development cooperation, the report finds that the EU supports infrastructure development, mainly transport infrastructure in Africa. The development of transport networks is a priority for several of the beneficiary countries, as inadequate infrastructure is often a key barrier for economic development. Environmental impacts of funded projects are considered prior to granting funding, however, it is not always clear what environmental factors are considered (only carbon emissions or also other factors), what weight is given to each, what methodologies are applied, what alternatives are reviewed, and what the exact scope of the assessments is (only direct impacts or also indirect ones, which may occur during or even after construction). For more detailed information, readers are invited to consult that report. Infrastructure initiatives are not further assessed in this report.

⁽¹⁴⁾ Laurance W. F. et al., Impacts of roads and linear clearings on tropical forests, *Trends in Ecology and Evolution*, Vol. 24, No. 12, 2009.

⁽¹⁵⁾ Laurance W. F. et al., *A global strategy for road building*, 2014.

⁽¹⁶⁾ Barber C. P. et al., *Roads, deforestation, and the mitigating effect of protected areas in the Amazon*, 2014.

⁽¹⁷⁾ European Commission, *Promoting sustainable transport in development cooperation*, COM(2000) 422 final.

⁽¹⁸⁾ European Commission, Directorate General for International Cooperation and Development, 2016 viewed at http://ec.europa.eu/europeaid/sectors/infrastructure/transport_en

⁽¹⁹⁾ Ibid.

⁽²⁰⁾ Blending facilities consist of blending public and private money in order to finance bankable projects. This allows to make better use of public funds, by leveraging private resources.

⁽²¹⁾ Study on the impacts of EU-level sectorial policies on tropical deforestation and forest degradation (April 2017) Final Report, Milieu Ltd (Belgium), 246 p.

This means that the two proximate causes addressed in detail in this report are 'Agricultural expansion' and 'Wood extraction.' These are briefly explained in the following paragraphs.

In terms of the importance of the individual proximate causes, several studies identify agricultural expansion as being responsible for the brunt of deforestation worldwide; according to recent estimates, between 70 % and 85 % of total deforestation (Gibbs et al., 2010; Kissinger et al., 2012; Hosunuma et al., 2012; FAO, 2016). Overall, the largest contributor is commercial agriculture, i.e. the production of beef and major crops, such as palm oil, soy, corn and other grains for international markets, being responsible for about 40 % (Hosunuma et al., 2012), while local and/or subsistence agriculture contribute 33 % (Hosunuma et al., 2012). The importance of commercial agriculture over subsistence agriculture varies from region to region, and these differences are discussed in the following chapter, where the three risk regions for deforestation (Latin America, South East Asia and Sub-Saharan Africa) are presented.

The other proximate cause addressed is wood extraction. Wood extraction can lead to either deforestation or forest degradation, depending on the specific activity. If an area is clear-cut and not replanted or naturally regenerated, the wood extraction causes deforestation. However, extraction of timber and selective logging does not necessarily cause deforestation (although this can also occur), but may lead to degradation of the forest resource if done unsustainably. Overall, as concerns forest degradation, 'timber extraction and logging are related to about 52 %, fuelwood collection and charcoal production 31 %, uncontrolled fire 9 % and livestock grazing 7 %' of forest degradation (Hosunuma et al., 2012). However, drivers of forest degradation also vary from region to region. In Latin America and Asia, the most prominent driver of forest degradation is timber extraction and logging (responsible for over 70 %), while fuelwood collection and charcoal is the main degradation driver for Sub-Saharan Africa, responsible for 48 % (Hosunuma et al., 2012).

Underlying causes

Furthermore, the conceptual framework developed by Geist & Lambin (2001; 2002) depicts a number of underlying drivers, understood as the fundamental forces that underpin the proximate causes of deforestation and forest degradation. Geist & Lambin (2001, p. 8) define these underlying drivers as a set of 'complex of social, political, economic, technological, and cultural variables that constitute initial conditions in the human-environmental relations that are structural (or systemic) in nature.' Some of the underlying drivers operate on a local scale, while others indirectly affect the proximate causes through changes at national, regional or even global level. Within the five categories of underlying driving forces, a number of specific variables are presented by Geist & Lambin (2001). In the following, based largely on their original definition and to the extent needed on additional literature, each of the five underlying driving forces is described.

Demographic factors constitute factors such as population growth, migration, changes to population density, spatial distribution of people and a somewhat blurrier factor termed 'population pressure'. Moreover, following a previous definition, Geist & Lambin (2001) note that population also affects deforestation by changing demand for agriculture and forest products, though the impact of this is also linked to economic and cultural drivers. Assessing demographic factors thus includes taking into account population projections as conducted e.g. by the United Nations ⁽²²⁾, the spatial allocation of people, including migration patterns as studied by e.g. the International Organ-

⁽²²⁾ United Nations Department of Economic and Social Affairs Population Division: <http://www.un.org/en/development/desa/population/>.

ization for Migration ⁽²³⁾, and the pressure on natural resources, specifically forests, enacted by these people.

Economic factors include (according to Geist & Lambin, 2001) four specific sub-groups: market growth and commercialization, specific economic structures, urbanization and industrialization, and special economic parameters. The first sub-group includes aspects such as increased market access, growth in demand for specific commodities and growth in specific industries. The second includes aspects such as poverty and joblessness, economic downturn or crises, and debt and loan increases. The third includes growth of urban markets and industrialization within sectors that rely on forest resources (e.g. pulp and paper). The fourth and final factor includes aspects such as specific comparative advantages held by a given region (including labour and resource extraction costs), production conditions and value (and changes to value) of land and crops.

Geist & Lambin (2001) divide technological factors into three sub-groups: agro-technological changes, forest-technological applications, and other agricultural technological production factors. The first group include aspects such as land use intensification or extensification due to technological change (i.e. use of different seed or production techniques), agricultural involution, or changes to landholding or production orientation (e.g. change of farming practices). The second group comprise changes to logging performance, wastage in wood harvesting and processing, and lack of alternatives to collection of woodfuel. The last group concern factors such as technological inputs, landlessness and land scarcity and labour- and credit-related factors, such as labour and credit availability.

Geist & Lambin (2001) divide policy and institutional factors into three sub-groups: formal policies, informal policies (policy climate), and factors related to property rights regimes. The first group includes aspects such as changes to taxation, tariffs, and prices, as well as credits and subsidies lend and concessions awarded. However, it also includes policies that foster economic development within agriculture and forestry, and policies affecting finance, investment or trade. This sub-group is fairly generic and can be said to constitute a vast amount of policies that could affect the use of land through direct (land concession policy) or indirect (trade or investment policies) means. The second sub-group concern policies on the business climate in the region, including aspects such as corruption, lawlessness, mismanagement, clientelism, and vested interests. The final sub-group concern policies relating to property rights in various forms, including on aspects such as tenure rights, ownership and property rights, titling and legalisation, and any changes to the use of open access resources.

The framework by Geist & Lambin (2001) divide cultural and socio-political factors into two overall groups: public attitudes, values and beliefs; and individual and household attitudes, values and behaviour. To this could be added a third category (not part of the original framework), namely private-sector attitude, values and behaviour. The first sub-group concern aspects such as public concern (or lack thereof) for forests and nature, as well as changes to public attitudes towards development, modernization, urbanization, industrialisation and so forth. This also includes softer, less concrete values such as the sacredness of nature, concerns for future generations, and the value of nature in and of itself. Finally, these also constitute attitudes toward how environmental conditions affect livelihoods and welfare. The second group concern individual behaviour, and included aspects such as the individuals concern for nature and the environment, partly reflected in increasing levels of demand, aspirations for 'western' lifestyles, material and energy consumption, changes to diets, and any changes to

⁽²³⁾ World Migration Report 2015 by IOM: <http://www.iom.int/world-migration-report-2015>.

consumption of resources. These values and beliefs are necessarily linked to economic conditions of the individual, and the policies affecting this, and thus cannot be viewed in isolation from those drivers. The final driver, not originally part of the framework, includes values and beliefs held by the private sector. This includes aspects such as the setting of zero-deforestation goals and commitments towards using resources with a lower environmental footprint or less greenhouse gas emissions, for stakeholder or internal purposes, as well as any changes to corporate and private sector practices, for reasons associated with cultural values within the company or the markets in which it operates.

2.2.2 Forest risk commodities

Deforestation and forest degradation can be associated with a long list of proximate causes and ultimately the production of a large number of different soft commodities. The proximate causes included in this study are agricultural expansion and wood extraction, both of which are driven by demand for so-called forest risk commodities. Rautner et al., (2013) in their assessment of deforestation in the tropics define forest risk commodities as 'globally traded goods and raw materials that originate from tropical forest ecosystems, either directly from within forest areas, or from areas previously under forest cover, whose extraction or production contributes significantly to global tropical deforestation and degradation' (Rautner et al., 2013, p. 15). As quoted by the EU-REDD facility, 'production of Forest-Risk Commodities drives most loss and degradation of tropical forests' ⁽²⁴⁾. In other words, the term in this case refers to the commodities that often have been found to be associated with deforestation or forest degradation. This report applies this term, and both 'risk commodity' and 'Forest Risk Commodity' refers to this understanding unless otherwise clearly stated.

A commodity is an economic good that results from a production process, e.g. from the agricultural activities of planting, managing and harvesting a certain crop. Forest Risk Commodities include crops in the form in which they leave the primary production facility, often the farm or plantation. The means that the term 'commodity' in this study includes both raw crops as harvested and crops subject to any post-production (e.g. roasting of coffee beans) that take place at the premise of production and/or by the primary producer.

The signal of demand for forest risk commodities is not only transferred back to the producer through the supply chains of raw or post-processed crops (such as timber, coffee, palm oil), but also through supply chains for products containing forest risk commodities, such as shampoo (which includes palm oil) or pork meat (which is produced using soy as feedstock). This means that while the analysis is undertaken at the level of the primary crop (soy, palm oil, coffee, etc.), the demand for these products is also defined through demand for products containing these risk commodities in a processed form.

Building on the terminology used by UNIDO to analyse value-chains ⁽²⁵⁾, the notion of forest risk commodity in this study will refer to crops – raw or subject to post-production – any intermediate of the crop resulting from industrial processing, and products containing any of the former as an essential ingredient or part.

The study analyses the supply chains of 10 forest risk commodities. The reasoned selection of these is undertaken in chapter 4 below.

⁽²⁴⁾ EU-REDD: Deforestation-free commodity trade (2016)

⁽²⁵⁾ UNIDO: AGRO-Value analysis and development: The UNIDO Approach, 2009. The authors are aware that the UNIDO approach deals with Value Chains as opposed to Supply Chains. The difference is understood as the difference between a business analysis on value added, and a more logistic approach.

2.2.3 Supply chain framework

Demand for forest risk commodities is satisfied via a number of activities that bring the crop from the producer in the risk geography to the consumer. Supply chains for intermediate or, even more so, final products can be very complex, and involve several nodes and countries (see GCP 2013 for examples). The UNIDO guide to Agro Value Chains (see previous page, footnote 18) includes five stages, but excludes the end use or consumer. The OECD-FAO guidelines for sustainable agricultural supply chains ⁽²⁶⁾, use a simplified supply chain model for ease of presentation, which excludes the end use or consumer, but divides agricultural supply chains into four stages, namely *production*, *aggregation*, *processing* and *distribution*. In a 2016 assessment of progress on the New York Declaration on Forests (NYDF), a five step supply chain model is introduced, that further talks of upstream and downstream actors ⁽²⁷⁾.

This report cannot cover the full variation of all supply chains for each of the forest risk commodities covered in a very comprehensive manner, as shown in GCP 2013. As consumption-driven deforestation is a critical element of this study, the supply chain framework applied needs to mirror this, with a distinct demand stage or node included. To be able to separate demand from the actions of actors related to satisfying demand, but not being producers, we introduce a trade node as well.

The supply chain framework of this report is thus condensed into three nodes ⁽²⁸⁾. See Figure 2-4:

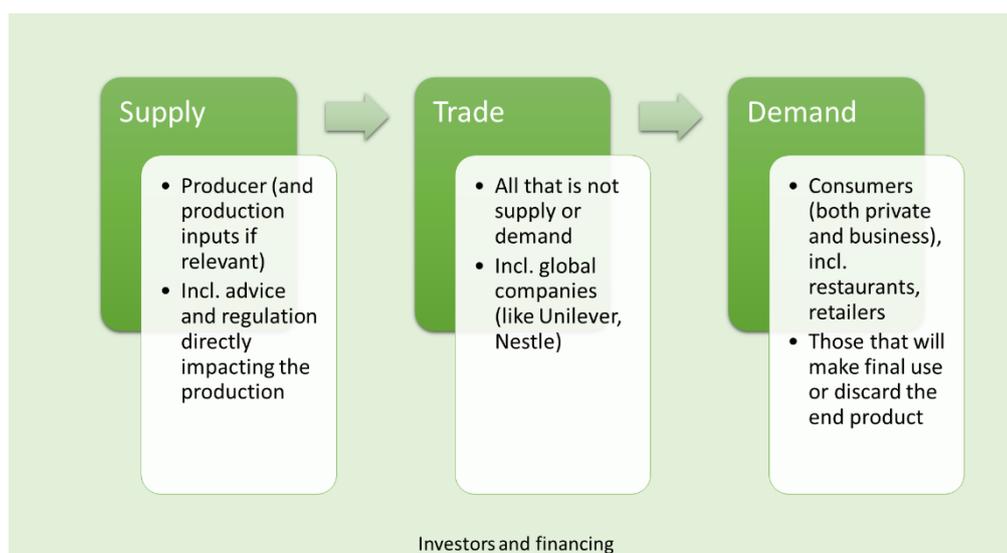


Figure 2-4: Overview of supply chain framework applied. It consists of supply, trade, demand and investors.

Supply

The supply node refers to the production of the forest risk commodity or the extraction of the timber or wood product from the forest, which leads to deforestation and degradation. It means the main actor is the farmer or land owner, but the supply node further encompass the national (or jurisdictional) regulation that regulate the behaviour of the producer as well as any advice, training, technological support or collabora-

⁽²⁶⁾ OECD-FAO: Guidance for Sustainable Agricultural Supply Chains, 2016: <http://mnequidelines.oecd.org/OECD-FAO-Guidance.pdf>

⁽²⁷⁾ Climate Focus, 2016

⁽²⁸⁾ *Stage*, *node* and *side* are used interchangeably throughout the text.

tion directly offered to the main actor. It does not involve changes in prices or demand, and the supply node does not involve any intermediate actor buying, storing, processing, transporting and reselling the product.

Trade

The trade node, involves any intermediate actor that does not produce or consume/use the commodities nor sells commodities for the final user in the demand node. The trade node therefore includes companies based in the country or region of the producer, but whose economic activity consists of: buying, aggregating, storing, transporting and exporting the commodity, whether in raw form (crop), after postproduction outside of the producer or as an industrial processed good. The trade node includes distributors in the demand country, and any refining or further value-added processing. In short, it includes all other actors and activities than those related to the last purchase and final consumption of the product or it being discarded (end of life). Initiatives by global commodity-using companies like Unilever, Cargill and Nestle that do not engage in B2C sale of commodities or commodity-containing products are allocated to this node in the later initiative mapping (see chapter 6). Restaurants and supermarkets are included in the demand node.

Demand

The demand side includes businesses, public and private consumers, and restaurants, retailers and shops in general offering the commodity to the consumer. Large, global companies that manage complex supply chains, but do offer products to private consumers (e.g. IKEA) are allocated to this node. For ease of reading and to clearly differentiate between EU action and non-EU action, the demand-side initiatives in the governance analysis in chapter 6 are presented separately, in two columns. As EU demand in some cases makes up a significant share of global demand for some commodities, initiatives restricted to EU actors will of course have potential effect on global demand, as will some non-EU specific initiatives influence EU demand. The distinction is therefore purely for reasons of presentation, and does not presume EU markets are disconnected from global markets.

Investors and finance

In addition to the actual supply chain, 'investors and finance' entails the private, institutional, and public investments and finance available to the actors in all stages. Conditions linked to and availability of finance can influence the impact of an activity on deforestation.

3 SITUATION ANALYSIS, STEP 1: DEFORESTATION TRENDS AND GEOGRAPHIES

In 2015, forests covered approximately 4 billion hectares, or 30 % of the earth's land surface, down from 4.13 billion hectares in 1990 (FAO, 2015a). According to the Global Forest Resources Assessment 2015 (FAO, 2015a), the global forest area fell by 129 million hectares (Mha) (3.1 %) in the period 1990–2015 (net loss), though between 1990 and 2008, 239 Mha of forest were cleared worldwide (gross loss) (FAO, 2015a). While the rate of gross deforestation has decreased in recent years – from 16 million hectares per year in the 1990s to 13 million hectares per year from 2000–2010 (FAO, 2010) falling to 7.6 Mha in the last five year period from 2010–2015 (FAO, 2015a) – it is still alarmingly high. In percentages, this corresponds to a loss of 0.18 % in the 1990s, 0.13 % from 2000–2010 and 0.08 % from 2010–2015 (FAO, 2015a).

On a regional basis, South America has suffered the largest loss (about 4 Mha per year) of forests in the decade through 2010, followed by Africa with a loss of some 3.4 Mha, while Oceania reported about 0.7 Mha of losses, mainly due to losses in Australia (FAO, 2010). North and Central America's forest area remained roughly constant, while Europe's increased by about 0.7 Mha. Within regions, the afforestation seen in Asia as a whole (about 2.2 Mha net increase in forest area) in the period 2000–2010 (FAO, 2010) somewhat hides the continued deforestation in Southeast Asia (about 8 Mha total from 1990–2010 in the Greater Mekong Region) (FAO, 2015b). Similarly, the afforestation in Europe and North America means that at the global level net deforestation becomes lower than the gross deforestation found in Latin America and Africa.

In the past five years, South America has lost about 2.0 Mha of forest annually (net loss), though the loss of natural forests has been somewhat higher at 2.2 Mha; both figures lower than in the previous decade. Deforestation per year is also down in Africa, which has lost about 2.8 Mha annually (with a natural forest loss of 3.1 Mha annually). Asia has seen the forest area expand by 0.8 Mha annually, but has lost about 1.0 Mha annually of natural forest. Europe has gained about 0.4 Mha of forest annually, while North and Central America has seen the forest area expand by 0.1 Mha, however, natural forest area has declined by 0.4 Mha annually. Oceania has gained about 0.3 Mha annually, an increase due to the expansion of natural forest area by 0.3 Mha annually. All numbers above are cited from FAO (2015a).

While the trend in the loss of forest areas has been reversed in Europe in recent decades, large areas across the global south, specifically in Latin America, Africa and South East Asia are still lost every year. This loss of forests in the past couple of decades, mainly in tropical regions, represent one of the most significant anthropogenic land use changes in history (Rautner et al., 2013), and has been scrutinized extensively by academia (e.g. Gibbs et al., 2010; Busch & Engelmann, 2015), NGOs (e.g. WWF, 2015) and international organizations (e.g. FAO, 2011b; 2015a) alike, in order to foster a greater understanding of the causes and effects of this change – and in order to be able to respond, i.e. to bring deforestation to a halt.

3.1 Past trends in deforestation

Taking a historical view, much of the deforestation in Europe, eastern US and India took place centuries ago, while initial clearings in some of the current risk geogra-

phies, such as South-East Asia, Central Africa and the Amazon basin, followed from colonisation and industrialization in the 17th and 18th centuries (Figure 3-1).

In the tropical region, the net annual loss of forest area from 2000 to 2010 was about 7 million hectares (with gross deforestation around 13 Mha annually), and the net annual increase in agricultural land area was more than 6 million hectares (FAO, 2016). As mentioned, regional differences can be discerned; net forest losses and net gain in agricultural land occurred in Central and South America, sub-Saharan Africa and South and Southeast Asia, while Europe, North America and Northeast Asia experienced the opposite trend; a net gain in forest land and net loss in agricultural area (FAO, 2016) (see Figure 3-2).

Comparing year 1700 with year 2000, one realises that a substantial expansion of cultivated area has happened in Europe, and also in Russia, the United States, Western Africa, India, China, Eastern Brazil, and Argentina, as well as parts of South East Asia, mainly the Mekong Delta and the western parts of the islands in SEA. This happened at times when deforestation was not monitored, regulated or considered an issue.

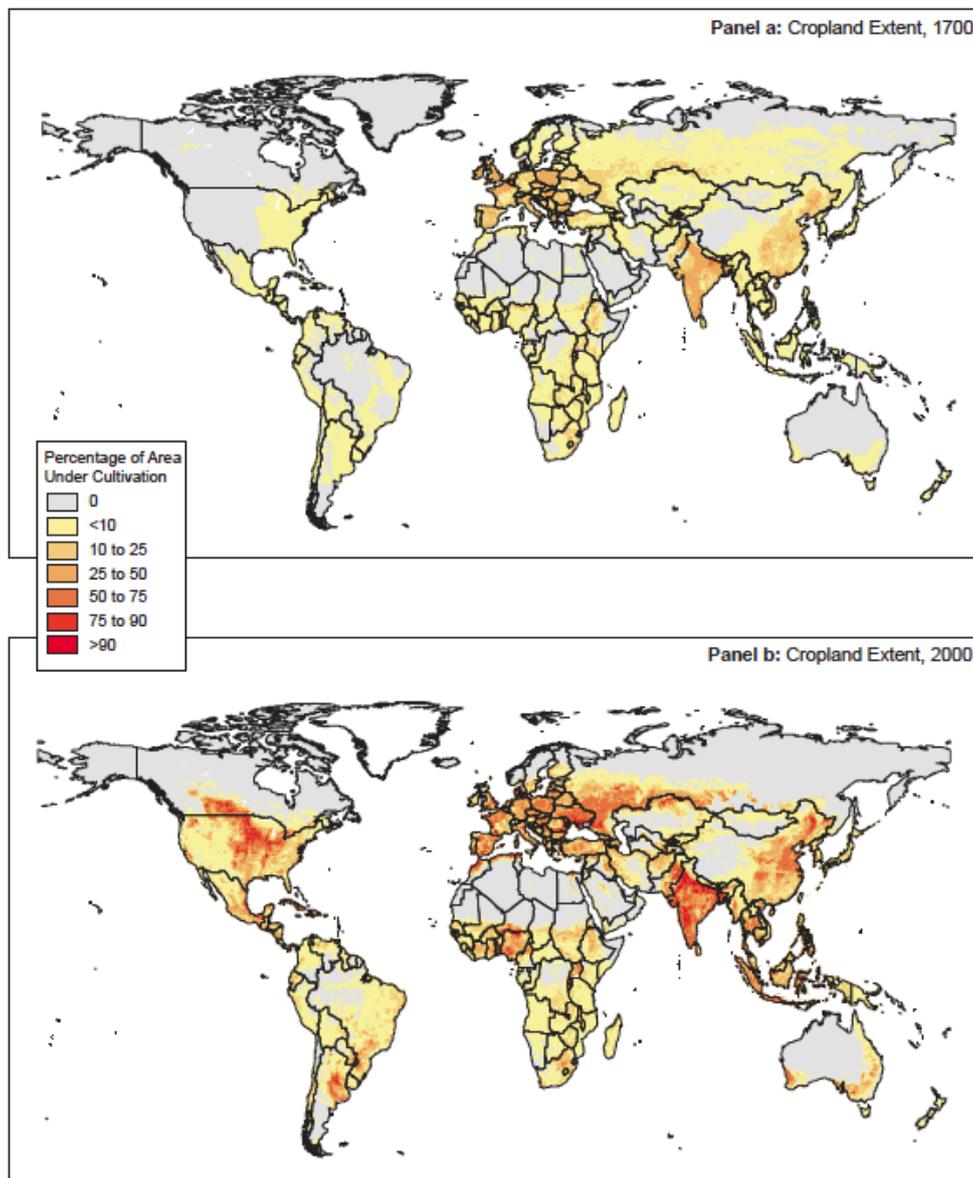


Figure 3-1: Global cropland extent in years 1700 and 2000. Source: Alston et al., 2010.

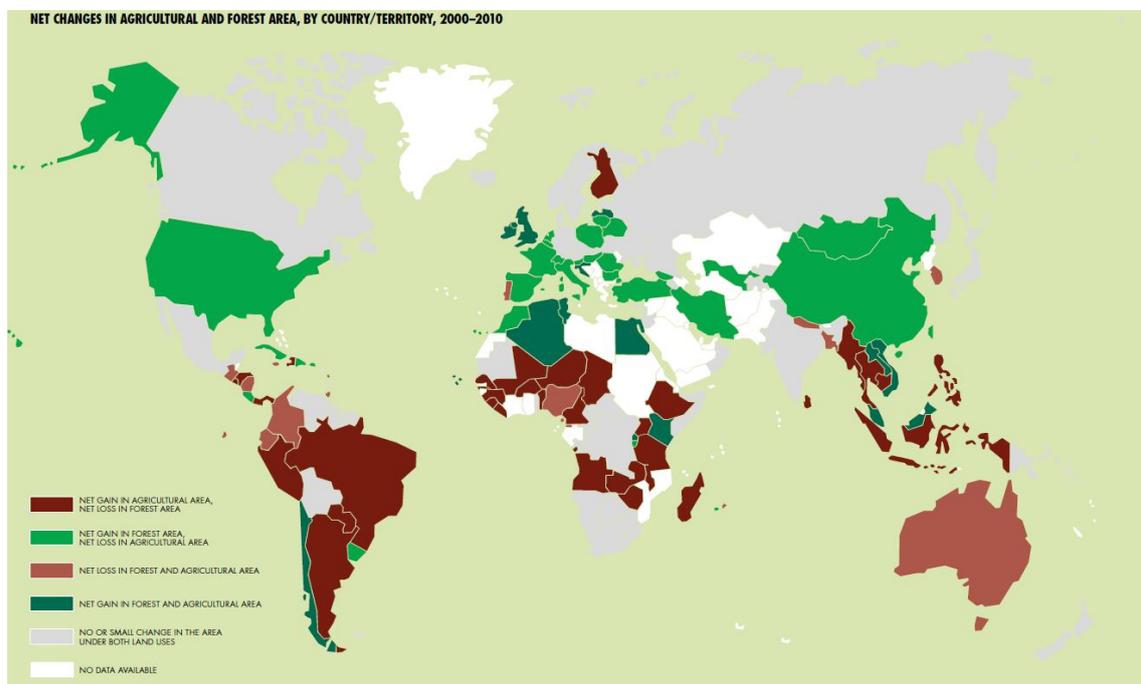


Figure 3-2: Net change in agricultural and forest area, by country. Source: FAO (2016).

Despite a decline in the rate of global deforestation, the expected continued growth in the global population, urbanisation and the expansion of the middle classes in emerging countries up to 2050 may see an increase, or at least a continuation, in these deforestation trends in a business-as-usual scenario. A 2015 study by Busch and Engelmann predicts that in the absence of new forest conservation policies, additional 289 Mha of tropical forest will be cleared from now and until 2050. This corresponds to about one-seventh of Earth’s tropical forest area in the year 2000 and leads to emissions of about 169 Gt CO₂; one-sixth of the GHG emissions that can be emitted if global temperature rise is to be held below 2 °C (Busch and Engelmann, 2015).

Agricultural areas often replace forest areas (and vice versa, in the case of reforestation). Below, regions with increasing agricultural areas and decreasing forest areas are shown in Figure 3-3, while areas with increasing forest areas and decreasing agricultural areas are shown in Figure 3-4.

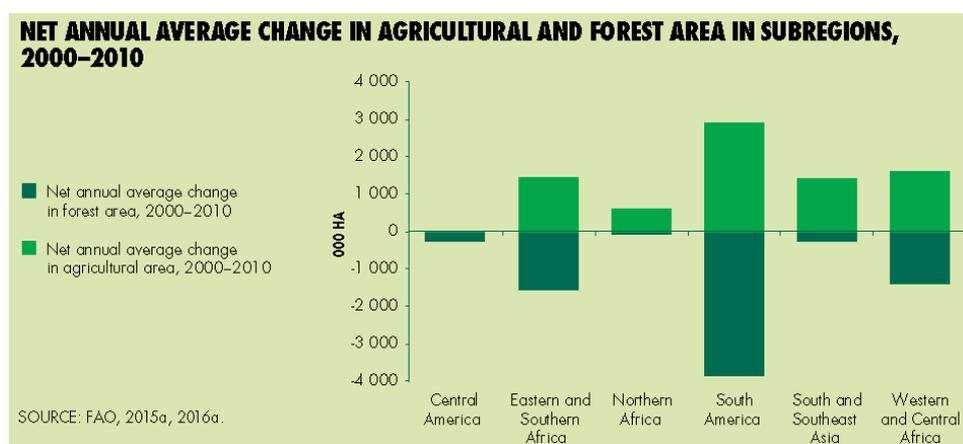


Figure 3-3: Net annual average change in agriculture and forest areas in sub-regions with forest loss, 2000-2010. Source: FAO (2016)

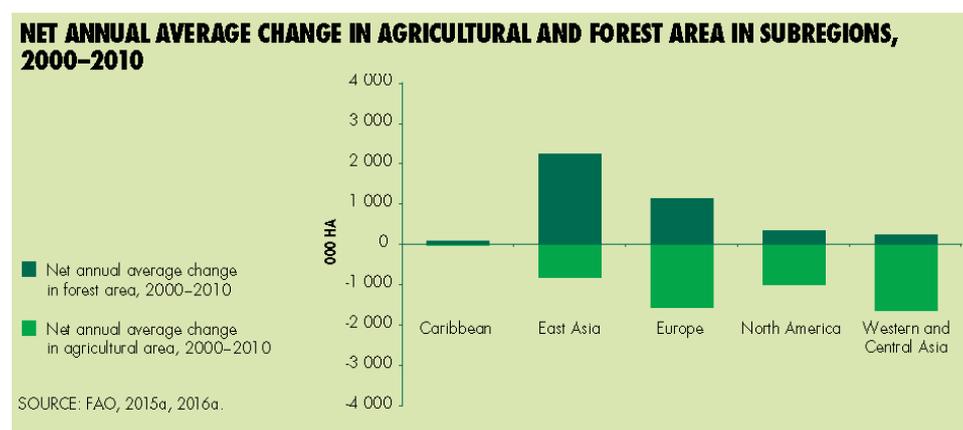


Figure 3-4: Net annual average change in agriculture and forest areas in sub-regions with forest gain, 2000-2010. Source: FAO (2016).

In the regions with forest loss and gain in agriculture area, not all countries are affected, and those affected are not affected to the same extent or by the same drivers of deforestation. Most of the 33 countries reported by the FAO (2016) as having lost forest area and gained agricultural area are in Sub-Saharan Africa (SSA), Latin America (LA) and South-East Asia (SEA), with the quantitatively largest loss of forest area in LA, and the largest gain in agricultural area in SSA and LA. Below (Table 3-1), quantitative estimates of forest loss (thousand hectares) and agricultural gain (thousand hectares) by the FAO for the period 2000-2010 are provided. The numbers are, of course, only an estimate, and the roughly 6 Mha of net deforestation annually for the countries reported below (as given in FAO, 2016) differ from the 5.2 Mha of annual net deforestation reported in FAO (2010)⁽²⁹⁾. Again, net deforestation rates (gross plus any afforestation) should not be confused with the values of gross deforestation given earlier in this chapter. These three regions thus account for about 86 % of the annual deforestation rate in all tropical regions in 2000-2010 (FAO, 2016). Nonetheless, these are lower than the 7.0 Mha annually reported for the previous decade,

(29) Differences between various FAO-published reports can occur because of changes to data or better estimation methods. Therefore, estimates in FAO (2016) differ from FAO (2010), and a subset of countries listed in the table therefore report higher net annual deforestation than the number given for global net annual deforestation in FAO (2010). In general, newer reports will be preferred over older when assessing trends in deforestation.

1990-2000 (FAO, 2016). Thus, the loss of forest shows signs of decreasing in all of the forest resources assessments reviewed, but remains alarmingly high (FAO, 2010; 2015a; 2016).

Table 3-1: Regions and countries with forest loss and agriculture area gain from 2000-2010. Source: after FAO (2016, p. 16).

Region	Country	Net forest loss (000 ha)	Net agricultural gain (000 ha)
Sub-Saharan Africa	Angola, Benin, Burkina Faso, Cameroon, Chad, Ethiopia, Guinea, Liberia, Madagascar, Malawi, Mali, Niger, Senegal, Sierra Leone, Uganda, United Republic of Tanzania, Zambia, Zimbabwe	-19 821	31 190
South East Asia	Cambodia, Indonesia, Myanmar, Philippines, Sri Lanka, Thailand	-10 562	13 484
Latin America	Argentina, Brazil, Paraguay, Peru	-29 834	32 068
Total		-60 217	76 668

Note: In the FAO version of this table, Europe and Central America were also included, but due to the comparatively insignificant areas (less than 3 % of total deforestation area and less than 1 % of agricultural gain), these have been excluded from this table.

Note that the 6 Mha of net annual deforestation reported only includes the countries mentioned, and are thus lower than the roughly 7 Mha of net annual deforestation reported for the global total.

The drivers and means of deforestation, however, vary between the main deforestation regions (see map above). In LA, this mainly concerns the Amazon basin, while in Sub-Saharan Africa, the Congo Basin, and in SEA, mainly Sumatra and Borneo and the Mekong Delta are at risk of deforestation. In these regions, the commodities and drivers causing deforestation vary. The sections below give brief overviews of such differences, based on research and literature.

3.1.1 Risk region 1: Latin America

Deforestation in LA concerns mainly four forest areas, the Brazilian Cerrado, the Chaco, the Atlantic Forests of South America, and the Amazon, of which the latter is one most often associated with deforestation in South America. While the Amazon is rainforest, the Cerrado is a mixed woodland savannah system, the Chaco is a dry forest system, and the Atlantic Forest a moist tropical forest (WWF, 2015; WWF, n.d.; Nature Conservancy, n.d.). Since 1990, about 3.5-4.0 Mha of forest has been lost every year in the region (FAO, 2011b; WWF, 2015), with Brazil being responsible for more than half.

As opposed to SSA and SEA, pasture is by far the dominant driver of deforestation in Latin America. Overall, pasture accounted for 71 % of deforestation in the region between 1990 and 2005, while 14 % was driven by increased demand for commercial cropland, and less than 2 % was driven by infrastructure and urban expansion (de Sy et al., 2015)⁽³⁰⁾. In Brazil, where nearly two-thirds of the continent's deforestation occurred, pasture was responsible for 82 % of total deforestation (de Sy et al., 2015).

⁽³⁰⁾ The development and causes of deforestation are described by de Sy et al. (2015) thusly: 'Pasture was the dominant driver of forest area (71.2 %) and related carbon loss (71.6 %) in South America, followed by commercial cropland (14 % and 12.1 % respectively). Hotspots of deforestation due to pasture occurred in Northern Argentina, Western Paraguay, and along the arc of deforestation in Brazil where they gradually moved into higher biomass forests causing additional carbon losses. Deforestation driven by commercial cropland increased in time, with hotspots occurring in Brazil (Mato Grosso State), Northern Argentina, Eastern Paraguay and Central Bolivia. Infrastructure, such as urban expansion and roads, contributed little as proximate drivers of forest area loss (1.7 %)'.

Categories of drivers of deforestation in selected Latin American countries can be seen in Figure 3-5 below. Except for Peru, where smallholder cropland expansion (41 %) is the dominant driver, pasture is the leading cause of deforestation in the region. In Argentina, Bolivia, and Paraguay, commercial cropland expansion is also an important driver of deforestation. The study by de Sy et al. (2015) concludes that their results confirm that, especially in Brazil, Argentina, Paraguay and Bolivia, large ranches and commercial crop agriculture were the main drivers, a change from the situation pre-1990 where deforestation was mostly caused by shifting cultivation and smallholder colonists. However, it must be noted that the picture is more complex than that. A large part of the expansion of commercial agriculture is through conversion of pasture and not forests (de Sy et al., 2015). The authors note that crop expansion 'still places direct pressure on forests and can be an indirect driver of land use change by pushing pasture lands forward into the forest frontier', meaning that although pasture expansion is the proximate cause, the underlying driver for this is the expansion of commercial agriculture onto previous pasture areas, which pushes pasture areas further into forested areas.

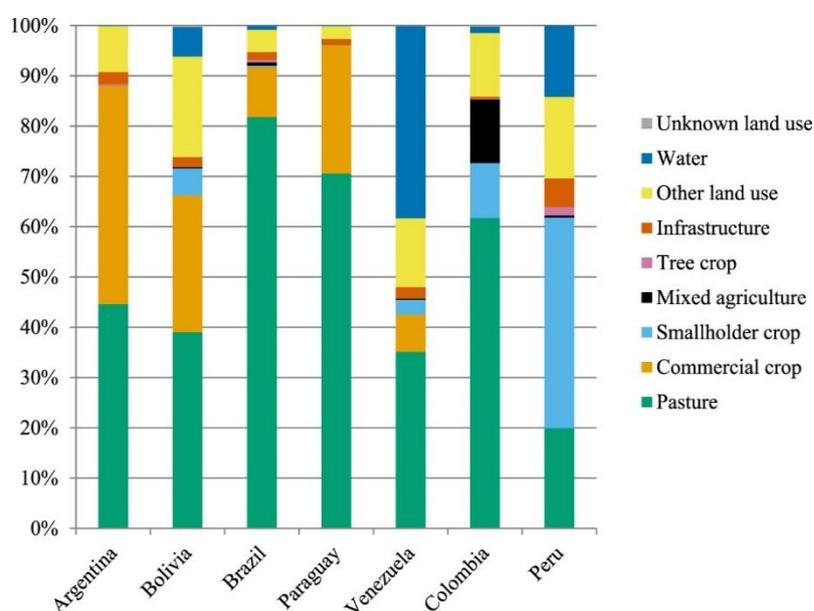


Figure 3-5: Area of total deforestation at the national scale categorised by drivers, from 1990 to 2005 (%). Source: de Sy et al. (2015).

3.1.2 Risk region 2: South East Asia

About 15 % of the world's tropical forests are located in Southeast Asia, and the area is home to some of the most carbon-rich forests in the world, the mangrove and peat swamp forests that can be found in the coastal zones across the region (Stibig et al., 2014). Further, many of the forests in the region are biodiversity-rich, both in the insular region and in the Mekong delta region. A recent assessment of tropical forest loss in South East Asia was conducted by Stibig et al. (2014), who found that the total forest cover of Southeast Asia was 268 Mha in 1990. This has since dropped to 236 Mha in 2010, with annual change rates of 1.75 Mha (app. 0.67 %) and 1.45 Mha (app. 0.59 %) for the periods 1990 to 2000 and 2000 to 2010, respectively (Stibig et al., 2014) ⁽³¹⁾. They found that the majority of the loss of forests (approximately two

⁽³¹⁾ The authors (Stibig et al., 2014) note that the figures for forest cover reported in their study are somewhat lower than the FAO Forest Resources Assessment (FAO, 2010), which is 'based on country reporting and national forest inventories'. As such, the FAO (2010) approach results in 'forest areas' of 281 Mha and

thirds of the loss occurring in the period 2000 to 2010) occurred in insular Southeast Asia (Stibig et al., 2014). FAO (2010) estimated a net annual loss of “forest land” in SEA of 2.4 Mha for the period 1990 to 2000 dropping to 0.7 for the period 2000-2010 (FAO, 2010). No specific figure is given for SEA alone for the period 2010 to 2015 in the most recent Forest Resource Assessment (FAO, 2015a). However, FAO (2015a) report that the loss of carbon per year has increased since 1990, growing from approximately 150 MtC for the period 1990 to 2000 to over 250 MtC per year for the period 2010 to 2015 ⁽³²⁾.

The analysis by Stibig et al. (2014) ‘confirms the conversion of forest to cash crops plantations (including oil palm) as the main cause of forest loss in Southeast Asia.’ Furthermore, they note that logging forests for timber, as well as the replacement of natural forests by forest plantations are two other important drivers of deforestation and forest degradation in South East Asia.

As it concerns differences within the region, the forests of continental Southeast Asia (i.e. the Mekong Delta region) make up a third of the region’s forested area, and have seen deforestation rates increase from 0.21 Mha per year in the period 1990 to 2000 to 0.48 Mha per year in the decade from 2000 to 2010. Conversely, insular SEA contains more than two thirds of the region’s forests, and saw high rates of deforestation in the 1990s (1.51 Mha per year), but this has dropped to the (still high, albeit falling) rate of 0.96 Mha in the decade from 2000-2010, according to the analysis by Stibig et al. (2014). No figures are given for the period since 2010 in that assessment.

In SEA, oil-palm plantations, established to provide raw material for the food and bio-fuels industries, are the main driver of deforestation, having replaced substantial areas of natural forests, especially in Malaysia and Indonesia. However, oil palm plantations often replace forests previously degraded by fire or logging (Fitzherbert et al., 2008) ⁽³³⁾. The area of oil-palm plantations in Malaysia increased from 2.1 to 5.2 Mha from 1990 to 2010, while replacing an estimated 1.5 Mha of forest over the period (Gunarso et al., 2013). In Indonesia, the area increased by 6.4 Mha, from 1.3 to 7.7 Mha from 1990 to 2010. Total forest loss associated with palm oil production was about 2.2 Mha (ibid). According to the Fitzherbert et al. (2008) study, oil palm growth could account for at most 16 % of deforestation in the region between 1990-2005, and their estimate of palm oil driven forest loss is a range: 1.7–3.0 Mha in total for the period 1990-2005, i.e. a shorter time period than that covered in Gunnarso et al. (2013). Other SEA tropical forest areas are also affected by land use change, as they are converted to various forms of cash crop production besides oil palm. This especially concerns rubber plantations in the Greater Mekong Subregion (Thailand, Viet Nam, Lao PDR, Myanmar, and Cambodia). This region ‘has lost nearly a third of its forest cover (22 % in Cambodia, 24 % in Laos and Myanmar, and 43 % in Thailand and Vi-

245 Mha for 1990 and 2010, respectively, both higher than Stibig et al.’s (2014) regional estimates of ‘forest cover’, noting that definitions of what constitute ‘forest cover’ can partly explain this, as can the method used by Stibig et al. (2014) (i.e. remote sensing) as opposed to the national statistics used by FAO (2010). ⁽³²⁾ However, it should be noted that the reported carbon losses are for the region ‘South and South East Asia’, and thus constitute a larger region than SEA alone. Moreover, such differences could potentially be due to changes in accounting principles and/or the inclusion of soil carbon, though this is not clear from the description in the report (FAO, 2015a).

⁽³³⁾ In an in-depth article on the topic, Fitzherbert et al. (2008, p. 538) explain that oil palm expansion, in principle, can ‘contribute to deforestation in four often indistinguishable ways: (i) as the primary motive for clearance of intact forests; (ii) by replacing forests previously degraded by logging or fire; (iii) as part of a combined economic enterprise, such as with timber, plywood or paper pulp profits used to offset the costs of plantation establishment; or (iv) indirectly, through generating improved road access to previously inaccessible forest or displacing other crops into forests.’

etnam) between 1973 and 2009' (Rautner et al., 2013). An FAO study of forests in the region found six direct negative drivers affecting forest cover, namely:

- Expansion of agriculture and plantation estates, such as cash crops, cacao, coffee, rubber and oil palm;
- Development of infrastructure and roads allowing access to previously inaccessible areas;
- Mineral and gas exploitation;
- Dam and water infrastructure development along the Mekong river and its tributaries;
- Illegal and unsustainable logging; and
- Forest fires (FAO, 2015b).

3.1.3 Risk region 3: Sub-Saharan Africa

Two important forest areas exist in Sub-Saharan Africa; the Congo Basin rainforest and the East African forests, consisting of open woodlands and the Eastern Arc Mountain Forest. Further, a large forest area is also found in the Western African region and on the Island of Madagascar (FAO, 2010; 2011; Mayaux et al., 2013). The rainforest of the Congo Basin contain about 20 % of the world's tropical forest, around 300 Mha, of which about 100 Mha is primary forest and the remainder is naturally regenerated forest (almost no planted forest exists in this region) (FAO, 2011b). However, while rainforests cover only 13 % of Africa's landmass, they store more than 90 % of the carbon found in the continent's terrestrial ecosystems and are home to rich biodiversity (Mayaux et al. 2013).

In a global context, and compared to the forest regions in the other two risk regions (South East Asia and Latin America), annual deforestation rates are relatively low in Central Africa. From 1990-2010, about 0.6 Mha was lost annually, compared to more than 3.5 Mha in LA and more than 1.5 Mha in SEA (FAO, 2011b). However, for all of Africa, FAO (2010) reports a loss of 4.0 Mha annually from 1990-2000 and 3.4 Mha from 2000-2010, with numbers for Western and Central Africa standing at 1.6 Mha and 1.5 Mha for the two decades, respectively. This seems to have been lowered even further, with FAO (2015a) reporting a net loss of natural forest of 3.1 Mha and a net loss of forest of 2.8 Mha for all of Africa in the period from 2010-2015. Adding to the uncertainty around the deforestation trend for this region, FAO (2016) reports a net loss of forest of about 2.0 Mha annually for a subset of countries, while reporting net loss of forests of around 1.5 Mha for Eastern and Southern Africa for the period 2000-2010, and a net loss of around 1.3 Mha for Western and Central Africa (FAO, 2016). Though not necessarily reflected in the numbers, FAO (2016) notes that in general, 'deforestation in sub-Saharan Africa was lower than elsewhere in the tropics, and the drivers of forest conversion to other land uses also differed' for the period up to 2000. However, the actual deforestation rates are not necessarily as accurately known for this region as for the other two, which can perhaps somewhat explain the differences between sources.

Using a remote sensing approach, Mayaux et al. (2013) have analysed deforestation rates for Sub-Saharan Africa, and found that Africa lost 0.59 Mha of rainforest annually in the decade from 1990 and 2000, corresponding to 0.28 % per year. This figure decreased to 0.29 Mha per year between 2000 and 2010, around 0.14 % decrease in forest area per year. The Congo Basin in Central Africa accounts for 50–60 % of the total deforested area, but the annual deforestation rates *per se* are much lower than in the other two regions, Western Africa and Madagascar, which exhibit a much higher

deforestation rate – three and nine times higher, respectively (Mayaux et al., 2013). The absolute (in Mha) and relative (in percent) loss of forest for Africa is also lower than that of Latin America and South East Asia, the other two risk regions.

According to FAO (2016), small-scale agriculture processes currently dominate deforestation in SSA, and large-scale commercial agriculture, which usually dominates exports (e.g. to Europe), account for only one-third of deforestation in the region. Mayaux et al. (2013) find that for the Congo Basin region, 'expanding agriculture and increasing fuelwood demands are key drivers of deforestation.' However, they find that 'well-controlled timber exploitation programmes have little or no direct influence on forest-cover reduction at present.' Hosonuma et al. (2012) point out that the role of large-scale agriculture in deforestation is likely to increase. This trend is driven by global markets, policies to develop the local palm oil industry, and proposals to develop large-scale agriculture projects, among other drivers (FAO, 2016). Finally, Mayaux et al. (2013) note that among the underlying causes of deforestation, 'rural and urban population concentrations and fluxes are identified as strong underlying causes of deforestation' in this region.

4 SITUATION ANALYSIS, STEP 2: PRODUCTION, TRADE AND EU IMPORTS OF FRCS

4.1 Forest risk commodities of EU relevance

In principle, all commodities with a spatial component (meaning taking up land to be produced) should be considered. Taking a list of such commodities from the EURONEXT commodity exchange could at least include Table 4-1:

Table 4-1: Non-exhaustive overview of commodities with a spatial component. Own listing. Those marked in bold are assessed further in this study.

Annual Crops	Perennial Crops	Forest based	Livestock	Extractive industries
Maize, Sugar (cane), Grain crops,	Coffee, Coconut, Pineapple, Mango,	Timber, Wood pellets, Cellulose,	Beef, Leather, Milk/dairy products,	Gold, Silver, Diamonds
Soy, Rice, Alfalfa, Cassava, Sugar beet, Hay	Cocoa, Palm oil, Rubber, Tea, Cotton	Pulp, Paper, Processed wood (e.g. MDF)	and all free ranging animal husbandry	Zinc, Potassium, Rare earth minerals, Oil, Coal

Global production of almost all commodities above would have increased significantly over the last 100 years, but the increase may not equal the extended area used to produce the commodity as production methods have improved as well. The term forest risk commodity is used for produce associated with most deforestation. Recent work conducted for the Global Environment Facility (2014) quotes that Palm Oil, Soy and Beef have been responsible for 80 % of all deforestation worldwide in recent history without giving a clear timeframe. In comparison, UNEP (2015) judges the same commodities to be responsible for one third of all deforestation between 1990 and 2008. Although deforestation is acknowledged as a major environmental problem, a lack of quantitative information on deforestation drivers exist (FAO, 2016), and differing estimates like the above can hence be found. However, it is acknowledged that the global demand for commodities produced on formerly forested land acts a key driver in the conversion of forests. As such, the concept of forest risk commodities has also been used in other settings, e.g. The Amsterdam declaration 'Towards Eliminating Deforestation from Agricultural Commodity Chains with European Countries' (EU, 2015), which explicitly mentions beef, leather, palm oil, soy, paper & pulp, cocoa and rubber as the key risk commodities, and the 'Little Book of Big Deforestation Drivers' (Rautner et al., 2013), which mentions soy, timber, beef, palm oil, and pulp and paper as the key forest risk commodities from tropical regions. The latter defines forest risk commodities as 'globally traded goods and raw materials that originate from tropical forest ecosystems, either directly from within forest areas, or from areas previously under forest cover, whose extraction or production contributes significantly to global tropical deforestation and degradation.' (Rautner et al., 2013, p. 15).

The selection of key FRCs covered in recent primary literature is given in Table 4-2 below.

Table 4-2: Overview of commodities assessed in recent studies on deforestation and commodities ⁽³⁴⁾.

Study	Year	Palm oil	Soy	Pulp & Paper	Timber	Beef	Leather	Biofuels	Cotton	Maize	Sugar	Rice	Food	Crops for feed	Wood Panels	Fossil fuels	Minerals	Gold
GCP	2013	✓	✓	✓	✓	✓	✓											
VITO	2013	✓	✓			✓				✓	✓	✓		✓				
Henders et al.	2015	✓	✓	✓	✓	✓												
IIED	2016	✓	✓		✓	✓	✓	✓										
Brack et al.	2016	✓	✓			✓	✓											
Rautner et al.	2013	✓	✓	✓	✓	✓							✓			✓	✓	
Lammerant J. et al ⁽³⁵⁾ .	2014		✓			✓			✓									✓
Union of Concerned Scientists	2012			✓	✓										✓			

The overview given in Table 4-2 above seems to suggest that current research considers palm oil, soy, timber, beef (incl. leather) and pulp & paper have been found to be the most relevant commodities to include in the context of deforestation. It should be noted, however, that several commodities are still to be assessed in detail for associated deforestation or footprint in a scientific project, including cocoa, coffee, rubber, wood pellets and several grain crops. In conclusion, no single study or work was found to present a comprehensive assessment of all forest risk commodities, and therefore there is no single fit-for-purpose data or study to support this feasibility study on an EU initiative to halt deforestation, including as regards a specific reflection on EU consumption. Following the definition of forest risk commodities used by Rautner et al. (2013), at the global scale, forest risk commodities would be expected to be those commodities, which originate from forest ecosystems, either directly from within forest areas, or from areas previously under forest cover, whose extraction or production contributes to global deforestation and forest degradation, and whose current or future demand, are of such a scale that production of such commodities entail a risk to forest areas. However, it must in this case be acknowledged that this definition does not consider the current or future production methods and characteristics of the farming systems producing the commodity in question.

⁽³⁴⁾ It should be observed that the categories are listed as presented in the studies and that terms and definitions applied may not be congruent between studies. As a result several of the commodity classes listed in the top are overlapping, e.g. maize and biofuels and crops for feed. The rightmost classes, marked in grey, are those not considered further in this study. Only studies producing own estimates and for one or more classes of commodities has been included. Meta studies and studies referring to other sources have not been included to avoid duplication, as have similar publications by the same (group of) authors.

⁽³⁵⁾ The study includes fish as well, since the scope includes biodiversity loss, and hence affects to sea biodiversity. Fish, however, have no direct spatial component, apart from the processing facilities.

4.1.1 Selection of forest risk commodities most relevant from an EU consumption point of view

In order to develop an intervention logic behind a number of cost-effective policy options to halt deforestation driven by EU consumption, risk commodities should be selected not only based on their global relevance, but also in view of the relative importance of current production in shaping deforestation trends, as well as historical and projected future production of the commodity in question (and the potentially resulting deforestation), taking into account the EU demand for the commodity in question. The hypothesis is that with the larger the EU share of global demand, the larger the leverage that the EU can expect to have if it addresses the drivers behind the deforestation associated with a certain commodity.

This study applies a data driven approach completed with relevant reports and scientific literature to the selection of forest risk commodities for further assessment. Based on international trade and production statistics of forest risk commodities provided by the United Nation's COMTRADE database ⁽³⁶⁾ and FAOSTAT, each of the eleven commodities listed above (with no grey background) are assessed for:

- 1 Scale of production: The commodities are ranked according to total global production ⁽³⁷⁾
- 2 Trend in production: The commodities are ranked according average increase since 2000 ⁽³⁸⁾
- 3 EU consumption: The commodities are ranking according to share of EU import of each commodity as percentage of global import.

The approach is constrained by COMTRADE data not containing information on self-consumption, subsistence farming, and illegal logging within the country. Further, it does not allow for re-exported items to be excluded from the analysis (i.e. soy beans imported from Brazil to the Netherlands and re-exported to Germany will feature as part of total global export of soy beans). Finally, it is not possible to separate locally produced items from those being imported and afterwards re-exported. However, throughout the analysis, trade data is complemented with data on production of commodities within each region, relying on FAO statistical data and analysis and projec-

⁽³⁶⁾ COMTRADE provides annual international trade statistics data detailed by commodities/service categories and partner countries. For more information, see <http://unstats.un.org/unsd/tradekb/Knowledgebase/What-is-UN-COMTRADE>

⁽³⁷⁾ The scale of production of a given forest risk commodity is relevant, because agricultural areas degrade over time, so even a stagnant production can still lead to deforestation. For example, the production of soy on the Brazilian Cerrado can degrade the soil, meaning that after a certain period, the soil is no longer suitable for soy production. This means that to maintain production, new areas must be put under the plough. Further, crops produced on a given area can change, depending on local or regional prices, which means that even if production remains stable for, say soy or beef, production can still lead to deforestation, as this might be the commodity grown/produced on newly deforested areas, while areas previously producing the commodity that moved now produces another good. This question is related to the debate on Indirect Land Use Change. Finally, it is important to understand that agricultural production is a dynamic system and that constant production (or even declining production) does not mean that the risk commodity in question does not cause deforestation.

⁽³⁸⁾ The trend in demand for a given risk commodity as well as the historic consumption is also used when assessing the relevance of a given forest risk commodity. It is not only the future demand that shapes this, but also the current. If EU demands X ton of a given commodity, currently constituting Y % of total production, it is still relevant to include this good (say soy), even if demand remains at X ton, but the EU's share of total demand falls to deltaY %, if production increases due to increased demands in other regions. This is the case because by demanding deltaY % of a good, the EU is responsible for deltaY % of each hectare of deforestation caused by the good in question. Therefore, if one excludes goods where the EU demand is decreasing, one will set EU responsibility for deforestation too low.

tions from other organizations such as the OECD and EU, as well as scientific literature.

The analysis of trade data is conducted in the subsequent sections of the report. The analysis covers:

- Meat/Beef
- Maize/Corn
- Soy
- Cocoa
- Coffee
- Palm Oil
- Rubber
- Timber
- Pulpwood
- Wood Pellets
- Bio-ethanol feedstock
- Bio-diesel feedstock.

4.2 Trade in risk commodities

In many producer countries, a proportion of the commodities produced off and from the land is consumed in the country in which they are produced (auto-consumption). However, with differences depending on the individual commodities in question, a substantial part is destined for export. Thus, international trade also plays a considerable role in shaping deforestation patterns in these regions. The most prominent examples include palm oil from South East Asia and soy from Latin America, with the most notable exception of beef from Brazil, where the majority of production is consumed domestically (Lawson et al., 2014). For instance, 70 % percent of the soy, 33 % of the beef, and all of the palm oil and tropical timber originate in tropical forest countries (Lawson et al., 2014), and much of it is produced on land that was deforested to produce the commodity.

With the EU, along with the US and China, being among the most important markets for e.g. food and feed, timber, and bioenergy feedstock, the EU plays a prominent role in consumption of some of these risk commodities. According to Lawson et al. (2014), the EU is the largest importer of soy and palm oil exports from tropical forest countries, taking 29 % and 18 % of total exports respectively, while China ranks second for soy, palm oil, and beef, and first for tropical timber. Other notable trade-flows concerning these risk commodities include demand from South Asia (palm oil and timber (especially India, which demands over 90 % of Malaysian timber exports), Southeast Asia (soy and palm oil), and Russia and the Middle East (beef) (Lawson et al., 2014). Along these lines, GEF estimate that 'three commodities, soy, beef and palm oil, have been responsible for close to 80 % of tropical deforestation worldwide' (GEF, 2015), and it is estimated that the role of commercial, export-oriented agriculture in driving deforestation has increased in the 21st century (DeFries et al. 2013; Lawson et al., 2014). As such, demand for risk commodities originates in many parts of the world, but as a major economic actor, the EU plays a larger role than many other regions, perhaps with the notable exception of China, which in recent years has emerged as a principal importer of many risk commodities. Increasing demand for these products requires increased supply. For risk commodities such as soy, beef, palm oil, timber, and rubber, this is largely concentrated to the risk geographies; the forest areas of Latin America, Central Africa and South East Asia (see above). A notable exception is

the supply of solid biomass for energy (i.e. wood pellets), which is largely supplied from North America, Russia, and the EU, and almost exclusively consumed by within the EU, although demand is growing in Korea, Japan and China (Goetzl, 2015). World pellet production has increased rapidly from 2 Mt in 2001 to 10 Mt in 2007 (Lamers et al., 2012) to some 26 Mt in 2014, up from 20 Mt in 2012 (numbers extracted from FAOSTAT, trade code HS4401.31).

In the following, trade in a number of risk commodities will be assessed and the EU demand for these analysed using available trade data from the OEC, Eurostat, FAOSTAT and UNCOMTRADE. The risk commodity analysis will be differentiated according to the World Customs Organization (WCO) Harmonized System (HS) and the Standard International Trade Classification (SITC) – e.g. vegetable oils, protein meal, timber and non-timber forest products, etc.⁽³⁹⁾ – internationally standardized systems of names and numbers to classify traded products. The products will be distinguished at 'Heading' or 'Subheading' level, depending on the product category (Figure 4-1). The analysis will be further complemented by literature on the commodity as a driver of deforestation and will complement the baseline analysis above.



Figure 4-1: The hierarchical structure of the HS. In this case, products will be distinguished on a heading or subheading level. (From www.Wikipedia.org).

In general, it must be noted that the figures for EU import are based on Eurostat data, which is based on a six or eight-digit version of the HS system, whereas the international trade data figures is based on the SITC system. These systems are not completely aligned, hence it is not possible to equate the findings of one figure with the other. Figures with Eurostat data are generally from "Adjusted EU-EXTRA imports by tariff regime, version HS6 [DS-041718]" using one (or more) HS-code per product category and using values from "MFN Zero" & "MFN Non-Zero"⁴⁰.

4.2.1 Agriculture

As highlighted in the introduction, agricultural expansion is among the chief drivers of deforestation. With increased demands for food, due to economic growth, increased population and changes to dietary preferences (e.g. due to stronger preferences for meat, fat, sugar, and dairy, which requires production of increased amount of calories to feed animals, as well as higher calorie crops), food production must increase, with the result of increased pressure on forested areas. FAO (Alexandratos & Bruinsma, 2012) predict a 60 % increase in the demand for food towards 2050 compared to

⁽³⁹⁾ https://en.wikipedia.org/wiki/Harmonized_System.

⁴⁰ The HS-codes listed in the following have been used for the different product categories. In general, "xx" denote that relevant subgroups (if applicable) are included. HS-codes: Bovine Meat (020120xx and 020130xx), Coffee (090111xx), Soy (120190xx and 120810xx), Palm Oil (151110xx and 151190), Cocoa (180100xx), Natural Rubber (400110xx), Wood Pellets (44013100), tropical wood (relevant HS440-xxx subgroups concerning tropical timber), Maize (100590xx), soy cake (230400xx).

2005/07, while Tilmann et al. (2011) predict an increase in food demand of about 110 % towards 2050 compared to 2005, basing their prediction on income as a determinant for overall food demand, and using projections on economic growth to model future demand for food. This means that global cereal production, which stood at 843 Mt in 1961, and had grown to 2069 Mt in 2005/07, will have to increase to about 3009 Mt in 2050 (Alexandratos & Bruinsma, 2012, p. 121).

However, it can be expected that almost all of the growth in food demand will take place in developing countries, based on population and living standard increases, meaning that any growth in EU demand for food products and agricultural commodities will make up a comparatively small part of global growth in demand. Alexandratos & Bruinsma (2012, p. 81) project a slight 3 % increase in meat demand in EU towards 2020 (compared to 2005). The same study projection show that 'per capita meat consumption in the developed countries grows 14 percent in the four decades to 2050, but this includes all the countries with relatively still low consumption (countries of the former Soviet Union).' Further, their analysis projects a daily calorie intake increasing from 3360 kcal/capita/day in 2005 to 3430 kcal/capita/day in 2030 and 3490 kcal/capita/day in 2050 (Alexandratos & Bruinsma, 2012, p. 100).

This means that agricultural areas will also expand. Since the 1960s, most of the expanse in production has been due to growth in production per hectare, whereas comparatively less has come from increases to agricultural area. As found by the Foresight (2011) project: 'Although global crop yields grew by 115 % between 1967 and 2007, the area of land in agriculture increased by only 8 % and the total currently stands at approximately 4,600 Mha'.

However, further demand will likely increase the area used for agricultural production. Bajželj et al. (2014) (in Kiff et al., 2015) have projected that even if crop and livestock yields are able to increase at realistic rates, cropland and pastures will need to expand by 42 % by 2050 to meet food demand (Kiff et al., 2015), meaning that deforestation will continue or perhaps increase. In a comparison of various land use trajectories towards 2050, Schmitz et al. (2014) found that the models used in the IPCC Fourth Assessment report (AR4) 'project cropland changes from -18 to +69 % by 2050 relative to 2000 (-123 to +1158 million hectares [Mha]) and forest land changes range from -18 to +3 % (-680 to +94 Mha) by 2050.' Further, they concluded the uncertainty regarding economic and demographic development (understood here as uncertainty concerning the underlying driving forces defined earlier in this report), can explain the huge range in model predictions. Going back to Alexandratos and Bruinsma (2012), an increase in cropland area between 2005 and 2050 69 Mha is expected, while the International Assessment of Agricultural Knowledge, Science and Technology for Development expect an increase of around 180 Mha, while the Foresight (2011) project found that studies on land-use towards 2050 indicated a range between 90 and 470 Mha (all studies also cited in Schmitz et al., 2014).

Expansion of commercial agriculture, either through production of staple crops or through pastures for cattle, is considered the largest proximate cause (see distinction above) of deforestation in the tropical region (Hosunuma et al., 2012). Further underscoring this, nearly all tropical countries in their national REDD+ ⁽⁴¹⁾ strategy documents cite the growth of commercial agriculture as an important driver of deforestation (Lawson et al., 2014).

⁽⁴¹⁾ REDD+ (or REDD-plus) refers to 'reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries.' Additional information at <http://redd.unfccc.int/>.

The drivers of this agricultural expansion in the tropical region include the production of crops, livestock for export, and growth of urban areas. In terms of the main commodity drivers, these include ruminant livestock production (e.g. beef), soybeans, maize, oil palm, rice and sugar cane. As crops like soybeans are often used as livestock feed, a considerable proportion of commodity-driven deforestation is due to livestock production. FERN (2015) has estimated that in 2009, 'beef exports from Brazil to the EU embodied 102,000 hectares of deforestation, and soy imports from Brazil a further 73,000 hectares,' making them two of the most important commodities in terms of European-embodied deforestation. This is partly explained by the fact that little soy is grown within the EU and that, according to FERN (2015), an estimated 'one-third of feed given to pigs and poultry bred for meat in the EU is soy, mostly from Latin America.' FERN also found that palm oil from Indonesia was important, embodying another 33,000 hectares, while other important crops in terms of embodied deforestation include 'leather from Brazilian cattle, soy from Argentina and cocoa from Western Africa' (FERN, 2015).

A further challenge with regards to agriculture and deforestation is illegal deforestation. According to a well-regarded analysis on this, performed by Lawson et al. (2014) 'the majority of commodities produced and exported into the global market are products of illegal deforestation.' In their analysis, they find that 65 % of Brazilian beef exports, 9 % of Argentina's beef export, 41 % of Brazil's soy exports, 5 % of Argentina's soy and 30 % Paraguay's soy export are likely linked to illegal deforestation.

Text Box 4-1: Notes to the analysis of forest risk commodity trade ⁽⁴²⁾

The analysis on the trade in forest risk commodities builds on trade values instead of trade volumes, due to limitations of the COMTRADE database. The database restricts the complexity of queries. Therefore, data needs to be reduced to either a short timeframe, which limits the understanding of the dimension of trade growth in the past, or an incomplete set of countries, which reduces the ability to assess the EU's share of globally imported goods. At last, the data directly retrieved from COMTRADE returns partially empty entries for several countries.

The Observatory of Economic Complexity (OEC) allows a greater complexity of the datasets, while also using COMTRADE data. In turn, however, this data is only available as trade values and the data presentation allows no manipulation. Therefore, the EU can visually not be isolated.

The outputs from the OEC are denominated in USD billion and the time scale ranges from 2000 until 2014. The countries are grouped and coloured by continent:

Africa	Asia	Australia/Oceania	Europe	N. America	S. America
Yellow	Red	Orange	Purple	Blue	Green

The use of trade values comes with some drawbacks. Any prices of goods are subject to fluctuations, and the trade quantity that corresponds to a given price will vary over time. A second aspect is that a price may also reflect the quality of a good, which does not relate to the quantity. For example, Brazil typically exports lower-value cuts of beef than the USA, for example. The same value of beef exports in Brazil can subsequently resemble an overall higher export quantity than in the USA.

Along the same lines, 53 % of Indonesia's and 24 % of Malaysia's palm oil exports are produced on illegally deforested land (Lawson et al., 2014). The further find the prob-

⁽⁴²⁾ In the context of this section, and for practical reasons explained in Text Box 4-1, the graphs extracted from the OEC database present the geographic continent group Europe in purple. This includes: EU28, Albania, Belarus, Bosnia and Herzegovina, Iceland, Liechtenstein, Macedonia, Moldova, Montenegro, Norway, Russia, Serbia, Switzerland, and Ukraine.

lem to be centered around two countries, with almost 72 % of the total measured value of illegal-deforestation exports' originating in Brazil or Indonesia, with soy representing more than 30 % of the total illegal deforestation (Lawson et al., 2014).

Beef

The production of cattle livestock produces mainly beef (next to leather as a by-product) and is in some countries, notably in Latin America, the largest driver of deforestation by far. Particularly, as not just pastures for cattle are required, but also a sizable land area for the production of beef feedstock. The production of beef, and the required land for either beef pastures or beef feedstock, led between 1992 and 2008 to the direct or indirect deforestation of nearly 63 Mha (Vito et al., 2013). This land area accounts for 49 % of all embodied deforestation through agricultural production for the period analysed (1992-2008). According to Henders et al. (2015), the production of beef accounted for the greatest land use change (LUC) in Latin America in 2011. Alone in Brazil, the total LUC for beef amounted to 1.6 Mha.

Ranked by their export values, the principle exporters of beef are Brazil, India, Australia and the USA (Figure 4-2). Over the past 10 years, India particularly has emerged as a new principal exporter of beef (Brack et al., 2016). When compared to other global producers, Brazilian beef exports are potentially undervalued because these tend to be low-value cuts. The export quantity is therefore likely to be higher (ibid).

Europe is the dominant importer of beef from Argentina (Figure 4-4), while Europe plays a comparatively smaller role in shaping the demand of beef from Brazil (Figure 4-5), where the largest markets are Russia, Venezuela, and Hong Kong. Among EU Member States, Italy and the Netherlands import the largest part of the Brazilian beef. In total, the EU import beef from Brazil at a value of about USD 600M out of a total export of almost USD 6 billion. The EU import from Argentina is comparable in size to the import from Brazil, but EU's market share is above 50 % in Argentina and around 10 % in Brazil (of total exported bovine meat). Most imports of bovine meat originate from tropical regions, i.e. Latin America (Argentina, Brazil, and Uruguay) and Australia (Figure 4-6).

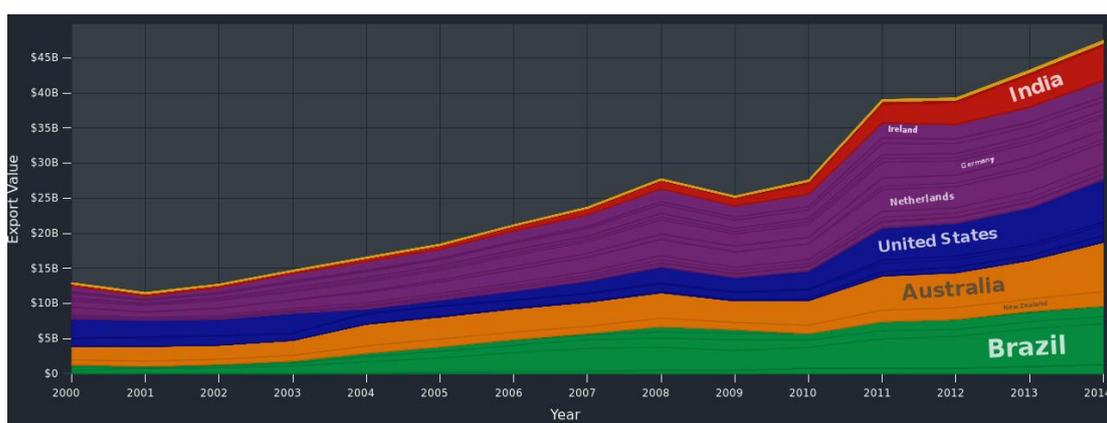


Figure 4-2: Export of bovine meat (SITC data). European countries are shown in purple. Retrieved from OEC.

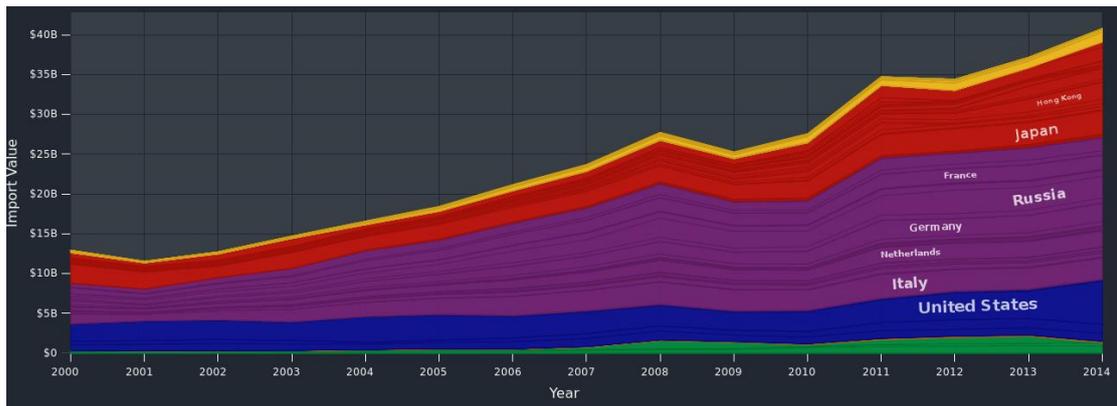


Figure 4-3: Import of bovine meat (SITC data). European countries are shown in purple. Italy, Germany, The Netherlands, and France are the four largest EU importers. Retrieved from OEC.

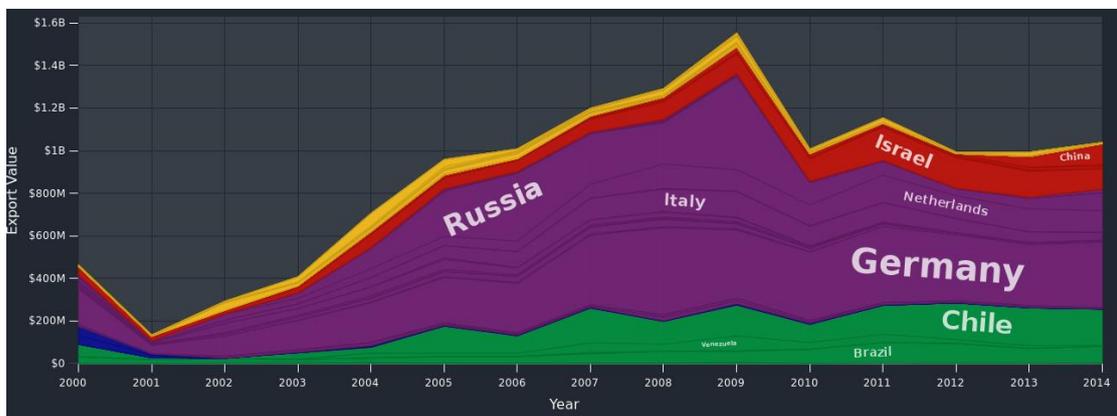


Figure 4-4: Argentinian export of bovine meat (SITC data). European countries are shown in purple. Germany, the Netherlands, and Italy are the three largest EU importers. Retrieved from OEC.

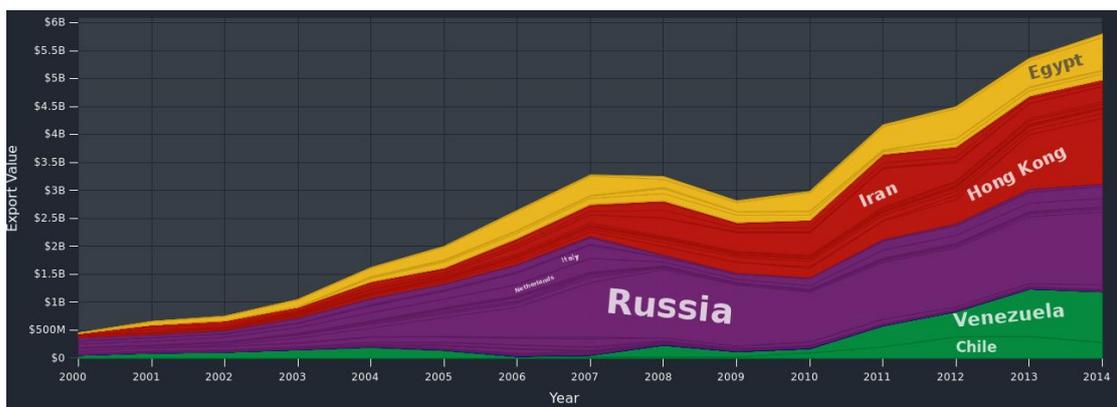


Figure 4-5: Brazilian export of bovine meat (SITC data). European countries are shown in purple. Italy and the Netherlands are the two largest EU importers. Retrieved from OEC.

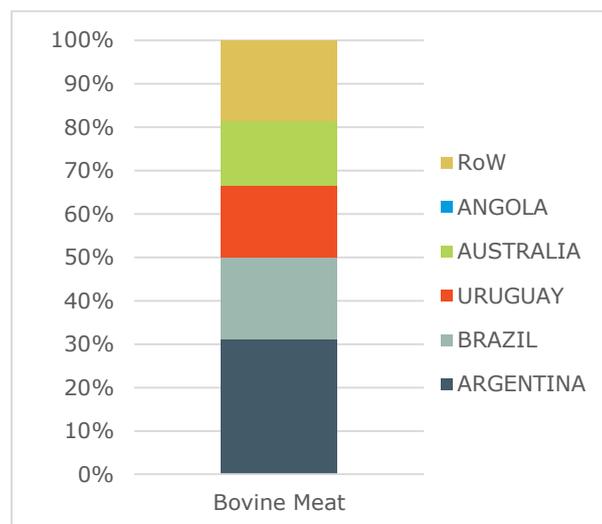


Figure 4-6: EU's five largest tropical import sources for bovine meat in 2014 (Adjusted EU Extra imports, DS-041718, Eurostat, 2017, HS code 020120 and 020130, incl. subgroups).

Maize/corn

Maize accounts for the greatest share of globally traded coarse-grains (i.e. corn/maize, sorghum, barley, oats, and rye). The main application of the globally traded maize is for feedstock, and to a lesser extent for food or industrial uses, such as biofuels (USDA, 2017). In the context of deforestation, the production of maize is liable for 11 % of the direct or indirect deforestation through agricultural products (Vito et al., 2013). Over the past years, Brazil has become one of the top producers of maize. In the previous decade, 60 % of this increase occurred in the state of Mato Grosso, which lies at the forefront of the Amazon rainforest (Galford et al., 2013). From a global perspective, the expansion of maize production from 1990 to 2008 has cleared an estimated 7.5 Mha across 70 countries, of which Sub-Saharan Africa accounts for the greatest share (Vito et al., 2013, p.52).

United States (US) is the main producer and exporter of maize, but since the turn of the century, Brazil and Argentina have emerged as important producers and exporters (Figure 4-7). However, Europe imports almost no maize from Brazil and Argentina, whose main trade partners on maize are Asian countries (Brazil), and a mix of Asian, other Latin American, and African countries (Argentina). Similarly, all the maize exported from the US is sent to Asia (especially Japan), North America (especially Mexico) and some Latin American countries (e.g. Peru, Colombia), with EU importing almost nothing. Ukraine has also emerged as an increasingly important producer, and as opposed to the other three main producers (US, Brazil, Argentina), about half of the Ukrainian production is exported to the EU, with the share increasing especially in the past five years. However, Ukrainian exports make up only about 10 % of world export. The remaining EU import and export is between EU countries. For example, most German maize import is from France and Poland, while Italian imports are from Hungary and France. The United Kingdom imports most maize from France, although about 10 % is imported from outside EU, mostly Argentina and Canada. France imports about 20 % of its maize from outside Europe, mostly from the US and Chile, who is emerging as an exporter of maize, however most of this is being sent to the US (more than 75 %) and the remainder to EU countries (Figure 4-8). Although rising, the Chilean maize export (about USD 300 million per year) is dwarfed by the Brazilian (USD 4 billion per year) and Argentinian (USD 3.5 billion per year) exports, as can also be seen in Figure 4-9 below.

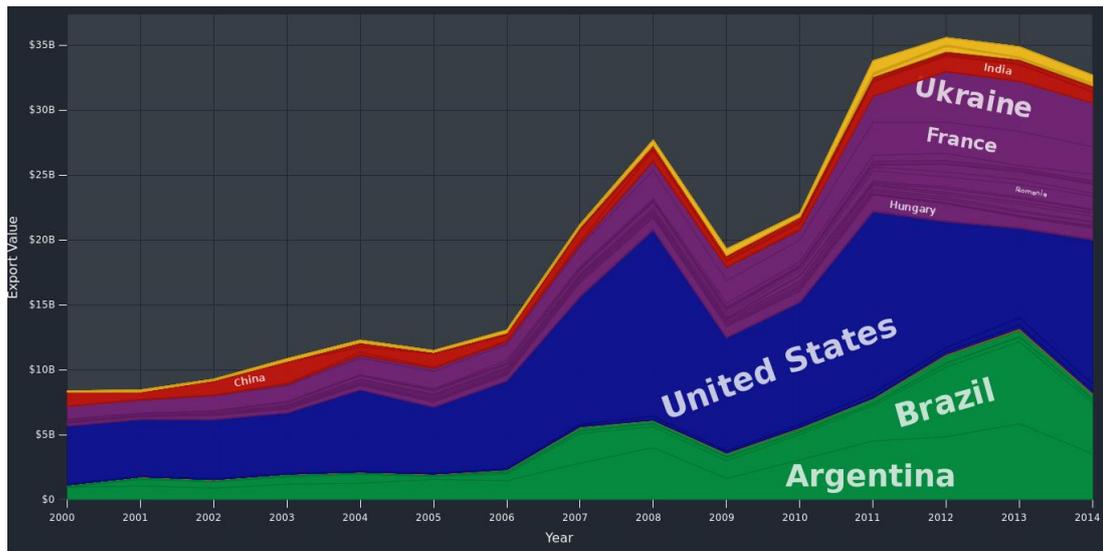


Figure 4-7: Maize export, 2000-2014 (SITC data). Retrieved from OEC.

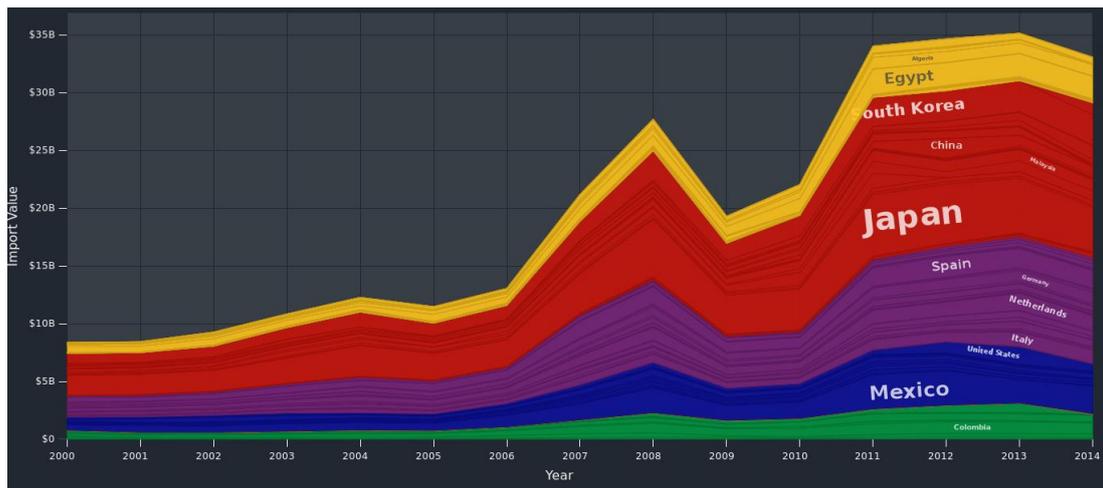


Figure 4-8: Maize import, 2000-2014 (SITC data). European countries shown in purple. Spain, the Netherlands, Italy, and Germany are the four largest EU importers. Retrieved from OEC.

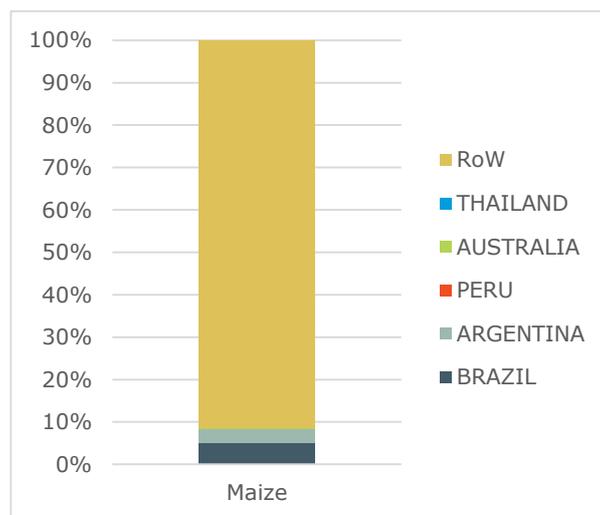


Figure 4-9: EU's five largest tropical import sources for maize in 2014 (Adjusted EU Extra imports, DS-041718, Eurostat, 2017, HS code 100590 incl. subgroups).

Soy

The global production of soy has seen a strong surge over the past 20 years, and proves to be a particularly popular crop. The nitrogen-fixing character (which reduces the need for N-fertiliser), its high levels of protein (which makes it a great feedstock), and richness in oils (which makes it a good source for vegetable oils and biofuels), responds well to the growing demand for feedstock and biofuels over past years (UCUSA, 2016).

The global consumption of soybeans accounts for 19 % of direct or indirect deforestation through agricultural products and is there with the main crop that drives deforestation (Vito et al., 2013, p.21). Between 1990 and 2008, the production of soybeans accounted for a directly or indirectly deforested area of 13Mha, of which about 97 % occurred in South America (ibid).

As concerns soya, the commodity is traded in three different forms; as soya beans, as soya bean oil, and as soya oil cake. The export and import patterns for these commodities differ, due to the end use of each. Soya beans and soya oil cake are by far the two most important, and will each be described in turn (including visualizations of trade data).

Soy beans

Soya beans are produced by mainly two countries, the US and Brazil, although Argentina and Paraguay has also become among the important producers in recent years (Figure 4-10). Soya beans are imported to a very large extent to Asia, especially China, who is the leading importer of soya beans from US, Brazil and Argentina (Figure 4-11). The EU imports about 10 % of total US exports (Figure 4-13), and about a sixth of total Brazilian export (Figure 4-14). The EU imports almost no Argentinian soya beans (Figure 4-15), but is the leading importer of Paraguayan exports of soya beans (Figure 4-16). The largest export to Europe of soya beans is from Brazil, the value of which is about USD 2.9 billion (out of a total of about USD 23 billion), with China being by far the dominant origin of export. However, Europe plays a comparatively larger role in Paraguay, along with Turkey and Mexico. Paraguayan export value to Europe (incl. Russia) is USD 1.07 billion (of a total of USD 2.3 billion), while China does not import soy from Paraguay at all. Finally, it should be noted that SITC data also exist for the export and import of soya bean oil, but the trade in this commodity is only

about 10 % of the trade in soya beans, and have thus not been shown here. The overall patterns (trading partners) are the same for this commodity, perhaps with the exception that the EU share is even smaller.

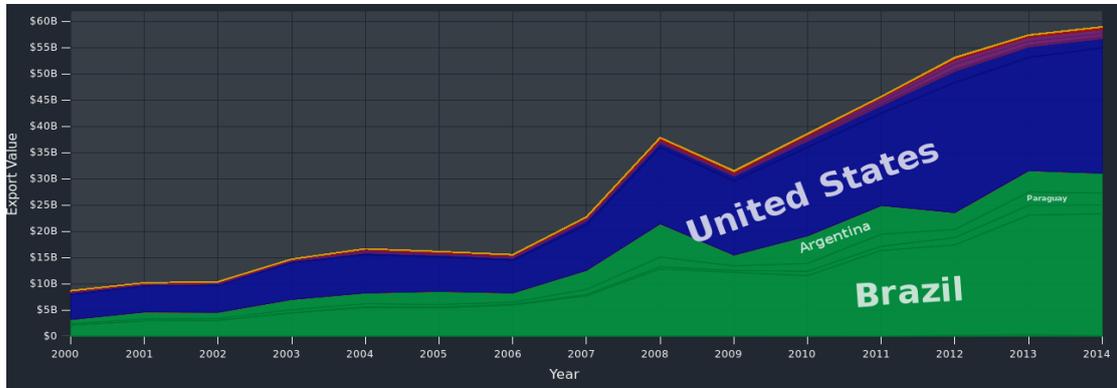


Figure 4-10: Export of soy beans (SITC data, SITC code 2222). Retrieved from OEC.

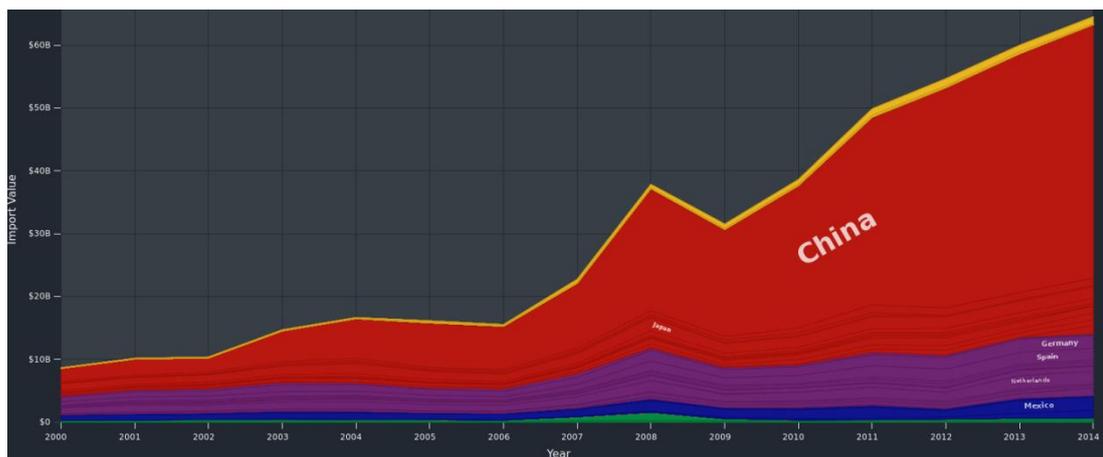


Figure 4-11: Import of soy beans (SITC data, SITC code 2222). Germany, the Netherlands and Spain are the largest EU importers. Retrieved from OEC.

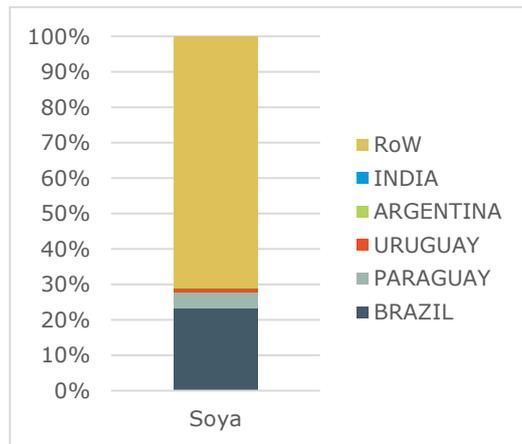


Figure 4-12: EU's five largest tropical import sources for soya beans in 2014 (Adjusted EU Extra imports, DS-041718, Eurostat, 2017, HS codes 120190 and 120810, incl. subgroups).

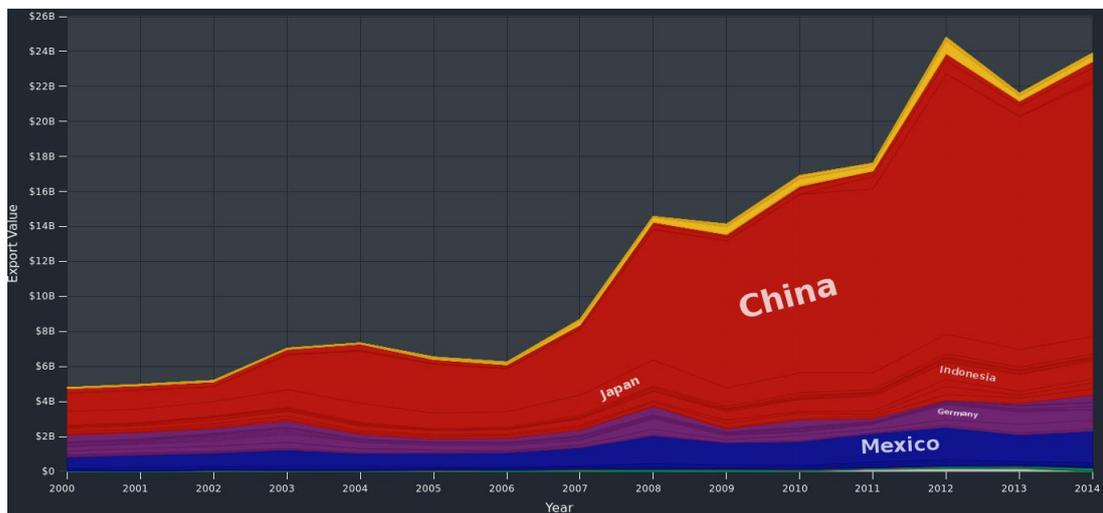


Figure 4-13: US export of soy beans (SITC data, SITC code 2222). Germany is the largest EU importer. Retrieved from OEC.

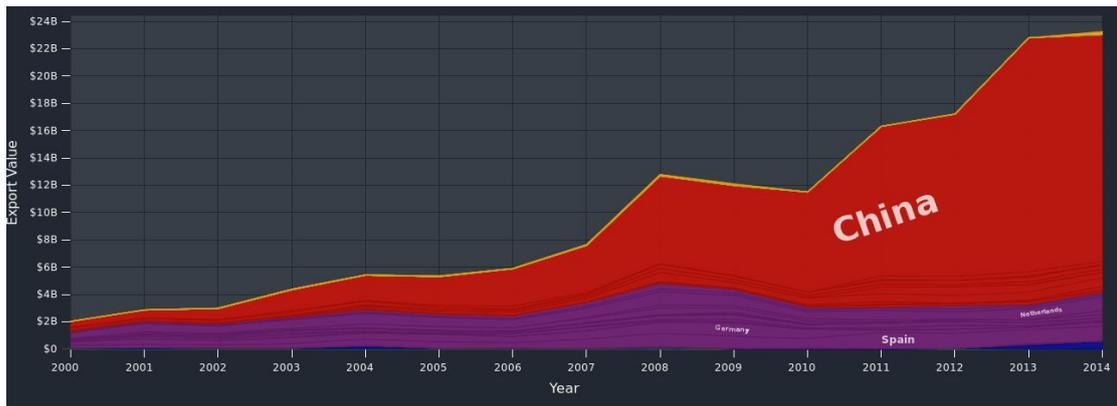


Figure 4-14: Brazilian export of soy beans (SITC data, SITC code 2222). Spain, the Netherlands, and Germany are the three largest EU importers. Retrieved from OEC.

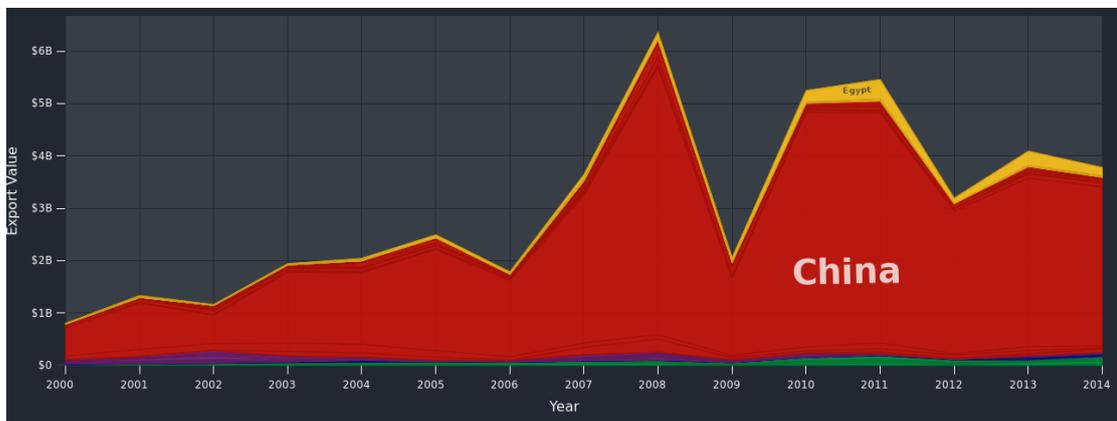


Figure 4-15: Argentinian export of soy beans (SITC data, SITC code 2222). Retrieved from OEC.

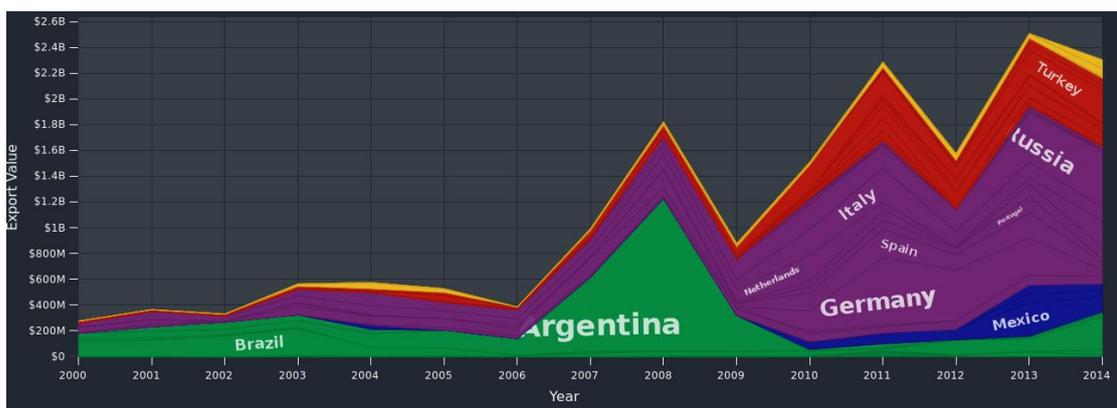


Figure 4-16: Paraguayan export of soy beans (SITC data, SITC code 2222). The Netherlands, Italy, Spain, and Germany are the four main EU importers. Retrieved from OEC.

Soy oil cake

Once we turn to soy oil cakes, the picture is somewhat different from the one described above. The exporters of soya oil cake are the same as the exporters of soya beans, namely the US and the three Latin American countries, Brazil, Argentina and,

to a lesser extent, Paraguay (see Figure 4-17). Some European countries (Netherlands, Germany) and India also export oil cake, but these are largely re-exports of processed soya, not soya produced in the country. The total export value of soya oil cake is around USD 40 billion (2014), about two-thirds of the export value of soya beans, which stood at USD 60 billion in 2014.

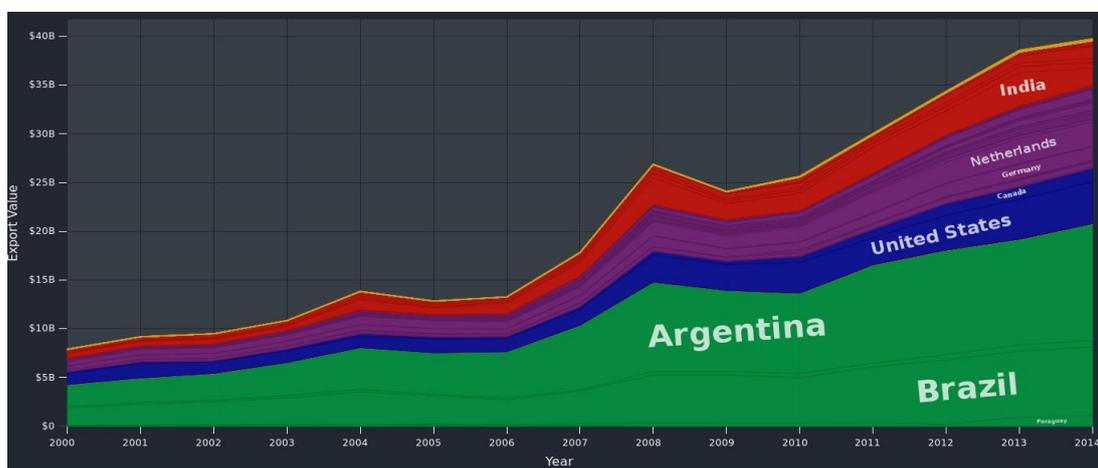


Figure 4-17: Export of soy bean oil cake (SITC data, SITC code 0813). The Netherlands and Germany are the two main EU importers. Retrieved from OEC.

As it concerns import (Figure 4-18), the EU imports a larger percentage of total oil cake exports than total soya beans. The import value from EU countries has risen from about USD 4.5 billion in 2000 to about USD 18 billion in 2014, increasing especially rapid after 2006 with only a slight dip in 2009 and 2010 following the financial crisis. The largest importers among the EU member states are the Netherlands, France, Germany, Spain, Italy, the UK, Poland and Denmark. The EU imports are mainly from Latin America (Brazil, Argentina, Paraguay); for instance, Germany imports more than 50 % of its soy bean oil cake from Brazil and Argentina, and the rest from other EU countries (as re-exports), as is the case for the UK and France. Italian imports rely to an even greater extent on Latin American exporters, with about 60 % of imports coming from this region. The Netherlands is among the largest EU importers of soya bean oil cake, with imports greater than that of France or Italy, and imports about two-thirds from Brazil and Argentina, with the remainder being re-exports from other EU countries. A small share of the EU's tropical import also derives from India.

Despite large imports, increasing volumes and a large increase in total import value, the EU's total share of oil cake imports have gone from about 55 % in 2008 to about 45 % in 2014. This is because the import from Asia, especially Vietnam, Thailand, and Indonesia, has also increased rapidly in the same period. The EU's share of total import fell below 50 % following the financial crisis in 2008, and has stayed below that since then.

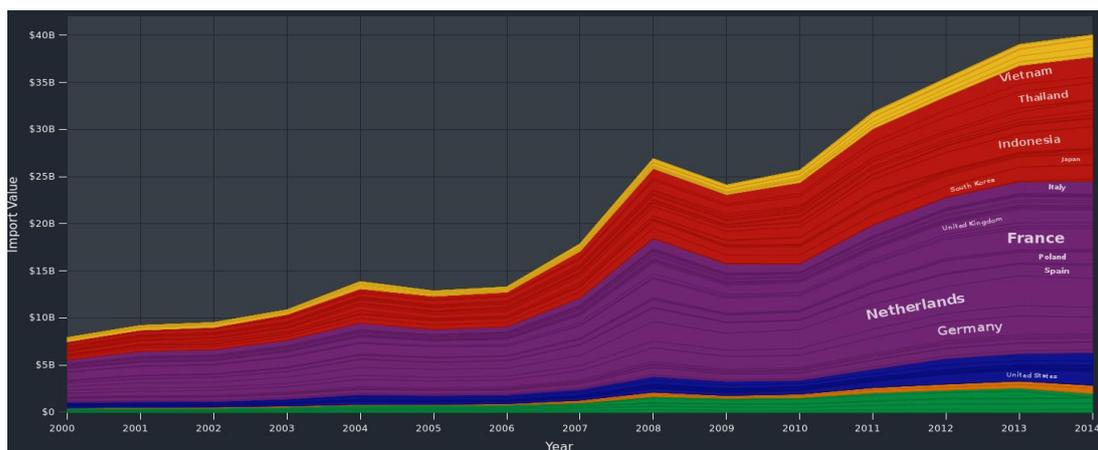


Figure 4-18: Import of soy bean oil cake (SITC data, SITC code 0813). The Netherlands, France, Germany, the United Kingdom, Poland, Spain, and Italy are the seven main EU importers. Retrieved from OEC.

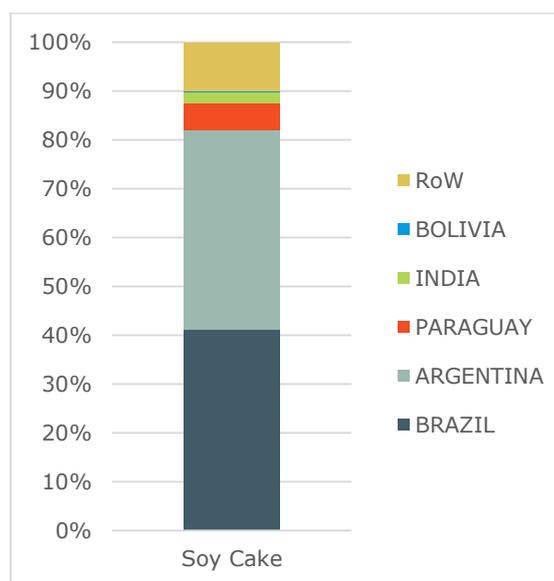


Figure 4-19: EU's five largest tropical import sources for soy cake in 2014 (Adjusted EU Extra imports, DS-041718, Eurostat, 2017, HS code 230400xx).

Argentinian export of soya oil bean cake has been growing heavily since the turn of the century, from about USD 2 billion to about USD 12 billion – a growth of about 600 % in less than 15 years (Figure 4-20). European import has risen from about USD 1.5 billion in 2000 to around USD 3.7 billion in 2014, peaking however around the financial crisis with a total export value of USD 5.5 billion out of a total of around USD 9 billion, or more than 50 % of all export. Today, EU's share has fallen to about 30-35 % of total export value. Since the financial crisis, Asia's share of export has increased, from USD 2.5 billion (27 %) in 2008 to USD 5.5 billion (46 %) in 2014. However, the EU is still the main importer of Argentinian soya bean oil cake.

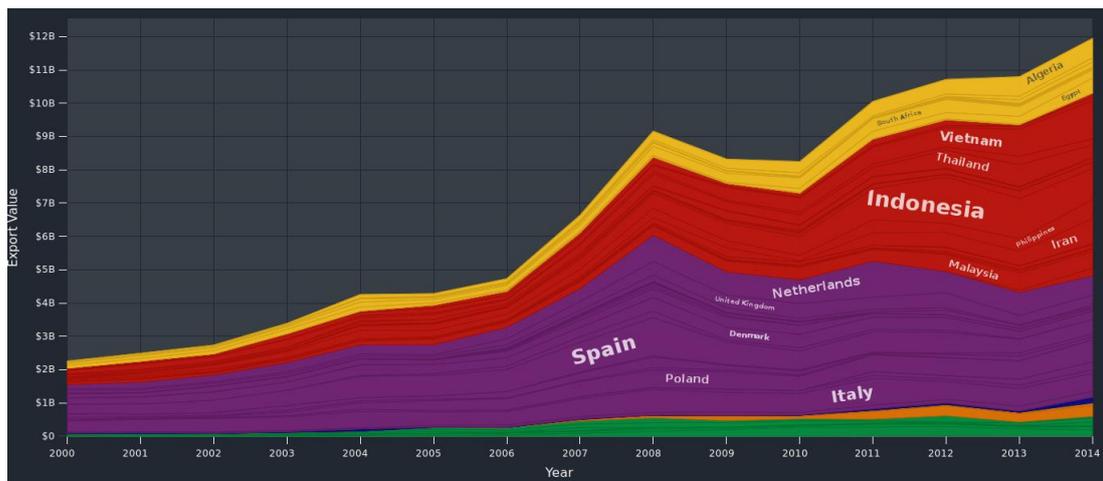


Figure 4-20: Argentinian export of soy bean oil cake (SITC data, SITC code 0813). Poland, Italy, the Netherlands, Spain, the United Kingdom and Denmark are the six main EU importers. Retrieved from OEC.

Brazilian export of soya oil cake has also increased rapidly in the past 15 years, although it is not as large as the Argentinian export – perhaps because most of the Brazilian production is exported as soya beans, whereas the Argentinian production is mostly exported as oil cake. The total value of Brazilian oil cake export has increased from about USD 2 billion in 2000 to about USD 7 billion in 2014 (see Figure 4-21). The EU import of this has increased from about USD 1.3 billion (65 % of total) to about USD 4.5 billion (65 % of total) in 2014. In the same period, demand from Asian countries (mostly Thailand, Indonesia and South Korea) has increased from about USD 0.35 billion (about 17 % of total) in 2000 to USD 2.3 billion (about 33 % of total) in 2014. As such, while demand from Asian countries has risen relatively faster, the absolute largest growth in and total demand come from EU countries.

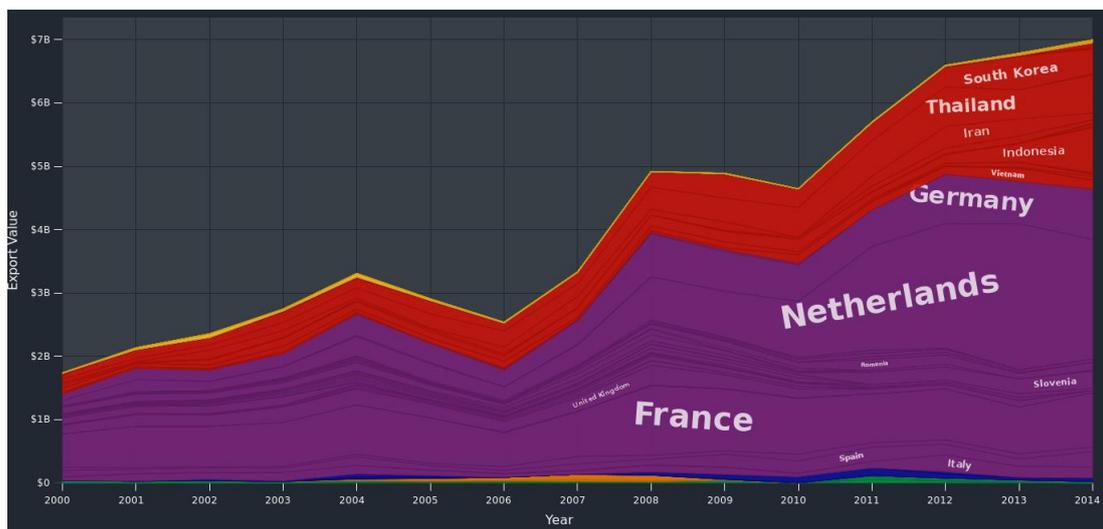


Figure 4-21: Brazilian export of soy bean oil cake (SITC data, SITC code 0813). The Netherlands, France, and Germany are by far the three main EU importers. Retrieved from OEC.

The US exports only a small percentage of its total soya exports as soya oil cake; most is exported as soya beans. The total export has increased from about USD 1 billion in 2000 to about USD 4.3 billion in 2014 (see Figure 4-22). The EU imports about USD 0.55 billion (2014), which translates into 10-15 % of total export in the years

since the financial crisis. Most US soya oil cake is exported to Canada and Mexico, while around 20 % is exported to Asia.

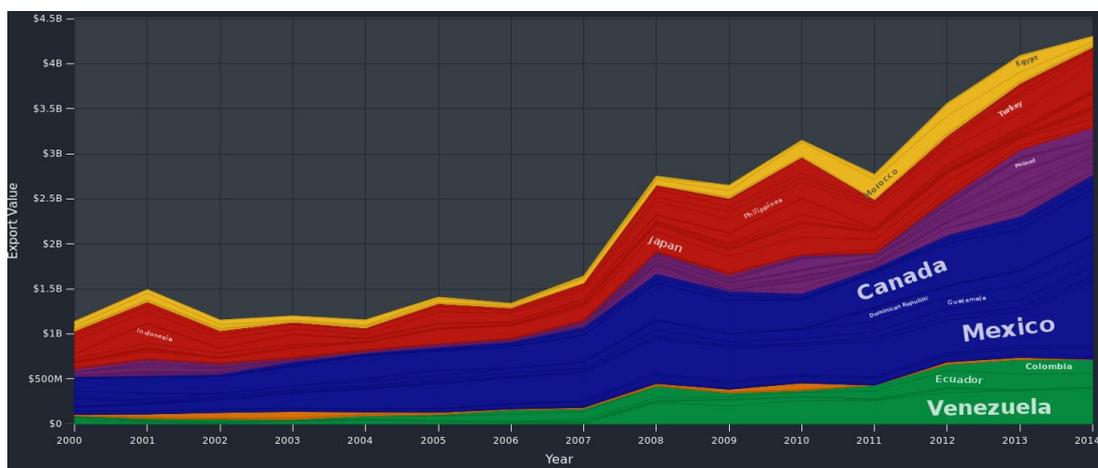


Figure 4-22: US export of soy bean oil cake (SITC data, SITC code 0813). Retrieved from OEC.

Cocoa

The uses of cocoa are various, but its primary uses are for the production of cocoa butter or cocoa powder. Other common uses are as pectin in jams or for feedstock (ICCO, 2016). Traditionally, Western Africa is the main producer of cocoa, but is only limitedly able to keep up with the continuously growing demand for cocoa, due *inter alia* to crop diseases, pests, extreme weather, and political instability. Over recent years, the production has therefore accelerated in South America, which is associated with direct deforestation in the Amazon forest. Notably, Peru experienced a five-fold increase of cocoa production between 1990 and 2013 (WRI, 2015). Vito et al. (2013) estimate that the EU-wide consumption in 1990-2008 is responsible for a deforested area of 0.6 Mha, or about 8% of the deforestation embodied in EU-wide traded crop products.

As cocoa plantations are often found on former forest lands, demand for this product can lead to deforestation. The NGO FERN claims that 'around 40 % of Europe's cocoa comes from former forest lands in Côte d'Ivoire', but does not specify a reference year (FERN, 2015). Although cocoa can be grown in the shaded understory of tropical forests, the production under full sun exposure leads to greater short-term yields, but also to removals of tropical forest covers. Consequently, full-sun cocoa has become the dominant cultivation in some countries, such as Côte d'Ivoire and Ghana (Clough et al., 2009; Tondoh et al., 2015).

The EU is by far the largest importer of cocoa beans in the world, taking up more than 50 % of the global export, with the US and Malaysia being other large importers. The majority of the production comes from traditional cocoa markets in western Africa, such as Ivory Coast, Ghana, Nigeria, and Cameroon. The remainder of the production take place in Indonesia, Ecuador, and Papua New Guinea (see Figure 4-23). Two EU countries, the Netherlands and Belgium, also feature as exporters of Cocoa beans, but this is due to re-export of beans, not actual production within the countries. Total value of cocoa bean export has increased from just over USD 2 billion in 2000 to more than USD 7 billion in 2014, though it peaked at more than USD 10 billion in 2012 – though global cocoa prices have fallen since then.

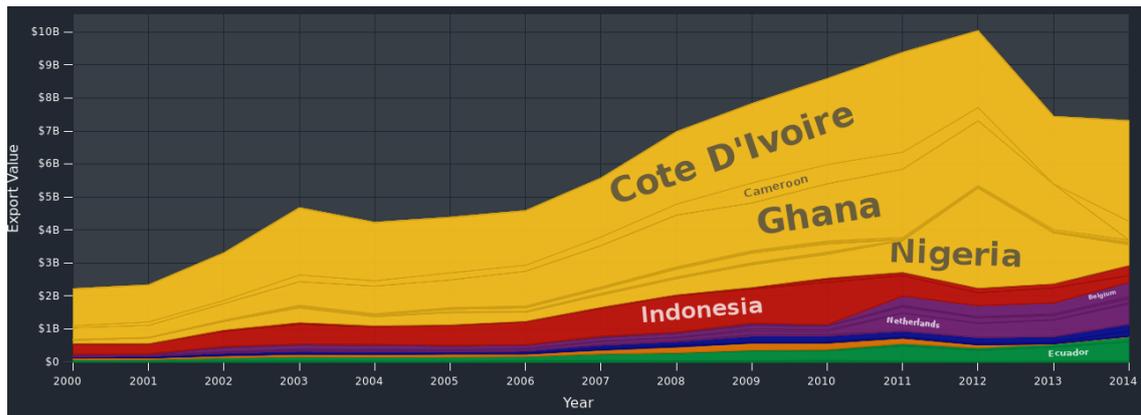


Figure 4-23: Export of cocoa beans, 2000-2014 (SITC data, SITC code 0721). Retrieved from OEC.

Total EU import value of cocoa beans has increased from almost USD 1.5 billion in 2000 to about USD 5.5 billion in 2014 (see Figure 4-24). The largest importers are the Netherlands, Germany and Belgium, which together make up about 75 % of EU imports. The total EU share of import was about 70 % in 2000, and had increased to almost 80 % in 2014. US and Asian imports make up the remainder of total import, with Asian imports increasing slightly more than the US import over the period (2000-2014). The largest EU partners are African, with Cote D'Ivoire, Ghana, and Cameroon as the main countries (Figure 4-25).

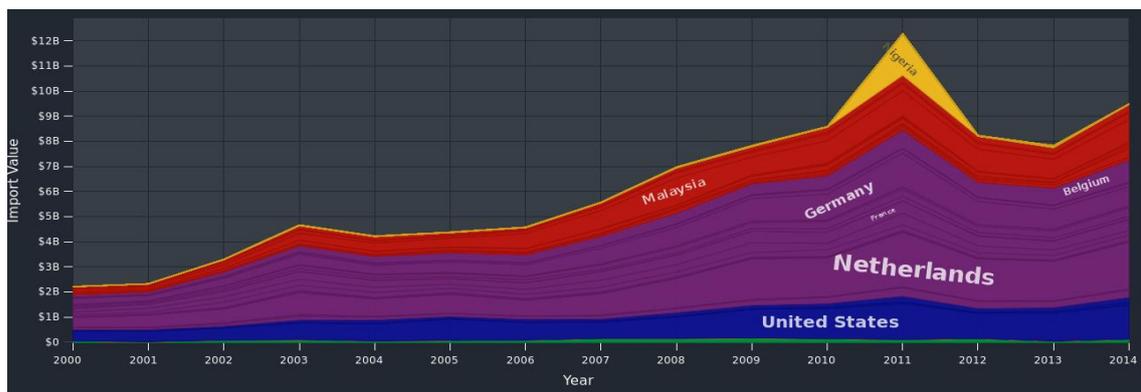


Figure 4-24: Import of cocoa beans, 2000-2014 (SITC data, SITC code 0721). The Netherlands, Belgium, Germany, and France are the four main importers. Retrieved from OEC.

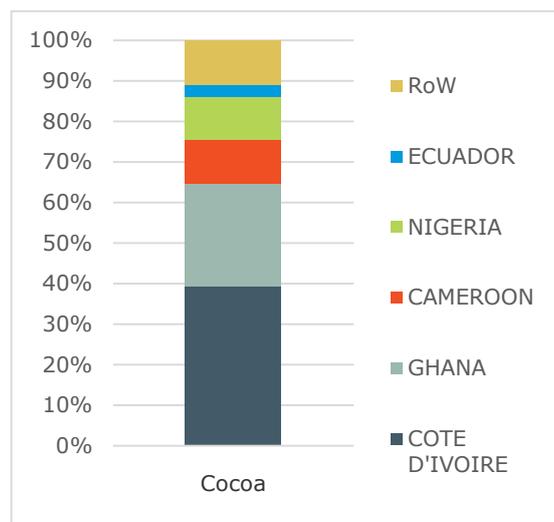


Figure 4-25: EU's five largest tropical import sources for cocoa in 2014 (Adjusted EU Extra imports, DS-041718, Eurostat, 2017, HS code 180100xx).

Some cocoa bean production is also exported as cocoa butter. The total value of cocoa butter as export good was similar to that of cocoa beans, increasing from USD 1.7 billion in 2000 to almost USD 9 billion in 2014. Cocoa butter is largely exported by EU countries, especially the Netherlands and Germany, but some of the cocoa beans produced are also processed in the producing countries. Cocoa butter worth about USD 1.5 billion was exported from Western African countries, especially Ivory Coast, in 2014 (about 17 % of total export value), while Asian countries, especially Indonesia and Malaysia, exported cocoa butter worth about USD 2.1 billion in 2014 (about 24 % of total export value).

Palm oil

Extracted oil from the oilseeds of palm trees is globally the most applied vegetable oil, as it has favourable properties for both industrial and food processing. Applications are found in (e.g.) cosmetics, shampoos, bread, detergents, ice cream, or biofuels (WWF, 2017). Compared to other vegetable oils, palm oil exhibits a significantly higher yield per hectare (e.g. five times that of soy). Combined with lower production costs (mostly due to lower labour costs associated with the geographies of production), palm oil has thus several preferable properties (Brack et al., 2016). Vito et al. (2013) estimate the deforestation of EU-wide consumption between 1990 and 2008 at 0.97 Mha, or 17% of EU-wide consumption. The growth-climate required for palm trees means that exceptionally carbon-rich peatlands in tropical forests often become subject to deforestation to make room for palm oil plantations (Kho and Jepsen, 2015). Continued growth is expected for oil crops, including palm oil. This demand is driven by increased food consumption, industrial uses (e.g. biofuels), and the livestock sector (Alexandratos and Bruinsma, 2012). In their agricultural outlooks, OECD/FAO predicts a 23 % expansion of oil seed production in 2011–2020 and a 45 % rise in palm oil output, mainly by Indonesia and Malaysia (OECD/FAO 2011).

Palm oil is almost exclusively produced in and exported from Malaysia and Indonesia. Export value has grown vastly, seven-fold in 15 years, growing from less than USD 5 billion in 2000 to almost USD 35 billion in 2014, slightly down from the peak of USD 40 billion in 2011 (see Figure 4-26). Despite figuring in the graph, the Netherlands does not produce any palm oil, but re-exports some imported palm oil. The thin orange line is Papua New Guinea exports. While Malaysia and Indonesia are the main exporters by far, Cameroon, Colombia, Nigeria and Thailand are currently the fastest

growing producers (Brack et al., 2016). However, in 2013 these producers took only a minor role in the overall exports; e.g. Thailand accounted for less than 5 % of world production (ibid).

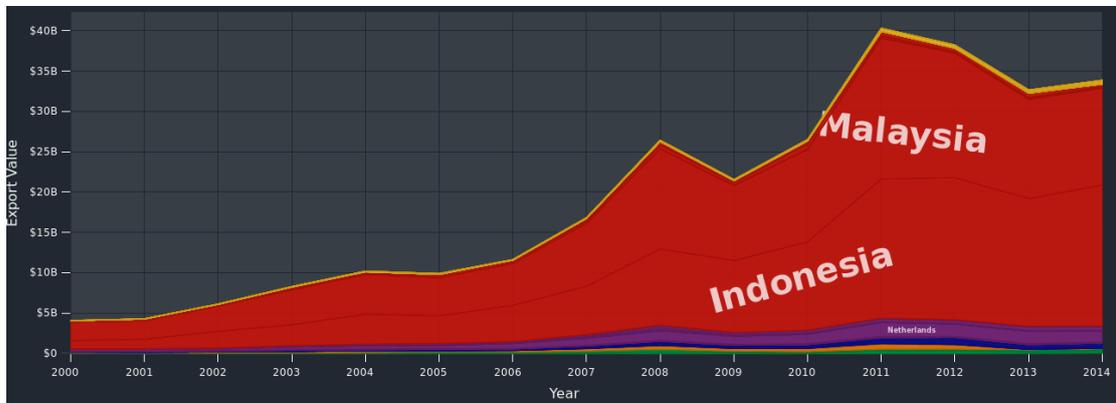


Figure 4-26: Export of palm oil (SITC data, SITC code 4242). Retrieved from OEC.

Palm oil is imported by all regions, but Asia (leading) and Europe (second) import the most (Figure 4-27). EUs import of palm oil has grown from just short of USD 1 billion in 2000 (about 20 % of total) to about USD 8.5 billion in 2014 (about 25 % of total). After Indonesia and Malaysia as the EU’s main import sources, Brazil, Thailand, and Cambodia complete the list of the five largest palm oil trade partners (Figure 4-28).

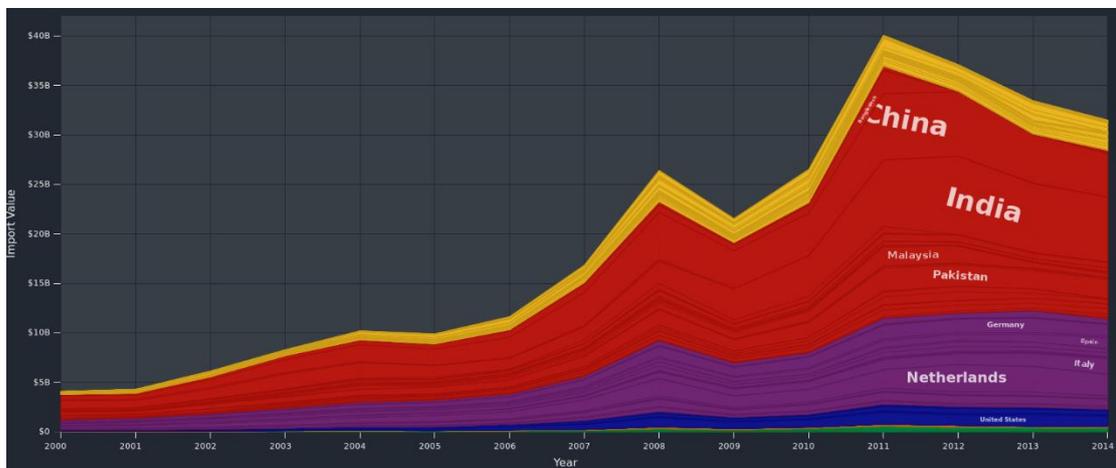


Figure 4-27: Import of palm oil (SITC data, SITC code 4242). The Netherlands, Italy, Germany, and Spain are the four main EU importers. Retrieved from OEC.

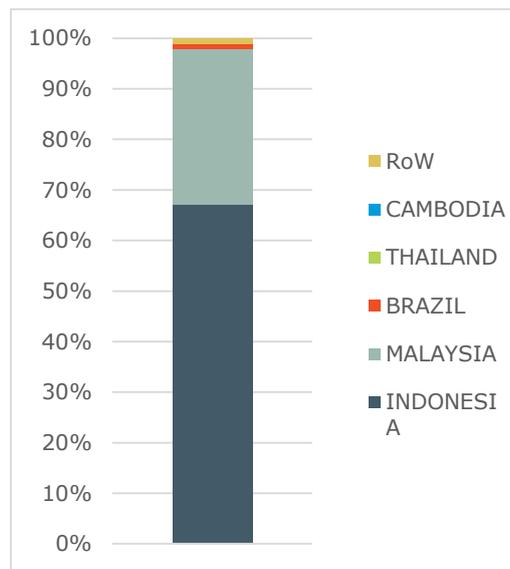


Figure 4-28: EU's five largest tropical import sources for palm oil in 2014 (Adjusted EU Extra imports, DS-041718, Eurostat, 2017, HS code 151110 and 151190, including subgroups).

Palm kernel oil worth about USD 3 billion (2014) is exported from the two main producers, Malaysia and Indonesia, and imported by Asia (leading) and EU (second) and to a lesser extent, the US and Brazil. The graphs are not shown, as the value of this product is only about 10 % of the value of palm oil exports. Overall dynamics (i.e. importers, exporters and relative share) are the same as those described above for palm oil.

Coffee

In comparison to the previously presented goods, coffee plays a rather minor role in global deforestation. Recent data on the deforestation through coffee is limited. However, Vito et al. (2013) estimate that the expansion of coffee led to the deforestation of respectively 0.60 and 0.21 Mha in South East Asia and Central America in the 1990-2008 period. The deforestation through EU-wide consumption in the same time period is estimated at 0.3 Mha, which accounts for about 4% of the embodied deforestation through EU-wide consumption (ibid). As is the case for cocoa, coffee can grow under shaded conditions with a limited impact on deforestation. Similarly, the cultivation of sun-grown coffee returns attractively higher yields. Reportedly, shade-grown coffee has helped to protect existing tropical forests like in Ethiopia (Hylander et al., 2013). Despite its currently smaller significance, the expected development in global demand and supply make coffee a highly relevant good to consider, as Chapter 5.1 will further elaborate.

Coffee exports have grown steadily in the past 15 years, increasing from USD 10 billion in 2000 to around USD 31 billion in 2014. Unlike the other commodities described above, coffee is produced and exported in several regions. The main producers and exporters are Brazil and Colombia in Latin America, the Central American states of Honduras and Guatemala, and Vietnam in Asia. Despite figuring prominently in the graph (see Figure 4-29), the EU and European countries do not produce coffee, but re-export imported coffee.

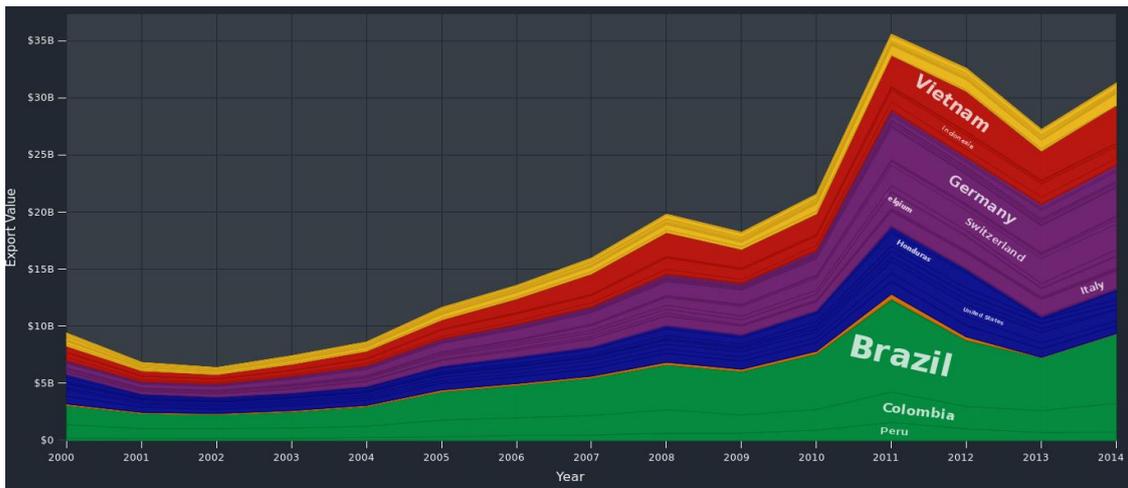


Figure 4-29: Export of coffee, 2000-2014 (SITC data, SITC code 0711). Germany is the largest EU importer, followed by Italy and Belgium. Retrieved from OEC.

The EU is the largest importer of coffee globally, importing about 60 % of global coffee imports. The total value of EU imports (incl. Switzerland) has increased from about USD 5 billion in 2000 to about USD 18 billion in 2014. The US (about 17 % of total imports in 2014) and Japan (6 % of total imports in 2014) are other large importers of coffee (Figure 4-30). Most EU imports originate in Brazil and Vietnam, with Colombia, Honduras and Peru in minor roles (Figure 4-31).

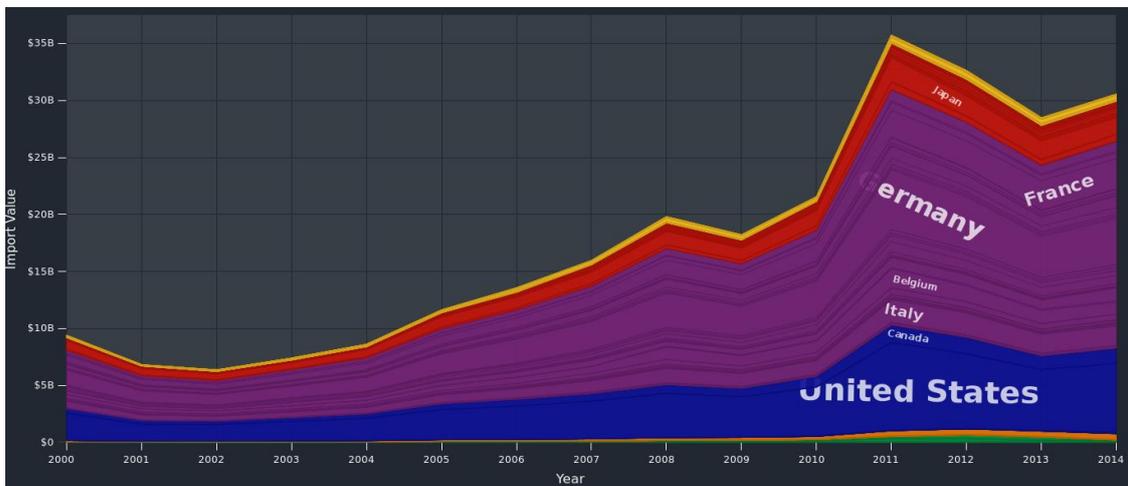


Figure 4-30: Import of coffee, 2000-2014 (SITC data, SITC code 0711). European countries shown in purple. Germany is by far the largest EU importer, followed by France, Italy and Belgium. Retrieved from OEC.

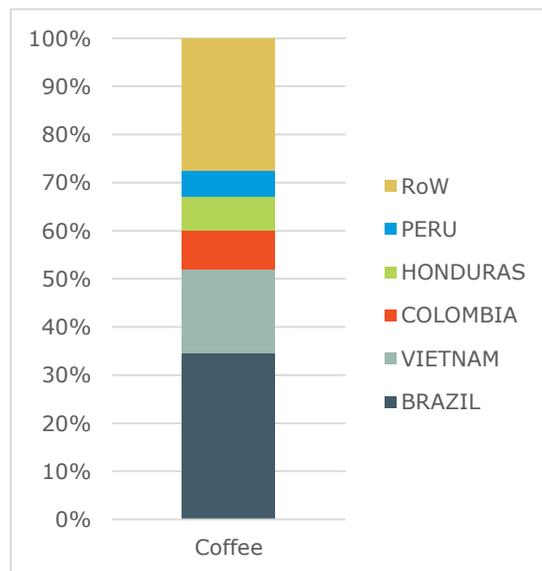


Figure 4-31: EU's five largest tropical import sources for coffee in 2014 (Adjusted EU Extra imports, DS-041718, Eurostat, 2017, HS code 090111, including subgroups).

Coffee extracts, an export market worth about USD 7 billion in 2014, are dominated by EU countries, which export about 50 % of the total export. Brazil and the Asian producers, Vietnam, Thailand and India, are other large exporters. Due to its smaller scale, graphs have not been shown here.

Liquid bioenergy feedstock

Bioenergy derives from either agricultural products, such as maize, rapeseed, palm oil or soy, as in the case of biodiesel and bioethanol, or forest products, such as roundwood or scrap wood, as in the case of wood pellets and wood chips. Therefore, EU demand for biodiesel and bioethanol is treated in this section (under agriculture), while solid biomass, i.e. wood pellets and wood chips, will be analysed in the following section on forest products.

Demand for and production of bioenergy has increased rapidly in the past decade. Globally, a similar trend has been seen especially in the US, and other countries are expected to follow. In their assessment in 2011, the OECD and FAO projected that by 2020, 21 % of the increase in global coarse grains production, 29 % of the increase in global vegetable oil production, and 68 % of the increase in global sugar cane production will go to production of biofuels (biodiesel or bioethanol, depending on the input material) (OECD/FAO, 2011). As increased agricultural areas can increase pressure on forests and lead to conversion of land, increased demand for biofuels can lead to deforestation.

Biodiesel

Biodiesel is produced from oil-based agricultural products and is the most used biofuel in the EU, representing about 75 % of the total market for biofuels in the EU (USDA, 2016). In the EU, which is the world's largest producer and consumer of biodiesel, consumption of biodiesel has been steady in the past five years, and is expected to increase only slightly in the coming years (see Figure 4-32). France, Germany, Italy, the UK and Sweden were the largest consumers of biodiesel, accounting for 63 % of total consumption, with the France and Germany responsible for more than 40 % of consumption (USDA, 2016).

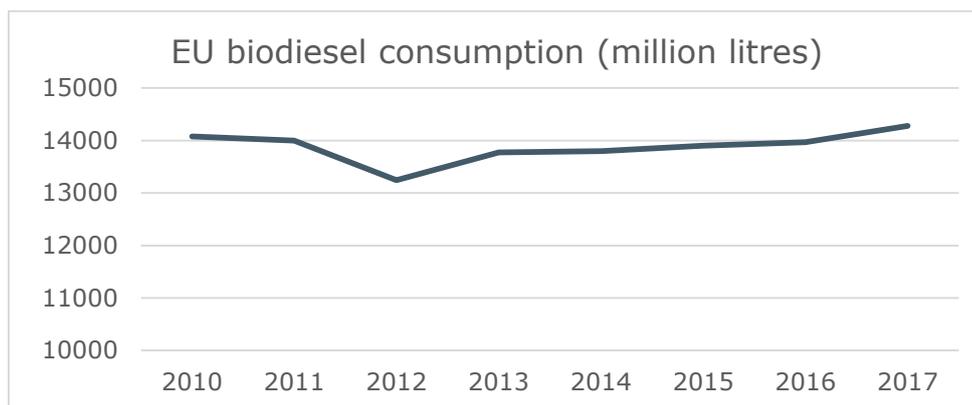


Figure 4-32: EU consumption of biodiesel. 2010-2014 (actual), 2015-2017 (projection). Data source: USDA (2016).

Biodiesel feedstock

In the EU, the primary feedstocks are rapeseed oil (52 % of total feedstock use by weight), used cooking oil (15 %), and palm oil (13 %). The remainder of the biodiesel is produced using soya bean oil (8 %), animal fats (8 %), sunflower oil (3 %) and other oils (2 %) (USDA, 2016). Due to the use of used cooking oil and palm oil for production, the relative importance of rapeseed oil as feedstock has declined since 2008, where it stood at 72 %. Most biodiesel for EU consumption is produced within the EU, but some of the feedstocks are imported from other countries (see Figure 4-33). The use of soya bean and palm oil as feedstock has been limited due to the EU biodiesel standard (EN14214), as soya bean diesel does not comply with the iodine value and the palm oil diesel is unsuitable for use during winter in Northern Europe (USDA, 2016). The rape seed oil used for biodiesel is predominantly of EU origin, while palm oil and soya bean oil is imported, in the latter case either as oil or as soya beans, which are later processed to oil. The production of oil, either from rape seed or soya bean, generates meal as a by-product, which can be used for animal feed (replacing other domestically produced or imported feedstock). In the projection for 2016, it is assumed that 14.2 Mt of rapeseed will be consumed to generate 5.7 Mt of rapeseed oil feedstock and 8.5 Mt of rapeseed meal; similarly 4.4 Mt of soya beans will generate 0.9 Mt soya bean oil and 3.5 Mt soya bean meal.

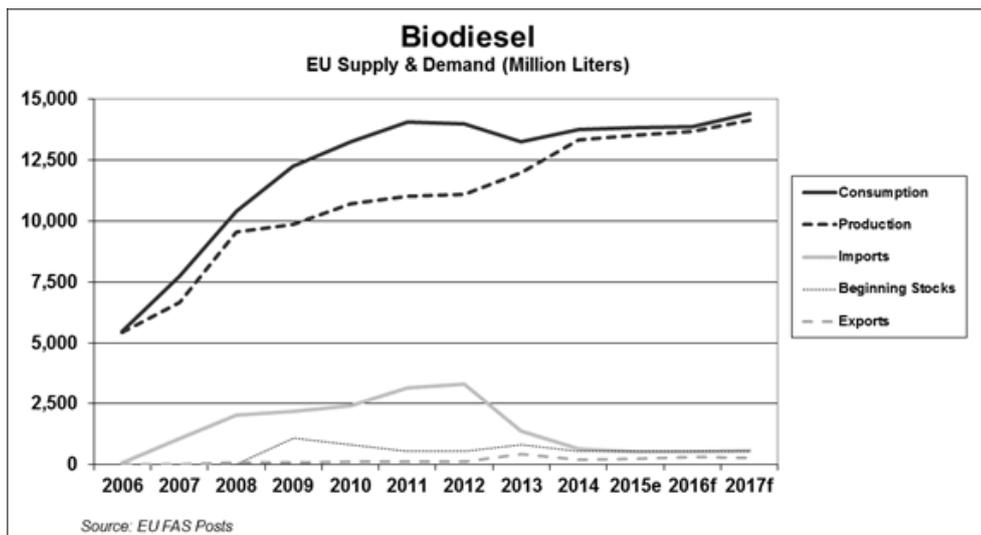


Figure 4-33: EU biodiesel supply and demand. Source: USDA (2016).

Biodiesel imports have declined in recent years, and are restricted by the sustainability requirements for biofuels contained in the RED (2009/28/EC). Most imports are from Argentina, Indonesia, Malaysia and the US, although anti-dumping duties enforced on the former two have decreased imports (USDA, 2016). The EU exports only about 1 % of total production of biodiesel, with the two main export countries being EEA members (Norway and Switzerland).

Bioethanol

Bioethanol is produced by fermenting the sugary parts of plant materials, and represents about 25 % of the biofuels market in the EU. As opposed to biodiesel, bioethanol is also produced in other regions, notably the US and Brazil, and the EU is not the major producer. Consumption of bioethanol increased rapidly from 2006 to 2010, but has been steady (with a slight decline) since then (see Figure 4-34). Germany, the UK, France, Spain and Poland are the major consumers of bioethanol, with the former three responsible for more than 50 % of consumption (USDA, 2016).

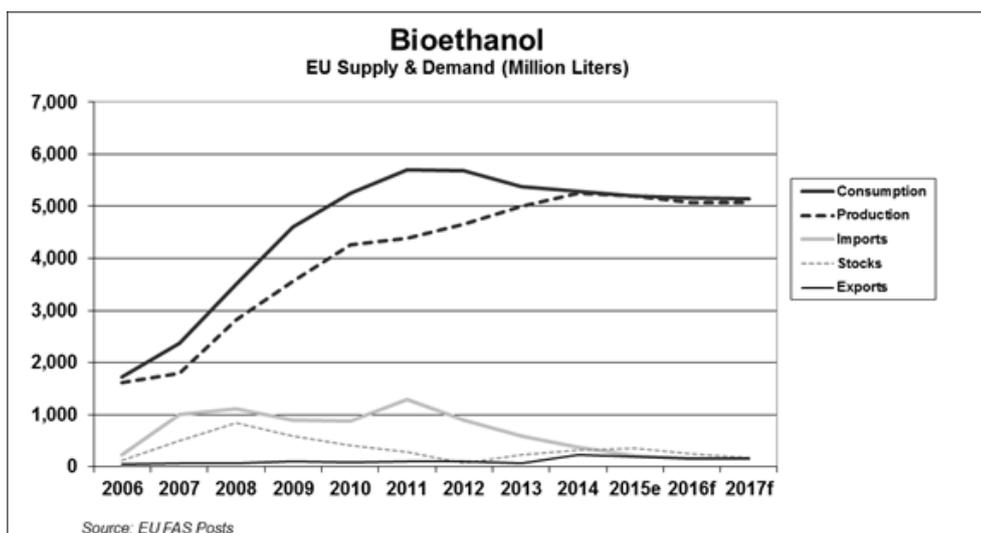


Figure 4-34: EU bioethanol supply and demand. Source: USDA (2016).

Bioethanol feedstock

In the EU, the primary feedstocks for bioethanol are grains, maize and sugar beet derivatives; in northern EU primarily wheat, in central and southern Europe, maize. Total consumption of agricultural crops to produce the roughly 5 billion litres of bioethanol estimated to be produced in 2016 is about 18 Mt in total – 8.9 Mt cereals, 2.9 % of total EU cereal production, and 8.8 Mt sugar beets, 7.0 % of total EU sugar beet production (USDA, 2016).

In 2013, the EC imposed an anti-dumping duty on the US for the coming five years to avoid flooding the market with US-produced bioethanol, which drastically reduced imports of US bioethanol. Total imports have declined since the high plateau of 1 billion litres per year seen in 2007 to 2011, where especially US producers exported ethanol to the EU, and currently (2015) stands at about 215 million litres, of which 125 million litres are imported from the US (USDA, 2016). Besides high sugar prices in South America, which also limits imports, and the duty imposed on the US, the sustainability criteria with GHG savings rising to more than 50 % (compared to the current 35 %) will likely further limit import of bioethanol, which are not expected to reach the levels reached in 2007-2011 (USDA, 2016).

4.2.2 Forest products

Forest products are defined here as those products that originate from forests (e.g. lumber, timber) and are produced from wood resources directly (e.g. solid biomass such as wood pellets or wood chips, as well as pulpwood) or indirectly (e.g. rubber, non-timber forest products). Forest products thus constitute various tradable commodities originating in forest areas, and are separated from agricultural commodities by the fact that the area can either remain forest (e.g. in the case of selective logging), be converted to managed forest (e.g. clear cut and subsequent establishment of plantation), originate from plantations and managed forests (e.g. pulpwood), or originate in managed forest not harvested for wood (i.e. in the case of rubber). Further, demand for all of the products can lead to degradation of the forest resource, including loss of relevant ecosystem services provided by the forest.

In the following, four forest products are analysed, three of which primarily derive from tropical areas, whereas solid biomass for energy purposes currently originates in EU and North America. However, increases in demand are expected to lead to increases in production in tropical areas (see e.g. Goetzl, 2015).

Rubber

A veritable boom in rubber (*Hevea brasiliensis*) production has been taking place since the turn of the century with production almost doubling, growing from 6 Mt in 2000 to 11 Mt in 2014, and area harvested increasing from 5.5 Mha to 8.7 Mha (FAOSTAT). Production of the commodity has taken place in plantations in Thailand, Laos, and Vietnam on former forest land, and in Malaysia and Indonesia, also replacing forests (albeit of a different kind). Most production takes place in Thailand, which has seen production grow from 2.3 Mt in 2000 (44 % of total) to 4.5 Mt in 2014 (45 % of total), and Indonesia, which has seen production grow from 1.5 Mt in 2000 (29 % of total) to 3.1 Mt in 2014 (32 % of total). Malaysia initially had a large share of the total production, coming in third with a production of 0.9 Mt in 2000 (18 % of total), but production has fallen to 0.7 Mt in 2014 (7 % of total), and Viet Nam has taken their place as the third largest producer, growing about 0.95 Mt in 2014 (10 % of total), up from just 0.3 Mt in 2000 (6 % of total). Large growth has also be seen in the Philippines (0.07 Mt in 2000 to 0.45 Mt in 2014) and Myanmar (0.03 Mt in 2000 to 0.2 Mt in 2014). FAOSTAT does not have data for Lao PDR, but some growth should also be expected there, due to their proximity to China (see Figure 4-35).

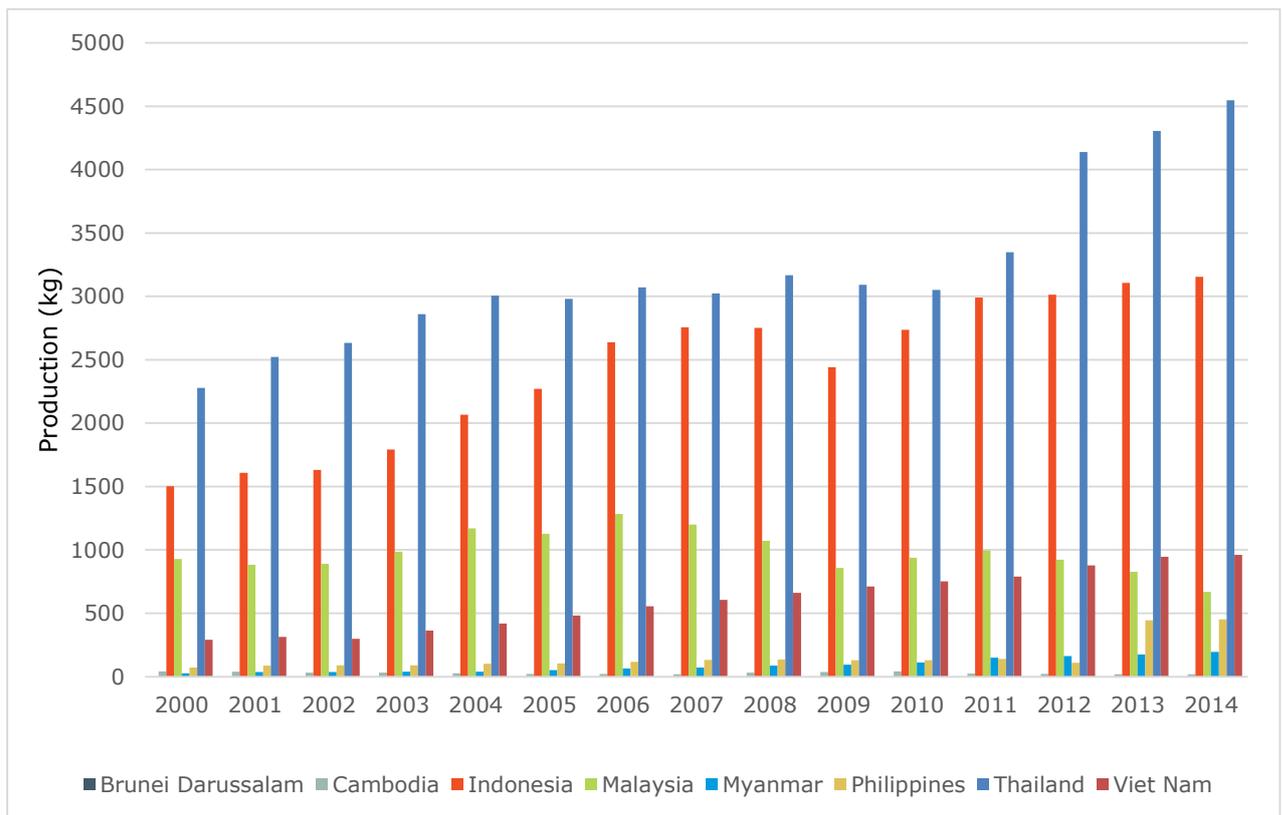


Figure 4-35: Rubber production in South East Asia in kg, by producing country. Source: FAOSTAT.

Despite originating in South America, rubber plantations are not found there, due to the presence of the South American leaf blight (*Microcyclus ulei*), which kills off trees by consuming their nutrients. This makes plantations of rubber impossible to run in this region. Fuelled especially by Chinese demand, rubber plantations have spread throughout the Mekong Delta forests, fuelling a surge in total global production – from about 4.4 Mt in 1983 to about 13 Mt in 2014 (of which 11 Mt is produced in SEA and the remainder in Africa). Estimates on the extent of forest loss vary, but estimates point to extensive deforestation across the countries. Total forest for the five Greater Mekong Subregion countries was estimated at 90.4 Mha in 2010, equivalent to 48 % of total land area in the region (FAO, 2015b). Forest loss has been estimated at about 8 Mha from 1990-2010 (4.2 % of the total land area), with an average decrease in forest cover of 0.4 % annually since 1990 (FAO, 2015b). It has been estimated that about 4.5 Mha of the forest lost since 1980 has been due to the establishment of rubber plantations (Mann, 2016). Plantation area has increased about 3 Mha since 2000 across all of SEA (see Figure 4-36) with large absolute changes to areas in Thailand (about 1.5 Mha increase since 2000) and Indonesia (about 1.2 Mha increase since 2000), while harvested area has decreased in Malaysia (contraction of about 0.3 Mha since 2000). Given the nature of rubber plantations, it can be expected that about 3 Mha of forest has been cleared in the area, as rubber is almost always produced on former forest land. Rubber plantations have been most prevalent in Thailand, but plantation growth (and thus forest conversion) has been taking place in northern Viet Nam, Lao PDR and Myanmar (FAO, 2015) as well, where access to the Chinese market is easiest. This growth is linked to increases in rubber prices since 2000, fuelled in part by growing demand from China, as well as the development of cloned varieties of rubber suitable for cooler climates.

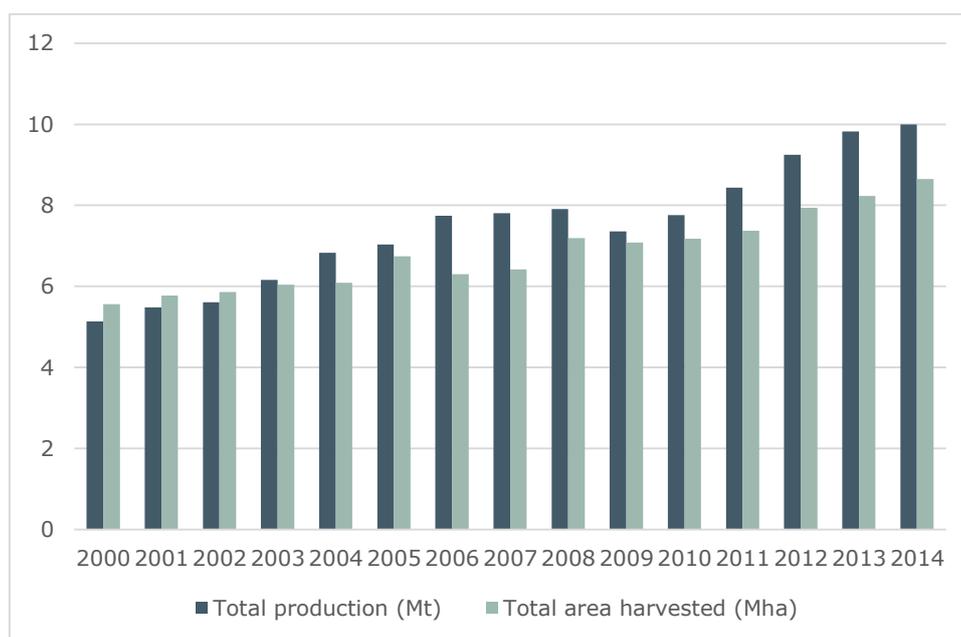


Figure 4-36: Rubber production in South East Asia (Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand and Viet Nam). Source: FAOSTAT.

The export market for natural rubber has grown from just short of USD 5 billion in 2000 to a spike of USD 45 billion in 2011, after which plummeting prices and a slow-down in demand has sent the overall export value to about USD 17 billion in 2014 (see Figure 4-37). Thailand, Indonesia, Malaysia, and Viet Nam dominate the export.

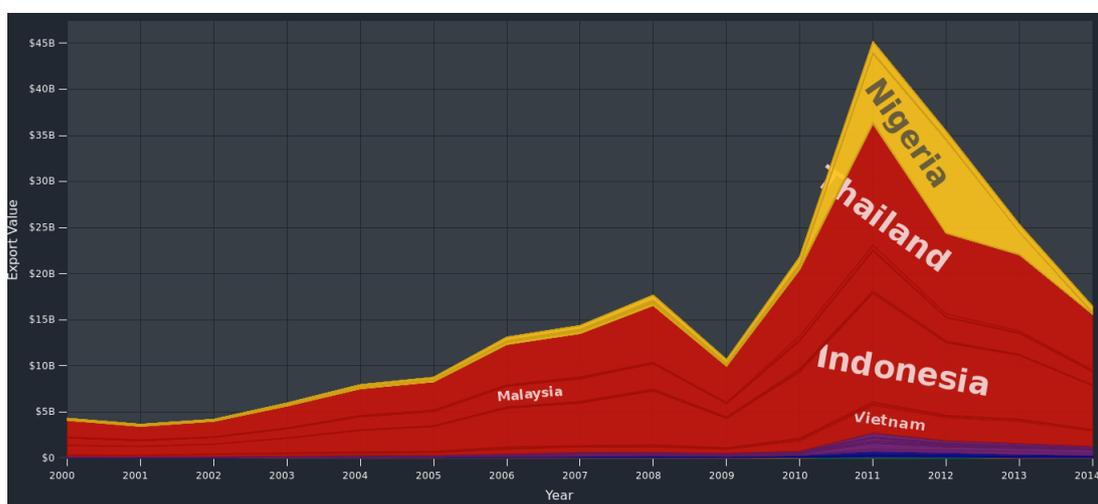


Figure 4-37: Export of natural rubber, 2000-2014 (SITC data, SITC code 2320). Retrieved from OEC.

The most important importer of rubber is China, whose import has grown rapidly from almost negligible (USD 0.5 billion) in 2000 to dominating; it was USD 9.5 billion in 2011 and USD 5.0 billion in 2014 (see Figure 4-38). Asian imports make up about 50 % of total imports, with EU making up about 25 %, the US 20 %, and the remainder of the world the last 5 %. EU demand has increased from USD 1 billion in 2000 to 9 billion in 2011 and 3.8 billion in 2014. The EU imports a clear majority from Indonesia with Malaysia, Thailand, Cote D’Ivoire, and Vietnam completing the list of the five largest trade partners (Figure 4-39).

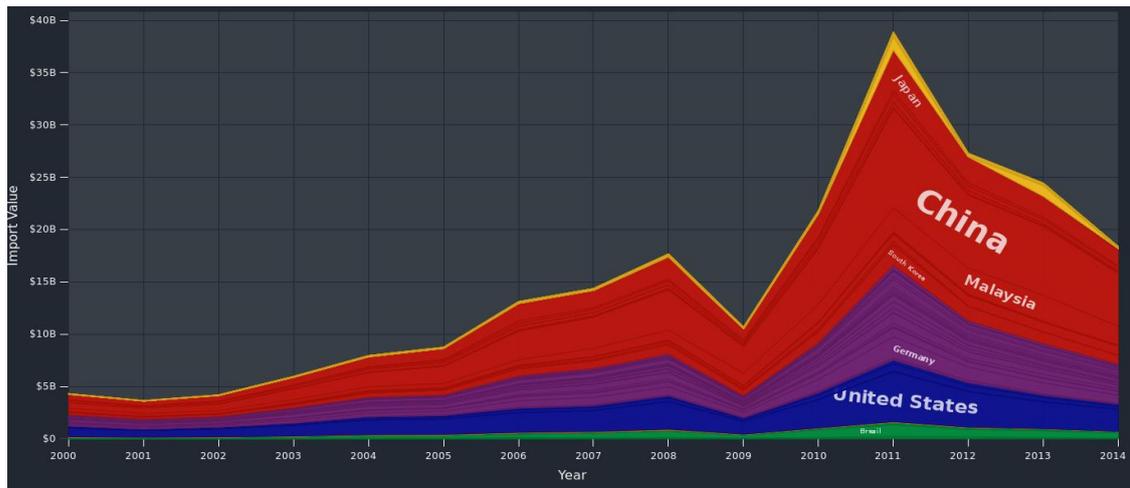


Figure 4-38: Import of natural rubber, 2000-2014 (SITC data, SITC code 2320). European countries shown in purple. Germany is the largest EU importer. Retrieved from OEC.

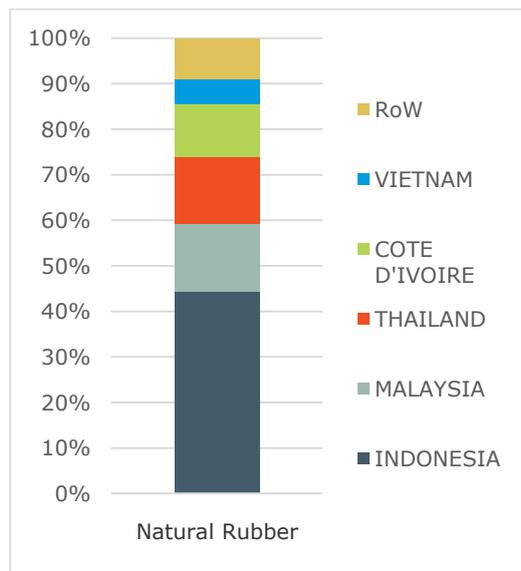


Figure 4-39: EU's five largest tropical import sources for natural rubber in 2014 (Adjusted EU Extra imports, DS-041718, Eurostat, 2017, HS code 400110, including subgroups).

Tropical Timber

Conifers, the wood of which is known as softwood, are most commonly grown in the northern hemisphere and colder climates. Therefore, in the context of tropical deforestation, the demand for non-coniferous species is of most relevance. The wood of such species is often known as hardwood. For the purpose of this study, tropical timber is defined as non-coniferous wood originating from natural forests, managed forests or plantations. This is traded under the SITC codes 2472 (non-coniferous logs) and 2483 (non-coniferous worked wood), and trends in trade of non-coniferous wood follow below. The analysis does not cover secondary/processed wooden products, which may also contain tropical timber.

Much of the internationally traded hardwood originates from converted tropical forests. According to Lawson et al. (2014), 'the growing importance of forest conversion as a

source of tropical wood has yet to be appreciated and recognized by the main international organizations tasked with monitoring tropical forests and forestry.’ The authors cite lack of official statistics as a reason for this: ‘Almost no producer country publishes separate figures for volumes of wood originating from conversion as opposed to selective logging, and neither ITTO nor FAO requests such a breakdown from member countries as part of their regular data submission procedures. Forestry departments in some countries may not even collect this data, though Indonesia has begun to do so.’ In their extensive analysis, they arrive at the result that commercial agriculture and timber exports are the main drivers of deforestation. 29-42 % of overall total tropical deforestation from 2000 to 2012 was due to commercial agriculture and timber products for export, with 24 % of tropical deforestation being ‘a direct result of the illegal conversion of forests for production of agro-commodities for export.’ However, it should be kept in mind that the distinction between various drivers is not always clear-cut, and demand for tropical timber in combination with use of cleared areas for production of agricultural commodities can affect the conversion of a natural forest area concurrently.

Unlike many of the commodities presented in this chapter, the export value of non-coniferous sawlogs has remained relatively constant in the past 15 years, at about USD 5 billion annually. Also unlike other commodities, exports come from almost all regions, including Africa and Oceania. Malaysia, Russia, and the US are among the biggest exporters, but Uruguay, Gabon, Myanmar, and Papua New Guinea are also among the exporters. It should be noted that, unlike other commodities, exports from countries fluctuate quite heavily from year to year (Figure 4-40).

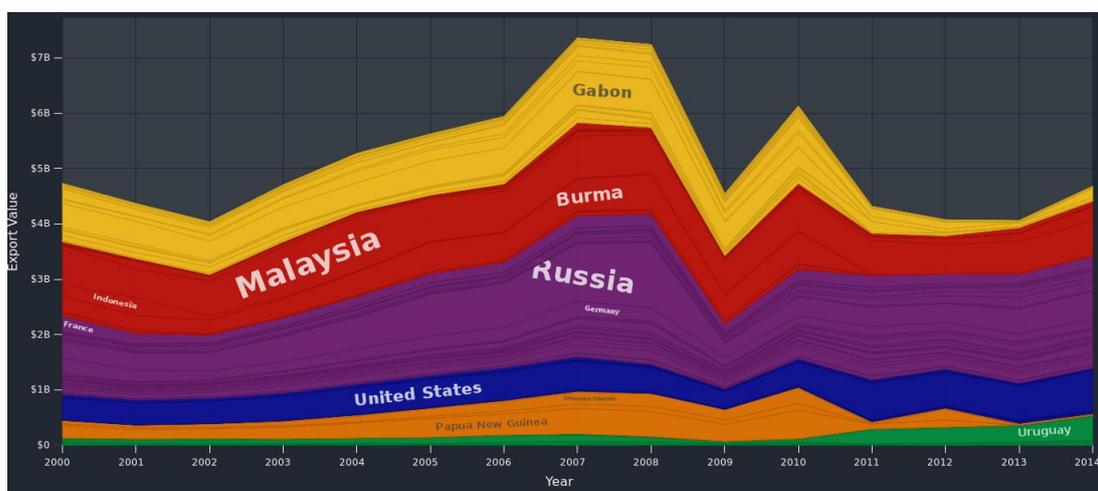


Figure 4-40: Export of non-coniferous sawlogs (SITC data, SITC code 2472), 2000-2014. Retrieved from OEC.

Contrary to the exports, which are shared among several regions, imports are dominated by Asia and the EU (Figure 4-41). The two main importers are China (USD 6.3 billion in 2014) and India (USD 2.0 billion in 2014), with the EU a close third (USD 1.8 billion in 2014). EU’s demand has remained relatively steady since 2000, although a slight dip occurred following the financial crisis.

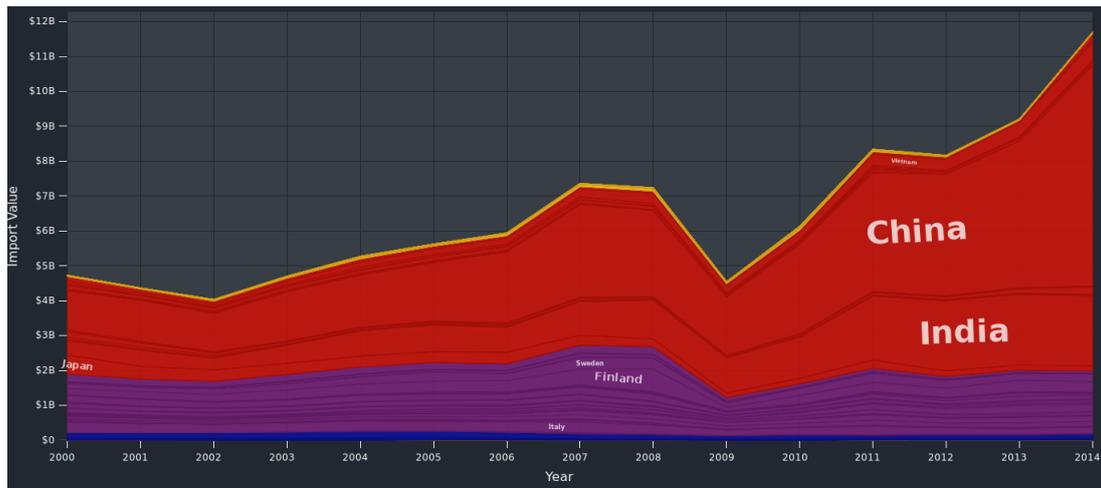


Figure 4-41: Import of non-coniferous sawlogs (SITC data, SITC code 2472), 2000-2014. European countries shown in purple. Finland, Sweden and Italy are the largest EU importers. Retrieved from OEC.

The export market for non-coniferous worked wood (traded under the classification SITC 2483) is approximately USD 12 billion annually. Major exporters are SEA countries (Thailand, China, Indonesia, and Malaysia), the EU, the US, Brazil and a few Western African countries. The market grew steadily until the financial crisis in 2007, after which a dip occurred. Since then, the market has almost regained its size (Figure 4-42). The discrepancy between the global imports and exports is remarkable: Approximately USD 7 billion are not accounted for in the trade for 2014. In general, there are several explanations for trade imbalances: inadequate trade data collection systems, misclassification of goods (which is the most important factor), triangular trade (incomplete or fraudulent documentation), and illegal activities – disguising illegal products or avoiding payments of duties (ITTO, 2006). Whether all these factors explain this difference remains unclear.

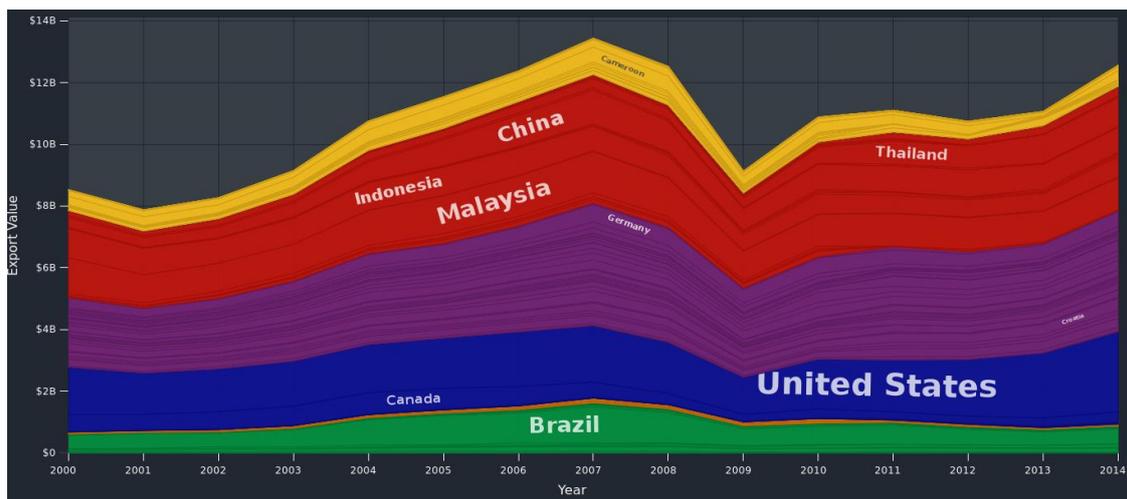


Figure 4-42: Export of non-coniferous worked wood (SITC data, SITC code 2483), 2000-2014. Retrieved from OEC.

The major importers of worked wood are Asian countries (Viet Nam, Thailand, China and Japan), the EU, the US and Canada. The EU's import has remained relatively steady at about USD 4 billion annually, except a spike in 2006 and 2007, where it reached USD 6 billion. Overall, EU's share of total import has declined from just below

50 % in 2000 to less than a third in 2014. At the same time, Asian imports have increased both absolutely and relatively (Figure 4-43).

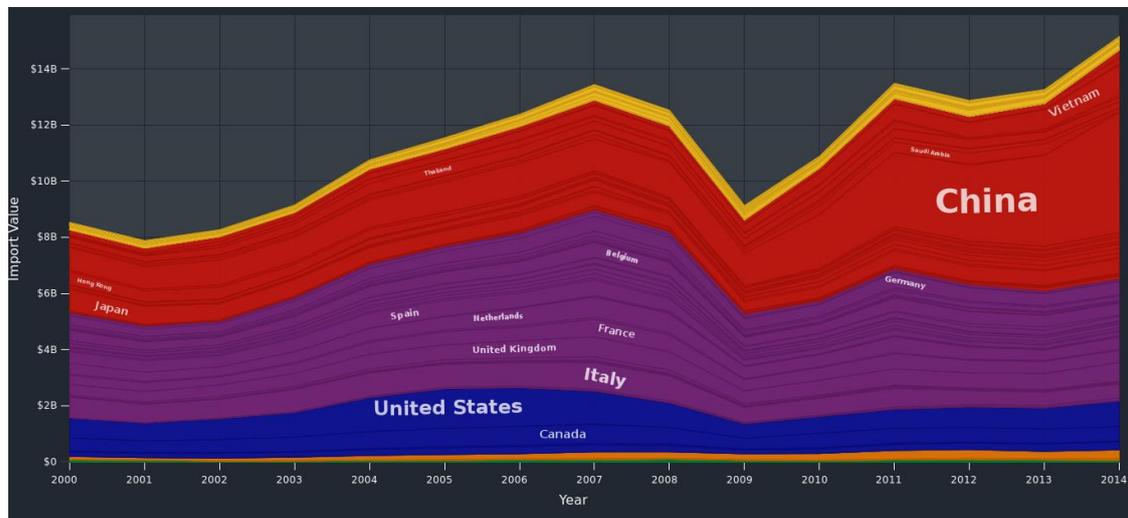


Figure 4-43: Import of non-coniferous worked wood (SITC data, SITC code 2483), 2000-2014. European countries shown in purple. The United Kingdom, Italy, Germany, the Netherlands, France and Belgium are the largest EU importers. Retrieved from OEC.

The above figures consider *all* imports and exports whereas the figure below zooms in on EU imports only. When looking at tropical wood imports overall, Cameroon and Malaysia supplies the majority to the EU. Overall, most tropical timber imported into the EU originates from a number of West African countries⁴³ and the two East Asian countries of Malaysia and Indonesia (Figure 4-44)⁴⁴. 50% of the timber originates in just two countries (Cameroon and Malaysia).

43 Immediately outside the top five but among the biggest 10 exporters are Congo, the Democratic Republic of the Congo, Ghana, the Central African Republic, and Liberia, listed in order of export value to the EU. It must also be noted that the exact spot taken by countries on top 5/10 depend on whether the analysis is undertaken for value (value of imported tropical timber) or quantity (amount in ton of tropical timber imported). However, it does not change the overall picture of West Africa and Malaysia/Indonesia being the most important areas, although Malaysia appear much larger than Cameroon when looking at amount only, and the imports of central African countries (e.g. Congo, DRC) become relatively more important.

44 Figures with Eurostat data are generally from: Adjusted EU-EXTRA imports by tariff regime, version HS6 [DS-041718] using one HS-category. However, the data for tropical timber data is special in that one HS-category alone cannot cover trade in tropical timber. The tropical timber data is thus been updated using the Eurostat forestry database and the figure thus show all relevant subgroups under HS440-xxx (several HS-categories). The data can be accessed on Eurostat forestry database (<http://ec.europa.eu/eurostat/web/forestry/data/database>) by selecting "Roundwood production and trade (for_rppt)", then selecting "for_trop" (Tropical wood imports to the EU from chapter 44 of the Harmonised System). This is not directly compatible with the SITC graphs, but contains information on different types of tropical wood (Roundwood, worked wood, etc.) from various tropical countries. However, the SITC system can show patterns across regions (e.g. Malaysia to China or US), which the Eurostat cannot cover, and thus both datasets are necessary for the full analysis.

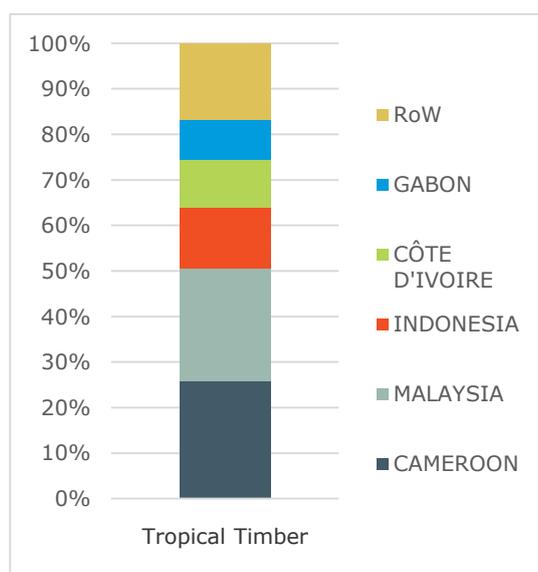


Figure 4-44: EU's five largest tropical import sources for tropical timber in 2014 (Eurostat forestry database), HS codes include relevant HS440-xxx subgroups concerning tropical timber.

Coniferous wood (soft wood) is exported almost exclusively by EU countries (Finland, Sweden, Germany, Austria), Russia, Canada, the US and, to a lesser extent, Chile and New Zealand. Except for parts of Russia and perhaps Chile, it is assumed that this wood is harvested in forests that are either certified or under management plans, leading to deforestation less of a risk. It has thus not been shown here. The wood is imported by other EU countries, the US, China and Japan. The total export/import value has increased from USD 16 billion in 2000 to almost USD 30 billion in 2014.

Pulpwood and woodchips

Pulpwood refers to wood destined for the production of pulp (and indirectly paper⁴⁵), particle board, or fibreboard. The sources for pulpwood are either Roundwood or wood chips (Indufor, 2012). Within the tropical regions, the tropical forests of Borneo, Gran Chaco, Greater Mekong, New Guinea, and Sumatra have been subject to or are at risk of deforestation for pulp production (WWF, 2015). Furthermore, forests in Europe and North America have historically supplied large volumes of pulpwood, while in recent years Viet Nam and Australia have emerged as large producers of pulpwood.

Like timber and wood products, pulpwood (SITC code 2460) is exported from several regions. Major exporters are the EU, Viet Nam, Australia, the US, Chile and Russia. Total export has increased from about USD 2 billion in 2000 to about USD 7 billion in 2014, with EU export increasing from less than USD 0.5 billion to more than USD 2.5 billion (Figure 4-45). Further, some pulp is exported as Mechanical Wood Pulp (SITC code 2512), the main exporters of which are the Scandinavian countries, Canada and New Zealand and to a lesser extent the Baltics and Northern Europe (OECD data for SITC code 2512). However, the total value of this export is about a tenth of the total value of pulpwood (SITC code 2460).

⁴⁵ Paper is only indirectly paper of this trade code, as pulpwood (wood chips, etc.) are used for production of paper. Trade in paper itself (various final products such as writing paper or toilet paper) is covered by the SITC code 6410 (Paper and paperboard) and 6420 (Paper and paperboard, cut to size or shape, and articles of paper or paperboard), under which several specific trade codes are found, e.g.: 6411 (Newsprint, in rolls/sheets) and 6421 (Cartons, boxes, cases, bags and other packing containers).

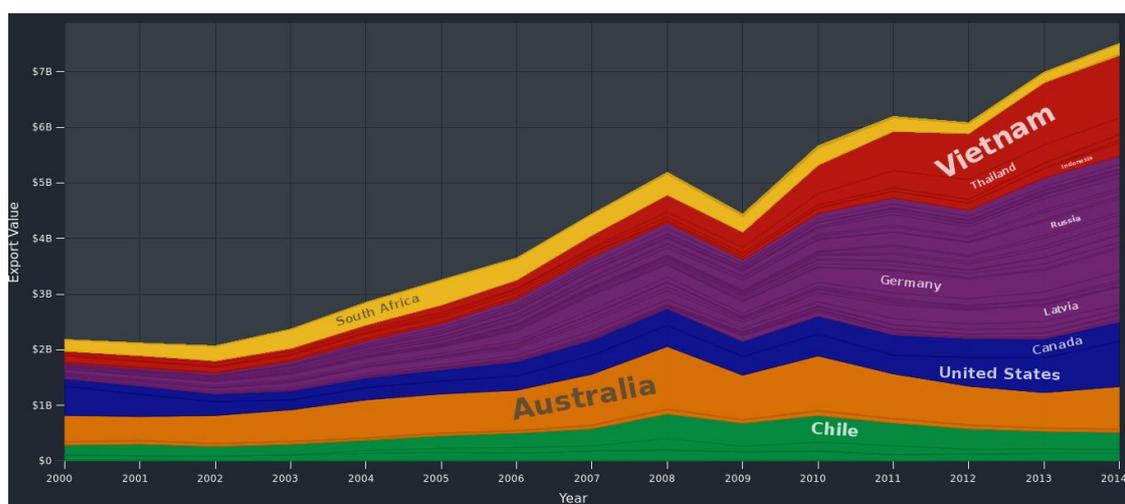


Figure 4-45: Export of pulpwood (SITC data, SITC code 2460), 2000-2014. Germany and Latvia are the two largest EU importers. Retrieved from OEC.

Pulpwood is imported almost exclusively by three actors; the EU, Japan and China. Japan's share of the import has fallen from around 75 % in 2000 to less than a third in 2014, while both China's and the EU's shares have increased. China has increased to about 20 % from being almost negligible, while the EU's has increased from about 20 % in 2000 to about 45 % in 2014 (Figure 4-46).

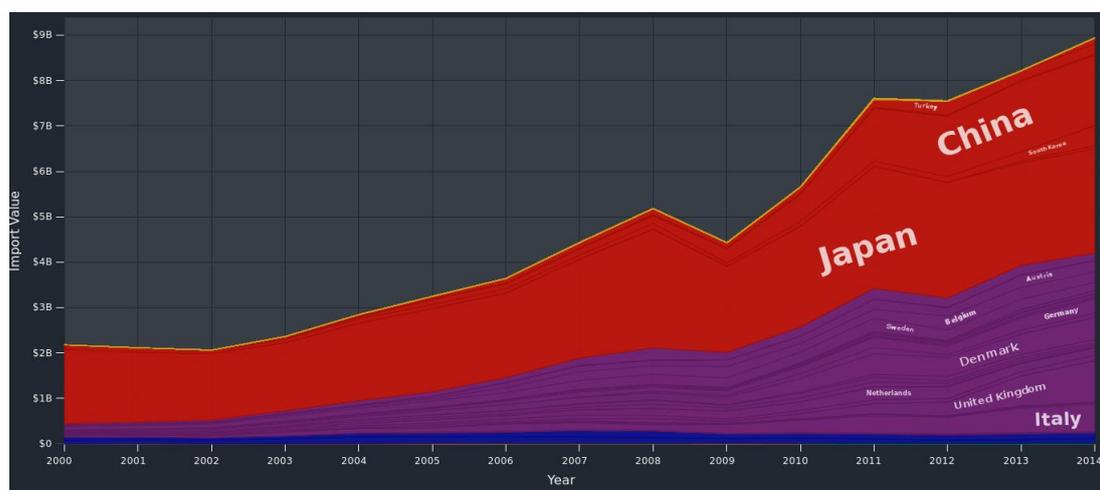


Figure 4-46: Import of pulpwood (SITC data, SITC code 2460), 2000-2014. European countries shown in purple. The United Kingdom, Italy, Denmark, Germany, Austria, Belgium, Sweden and the Netherlands are the largest EU importers. Retrieved from OEC.

Solid bioenergy: wood pellets

Wood pellets are almost exclusively produced in and exported by European countries, Russia, the US and Canada (See Goetzl, 2015 and data from FAOSTAT). Exports have grown significantly since the turn of the century, fuelled by European demand for renewable energy as incentivised under the Renewable Energy Directive (2009/28/EC). World pellet production has increased rapidly in recent decades, with production almost exclusively taking place in Europe and North America, and production in America growing significantly faster than in the EU (see also study by Olesen et al., 2016). Although international trade is growing – see, e.g., UNCOMTRADE tradeflow HS 4401.31

or FAOSTAT data on wood pellets ⁽⁴⁶⁾, intra-EU trade still accounts for about half of global trade in wood pellets (Goetzl, 2015). In recent years, the US has emerged as the principal exporting nation, shipping mainly to the EU and especially the UK, Italy, Denmark and the Netherlands – and imports are projected to grow. Brazil and Western Africa are also expected to emerge as exporters of wood pellets (Pöyry Management Consulting, 2012a; Goetzl, 2015), mainly produced from Eucalyptus plantations and other fast-growing species, while the World Wide Recycling Group (a Dutch actor on the market) expects Australia, South Africa and other Latin American countries ⁽⁴⁷⁾. However, this claim has not been found elsewhere. Demand is expected to increase, partly due to demand in Europe, but mostly due to increased demand in Asia, especially South Korea, Japan and China (Pöyry Management Consulting, 2012a).

Projections for future growth scenarios vary, but could be as great as 59 Mt in 2020 (Pöyry Management Consulting, 2012b), up from less than 10 Mt a decade ago. According to IEA (Cocchi et al., 2011), international trade in wood pellets by 2020 could be between 16 to 33 Mt, a relatively large margin of uncertainty. However, given current production is around 28 Mt (2014), up from 25 Mt in 2014 and 20 Mt in 2012 ⁽⁴⁸⁾, it must be expected that the upper limit of the prediction is more likely than the lower. As such, production has increased around 8 % annually in past years. Further, given that much of the recent expansion in production has occurred outside of the EU, it must be expected that future trade flows will be larger than current trade flows, possibly involving trade with tropical countries producing wood pellets, e.g. Brazil and Western Africa (Pöyry Management Consulting, 2012a).

Total export value was about USD 0.25 billion in 2000 and has since risen to USD 3.5 billion (2014), a growth rate of over 20 %. Most of the export is from the Baltic States, Germany, Russia and Austria, but Canada has also increased in prominence as exporter. Since about 2008, exports from the US have grown vastly, making the US the largest exporter of wood pellets in 2014 (Figure 4-47).

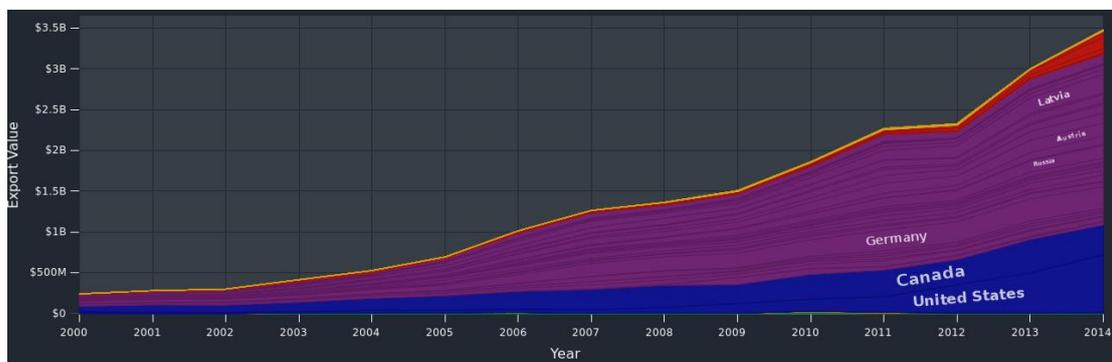


Figure 4-47: Export of wood pellets and other agglomerated wood products (HS96 data). Retrieved from OEC.

The EU is the single most important importer of wood pellets, making up around 85 % of total import. Pellets are imported by mainly five EU states; the UK, Italy, Denmark, the Netherlands and Germany (Figure 4-48). Demand growth has been particularly strong in the UK, who emerged as importer in 2009 and has since grown to become the largest importer of wood pellets. The Asian country whose import is also growing

⁽⁴⁶⁾ UNCOMTRADE: <https://comtrade.un.org/>. Wood pellets have trade code HS4401.031. FAOSTAT: <http://www.fao.org/faostat/en/#data/FO>. (Wood pellets have element code 5510).

⁽⁴⁷⁾ See further information here: <http://www.wwrqgroup.com/en/biomass-market/the-wood-pellet-market>

⁽⁴⁸⁾ See FAOSTAT for further information on production. Article:

<http://www.fao.org/forestry/statistics/80938/en/> and link to database:

<http://www.fao.org/faostat/en/#data/FO>. (Wood pellets have element code 5510).

rapidly (shown in red), is South Korea (Figure 4-48). The relative size of wood pellets imports into the EU from tropical sources is very small: Less than 1 %. The largest tropical source, Argentina, supplies slightly less than 1 EUR million (Figure 4-49).

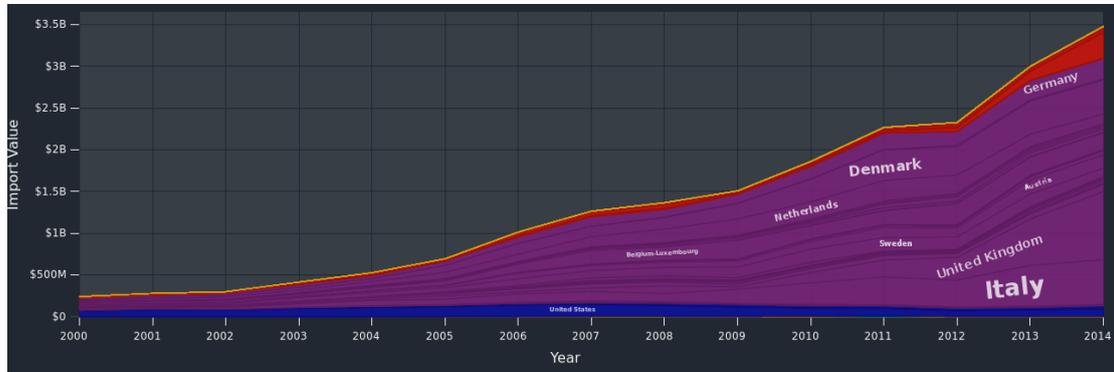


Figure 4-48: Import of wood pellets and other agglomerated wood products (HS96 data). The largest EU importers are the United Kingdom, Italy, Denmark, Germany and Belgium-Luxembourg. Retrieved from OEC.

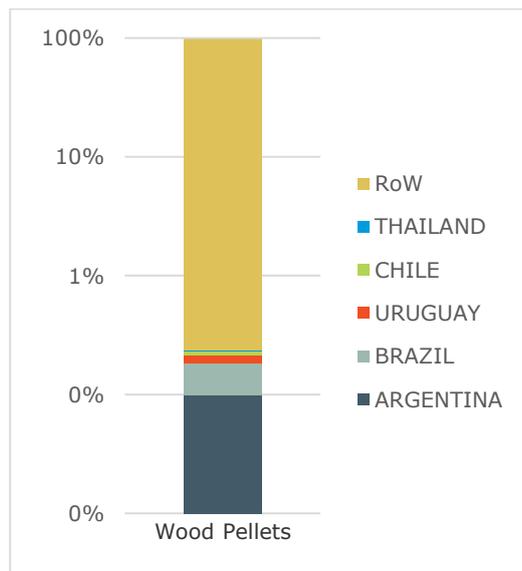


Figure 4-49: EU's five largest tropical import sources for wood pellets in 2014 (Adjusted EU Extra imports, DS-041718, Eurostat, 2017), * Import values are in logarithmic scales

4.3 Risk Commodities and producers relevant to EU consumption

Based on the above used data, we have assessed trends in EU imports and (origin) for the Table 4-3 below for 12 types of forest risk commodities, as defined in the SITC system for trade data.

Table 4-3: Identified risk commodities, main exporters and importers and EUs importance as importer

Commodity	Global share and amount of embodied deforestation (1990-2008)	Main exporters	Main importers
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Commodity	Global share and amount of embodied deforestation (1990-2008)	Main exporters	Main importers
Crop production		LA: 64% SEA: 23% SSA: 12%	EU: 33% China + EA: 21% Middle East, North Africa and Central Asia: 16% North America: 9% South Asia: 8%
Soy	5.4% (or 9.8% of FRC attributed deforestation) 13 Mha (19% of all deforestation from crop production)	Brazil, but with Paraguay and Argentina as important minor producers for soybeans (although the latter exports almost no beans to the EU). (Non-tropical exports are dominated by the US). Argentina and Brazil for soya cake.	China, EU. ⁴⁹ EU's share is 39% in total (61% of exports from Brazil and 48% of exports from Argentina, totalling 4.45 Mha)
Palm oil	2.3% (or 4.2% of FRC attributed deforestation) 5.5 Mha (8 % of all deforestation from crop production)	Indonesia (57%), Malaysia (25%) are main exporters. Others include Nigeria (7%), Thailand (2%), and Ghana (2%).	China (1.03 Mha), EU (0.9 Mha), India (0.67 Mha), Pakistan (and intra-region trade in SEA) ⁵⁰
Cocoa	0.87% (or 1.55% of FRC attributed deforestation) 2.1 Mha (3% of all deforestation from crop production)	Côte d'Ivoire, Ghana, Nigeria and minor role for Cameroon and Indonesia (exact shares not available)	EU (27% ⁵¹ , 0.6 Mha), US, Malaysia
Maize	3.2% (or 5.7% of FRC attributed deforestation) 7.6 Mha (11% of all deforestation from crop production)	7.5 Mha globally spread across more than 70 countries. Largest contributors are: Brazil (16%), Tanzania (10%), Zimbabwe (6%), Indonesia (5%), Mexico (5%), Paraguay (5%), and China (5%), India.	East Asia (incl. Japan and China), EU, Mexico. (exact shares not available)
Coffee	N/A	LA: Peru, Honduras, Nicaragua and Colombia, Costa Rica, Mexico, Brazil. SEA: Indonesia, Vietnam, Laos. SSA: Kenya, Uganda and Tanzania. (exact shares not available)	EU (27%, 0.3 Mha), US
Rubber	0.6% (or 1.05% of FRC at-	Indonesia (62%), Thailand (11%),	China, EU (16%),

⁴⁹ EU imports only 20% of its soy from the US, and has large imports of soybeans and soybean cake, predominantly from Brazil and Argentina. This share of imports from the three major producers explain why EU consumption of soy is associated with a large fraction of deforestation embodied in soybean products. In comparison, about half of China's soybean related imports originated from the US, while imports by the rest of the world originated predominantly from the US.

⁵⁰ Embedded deforestation for China and India are calculated based on export quantities.

⁵¹ EU imports 27% of embodied deforestation for stimulants (cocoa and coffee).

Commodity	Global share and amount of embodied deforestation (1990-2008)	Main exporters	Main importers
(natural)	tributed deforestation) 1.4 Mha (2% of all deforestation from crop production)	Vietnam (5%), Brazil (5%), Nigeria (4%)	US
Pastures	24% (43.9% of FRC) 58 Mha	LA: 60% (mainly Brazil and Argentina) (10% is exported) SSA: 18% (4% is exported) Other: 22%	Mainly intra-region trade. Only 8% is exported. EU share of exports: 25%
Beef/meat/leather	Pastures only: 24% (43.9% of FRC) 58 Mha Feed production: 1.8% (3.5% of FRC) Total: 47% of FRC 62.5 Mha	Brazil, Australia	Mainly intra-region trade. Only 8% is exported. Of the importers, EU, East and SE Asia, and US are most important.
Other animal feed products (pig and poultry feed)	8% of FRC 10.2 Mha	Brazil, Argentina	EU, China
Forestry			
Tropical Timber (non-coniferous)	2% (3.4% of FRC) 4.5 Mha	Malaysia is among the biggest exporters, but also Madagascar, Cameroon, Uruguay, Gabon, Myanmar and Papua New Guinea for sawlogs. Malaysia, Thailand, Indonesia and Brazil for worked wood.	China and East Asia (55%), EU (18%) ⁵² , Other (incl. India) (15%), North America (12%).
Pulpwood	N/A	Vietnam, Australia and Chile	EU, Japan, China
Wood pellets	N/A	Minor imports from the tropical regions, as EU, US, Canada and Russia are main producers. However, projections suggest that among tropical countries and regions, Brazil and West Africa could become a significant producer of this commodity within the coming decades.	EU, South Korea
Other			
Biodiesel	N/A	Analysis of product and trade dynamics differ as the focus is on feedstock ra-	N/A

⁵² The EU re-exports about one-sixth (17%) of this.

Commodity	Global share and amount of embodied deforestation (1990-2008)	Main exporters	Main importers
		ther than end-product. The EU is the largest producer of biodiesel globally. Production is based on both intra-EU and extra-EU feedstocks. Biodiesel as such is not an FRC, but drives demand for FRCs, such as palm oil.	
Bioethanol	N/A	Analysis of product and trade dynamics differ as the focus is on feedstock rather than end-product. Brazil is among the three largest producers.	N/A

The flows presented in the table above (Table 4-3) have been illustrated on the map in Figure 4-50, though simplified so that not all producers or importers can be discerned from the illustration.

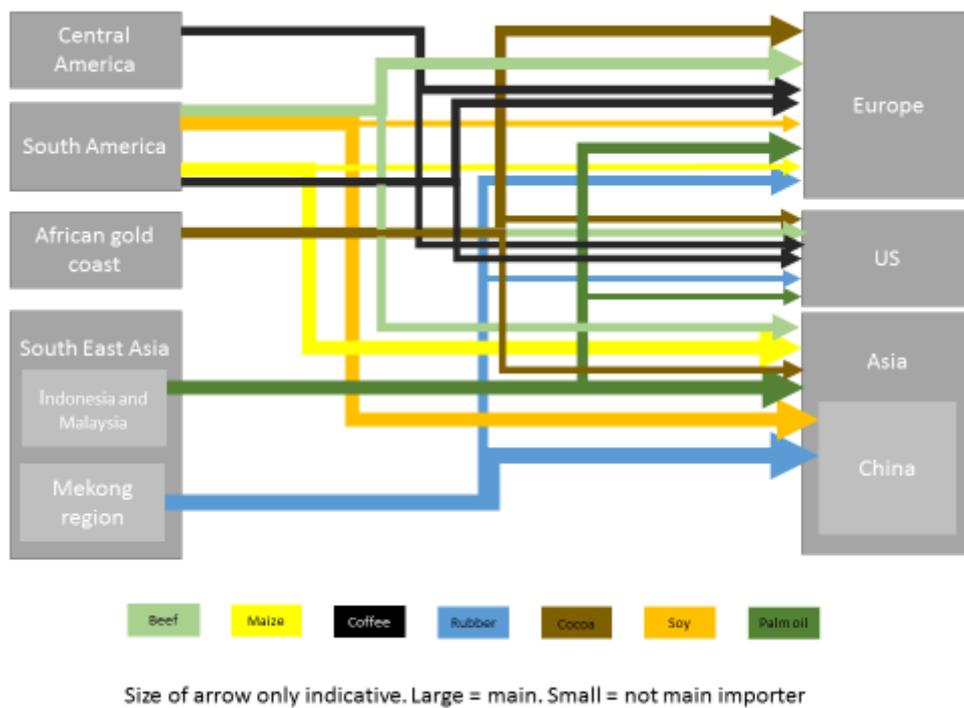


Figure 4-50: Simplified overview of flows of risk commodities between exporters and importers.

5 FORWARD ANALYSIS: PROJECTIONS FOR FOREST RISK COMMODITIES

This chapter presents overviews on projections for production and use of the FRCs in scope, as developed in existing literature.

5.1 Agriculture products

5.1.1 Beef

The production of beef is projected to increase by 9.97 Mt until 2025 (compared to 2015 as a baseline), of which 73 % can be attributed to developing countries (OECD-FAO, 2016). China, Brazil, India and Argentina will account for two-thirds of the additional beef production. In terms of the growth of beef exports, Brazil (0.82 Mt), USA (0.69 Mt), Argentina (0.62 Mt) and India (0.42 Mt) will see the largest growth (Table 5-1).

Table 5-1: Projected beef production and exports for the five largest producers, in Mt (OECD-FAO, 2016).

Country	Prod/Export	2015	2020	2025
Brazil	Production	9.21	10.30	11.03
	Exports	2.10	2.45	2.92
India	Production	2.67	3.08	3.48
	Exports	1.72	1.95	2.14
USA	Production	10.34	11.65	12.20
	Exports	1.03	1.42	1.72
Argentina	Production	2.72	3.22	3.59
	Exports	0.22	0.67	0.84
China	Production	6.99	7.85	8.50
	Exports	0.04	0.03	0.02
World	Production	67.80	73.14	77.77

The world consumption of beef will increase until 2025 by 10Mt, or 15 %. EU consumption will in comparison minimally decrease by 0.14Mt, due to a projected reduction of domestic beef production as well as lower beef consumption per capita. However, the EU's size of imports will slightly grow by 0.02Mt, or 2 %. Global beef consumption by developed countries is, in turn, again expected to increase by 7 % (OECD-FAO, 2016). The importance of EU beef consumption on the global market will thus slightly increase (Table 5-2).

Table 5-2: Projected beef consumption for EU28 and World, Mt (OECD-FAO, 2016).

Region	Cons/Import	2015	2020	2025
EU28	Consumption	7.77	7.85	7.63
	Imports	0.30	0.33	0.32
World	Consumption	67.45	72.84	77.46
	Production	67.80	73.14	77.77

5.1.2 Maize/corn

The literature suggests that maize production will continue to grow in the future. However, this growth will be limited. The forecasts of production differ among the available sources. While the International Grains Council (IGC, 2016) projects a production growth by 36.2 Mt from 2016 until 2021, the OECD-FAO (2016) agricultural outlook predicts a growth of 140.0 Mt through 2025 (or 84.0 Mt through 2021, compared to the baseline of 2016). This major discrepancy builds nearly exclusively on a different assumption about maize production in the USA. The OECD-FAO outlook anticipates an increase of 29.3 Mt, while the IGC predicts a decrease of 15.2 Mt until 2021.

The differences in the production increases are also noteworthy for individual countries. Table 5-3 below shows the long-term forecasts of the production of maize according to the IGC (2016), with Brazil (17.5 Mt), Ukraine (7.9 Mt), the EU (7 Mt) and India (4.7 Mt) as the largest growers. The OECD-FAO foresees in turn the USA (15.7 Mt; 29.3 Mt), China (15.1 Mt; 23.1 Mt), Brazil (9.8 Mt; 18.1 Mt) and Argentina (4.5 Mt; 6.6 Mt) as the countries with the highest growth through 2021 and 2025.

Table 5-3: Projected growth of maize/corn production for the 5 largest countries (IGC 2016)

Country/Year	2016		2021		
	Production (Mt)	Area (Mha)	Production (Mt)	Area (Mha)	Share (%) of additional land area (*)
USA	382.5	35.1	-15.2 (-4.0 %)	-0.8 (2.3 %)	-
China	217.0	36.3	7 (3.2 %)	0.6 (1.7 %)	16.2 %
Brazil	83.7	16.4	17.5 (20.9 %)	0.6 (3.7 %)	16.2 %
Argentina	42.5	5.8	0.7 (1.6 %)	0.2 (3.4 %)	5.4 %
Ukraine	26.5	4.4	7.9 (29.8 %)	0.3 (6.8 %)	8.1 %
India	25.0	9.4	4.7 (18.8 %)	0.6 (6.4 %)	16.2 %
Rest	243.1	75.1	15.9 (6.5 %)	1.4 (1.9 %)	37.8 %
World (**)	1,034.5	182.5	36.2 (3.5 %)	1.1 (0.6 %)	-

* Share of additional land area excludes the decrease in the USA

** Totals do not add up due to rounding.

In terms of the additional land requirement, both projections provide again different results of 1.1 Mha (IGC) and 4.6 Mha (OECD-FAO) by 2021. Looking into 2025, the

total growth will be 5.9 Mha. Both projections expect that Brazil will be among the countries with the largest expansion, 17.5 Mt (IGC) or nearly none (OECD-FAO) through 2021, which implies in the latter case an increased output through better yields. Indeed, the OECD-FAO outlook projects an increase in production, mainly through gains in yield.

From the perspective of future production increases for maize, these quite different results from the available sources challenge a strong conclusion on the future production of maize. Although both sources make substantially different projections about production volume, they highlight that the growth of the harvest area will be of a very moderate size. Given that the harvest area is a function of production and yield, interpretations on the required land area should be done with care. With respect to the development of maize as a forest risk commodity, the low growth in harvest area, even in typical countries at risk (e.g. Brazil, Argentina or India), points to only a small role as a forest risk commodity.

Table 5-4 below shows the projected increase of the EU consumption according to the OECD-FAO (2016) outlook and the IGC (2016). While the internal consumption will continue to grow slightly, the import of maize will slightly decrease by 2 Mt to 11.3 Mt through 2025 (OECD-FAO, 2016). The IGC in turn projects a drop by 2.3 Mt by 2018 to 10.2, with a subsequently marginal increase. The role of the EU as an importer of maize and hence as a driver of maize as a forest risk commodity will decrease, due to a shift towards domestic production.

Table 5-4: Projected increase in EU imports (in Mt) and consumption (in Mt) of maize by the IGC (2016) and the OECD-FAO (2016).

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Imports (IGC)	13.5	11.8	10.2	10.3	10.4	10.5	10.6	-	-	-
Imports (OECD)	13.3	13.4	12.8	12.9	12.3	12.1	11.8	11.7	11.6	11.3
Consumption (IGC)	70.4	71.7	72.0	72.9	73.2	73.9	74.5	-	-	-
Consumption (OECD)	76.6	76.7	78.3	79.5	80.7	80.9	81.6	81.6	81.7	82.0

5.1.3 Soy

Table 5-5 below shows the estimated growth in soybean production and associated additional harvested area of land by 2021. The world production of soybeans will grow by 36 Mt (10.8 %), which requires an additional land area of 10.2 Mha (IGC). Similar to the projections for maize, the OECD-FAO (2016) outlook predicts a stronger growth of 40.1 Mt (12.6 %) and an additional harvest area of 8.9 Mha. The latter hence assumes a stronger growth in yields. Until 2021, Brazil will see the largest growth of production and overtake the USA as the world's largest soybean producer. Brazil's additional land requirement will also increase substantially, by 3.8 million additional hectares. The growing land area is twice the size of any other region in the world and accounts for more than one third of global growth. China, Argentina and the USA complete the group of the top five. A currently small producer that will experience the greatest relative growth in production will be Paraguay.

Table 5-5: Projected growth of soybean production for the 5 largest countries IGC (2016).

Country/Year	2016		2021		
	Production (Mt)	Area (Mha)	Production (Mt)	Area (Mha)	Share of additional land area (%)
USA	116.2	33.6	1.2 (1.1 %)	1.3 (3.9 %)	12.7 %
Brazil	101.0	33.8	18.5 (18.3 %)	3.8 (11.2 %)	37.3 %
Argentina	55.0	18.8	5.3 (9.6 %)	1.4 (7.4 %)	13.7 %
China	13.1	7.2	3.9 (29.8 %)	1.8 (25.0 %)	17.6 %
India	11.5	11.5	0.2 (1.7 %)	0.3 (2.6 %)	2.9 %
Paraguay	9.0	3.5	2.7 (30 %)	0.5 (14.3 %)	4.9 %
rest	35.6	19.7	4.2 (11.8 %)	1.1 (5.6 %)	10.9 %
World	332.4	124.6	36 (10.8 %)	10.2 (8.22 %)	100 %

Soy is expected by some to remain a highly dynamic crop in the future, with high yield potentials. Bruinsma (2009) expects that the yield will grow to 3.66 tonnes/ha by 2050. Specht et al. (1999) even predict a growth to 4 tonnes/ha in the USA by 2029. The study by Masuda and Goldsmith (2009) evaluates that the yield will most likely stagnate at 2.64 tonnes/ha by 2030. The data by the IGC (2016) suggests that the global yield will reach 2.8 tonnes/ha by 2021 and indicates that the yield will grow further. This diversity in the expectations on yield developments demonstrates how uncertain the long-term land requirement is, which can help in explaining the different estimates between the IGC (2016) and OECD-FAO (2016) studies.

The projections for the import and consumption of soy in the EU follow a similar trajectory: The EU's consumption will slightly increase by up to 0.2-0.6 Mt through 2021 (Table 5-6). Similarly, the imports will also experience a slight rise. These increases in import and consumption, coupled to rather strongly growing global outputs indicate that the EU's relevance as a driver of soy demand will decrease. China especially will play a more dominant role, with import growths of 14.5 Mt.

Table 5-6: Projected increase in EU imports (in Mt) and consumption of soy (in Mt) by the IGC (2016) and the OECD-FAO (2016).

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Imports (IGC)	13.7	13.3	13.7	13.8	13.9	14.0	14.1	-	-	-
Imports (OECD)	13.6	13.6	13.9	13.8	13.7	13.8	13.8	14.0	13.9	14.1
Consumption (IGC)	16.0	15.4	15.5	15.6	15.7	15.9	16.2	-	-	-
Consumption (OECD)	15.7	15.8	16.2	16.1	16.1	16.3	16.3	15.5	16.5	16.7

Future implications on deforestation

The short-term projections by the IGC (2016) clearly demonstrate that the importance of South American soybean producers will increase even further. Two studies with long-term projections indicate that the major developing-world producers of soy (Brazil, Argentina, China and India) together will account for 64% and 63 % of the world's production in 2030 and 2050, respectively (Bruinsma, 2009; Masuda and Goldsmith, 2009), with Brazil and Argentina as the major producers. Together, the top five producer countries (Argentina, USA, Brazil, India, and China) will account for more than 90% of total production. (Argentina, USA and Brazil all produce in the range of 25-30% of total production, while China and India are much smaller, each producing around 5% of total production). The Masuda and Goldsmith (2009) results foresee that Argentina and Paraguay will nearly double their soybean land area between 2010 and 2030 ⁽⁵³⁾.

In the context of deforestation, the additional land area required is thus expected to be in the range of 8.9 Mha (OECD-FAO, 2016) to 10.2 Mha by 2021 (ICG, 2016). As indicated in Table 5-5 above, a large part of the growth in harvest area will be in countries with tropical forests, although there is also growth in the area in USA and China. The uncertainty of long-term projections naturally dampens the conclusive power on actual figures of additional land required to produce soy. The area needed is related to the yield, and uncertainty on the growth in this also increases the uncertainty of the projections. In terms of the likely development of the importance of producers, the conclusions will not change (USA, Brazil and Argentina will remain the largest producers); and these manifest the importance of Brazil, Argentina and Paraguay in relation to growth in production area and potential loss of land. There is no literature that assesses the likelihood of future deforestation risk from soy on a global scale, but projections showing additional demand for land in areas prone to deforestation (e.g. Brazil) means that increased production could lead to deforestation. In conclusion, soy's significance as a forest risk commodity will likely become stronger, but the degree to which deforestation will be experienced will depend on how much yields can grow and where production areas will expand the most.

⁽⁵³⁾ Note that these two past studies underestimate the current demand

5.1.4 Cocoa

The production of cocoa is expected to experience a growth of approximately 0.4 Mt (9 %) to 4.7 Mt in 2020-2021 (see Figure 5-1 below).



Figure 5-1: Projected production of cocoa (Pipine, 2016)

Detailed figures on the likely development of consumption by the EU are not available, but projections for global regions show that the overall consumption will be moderate in Europe when compared to regions with emerging or developing economies (see Figure 5-2 below). The available information on the likely developments of cocoa production indicates that the relative significance of the EU as a cocoa consumer will diminish as compared to past developments in chapter 5 above. Further, Asia and Oceania, Africa and Latin America are likely to be the main driver of new cocoa cultivation and thus potential deforestation.

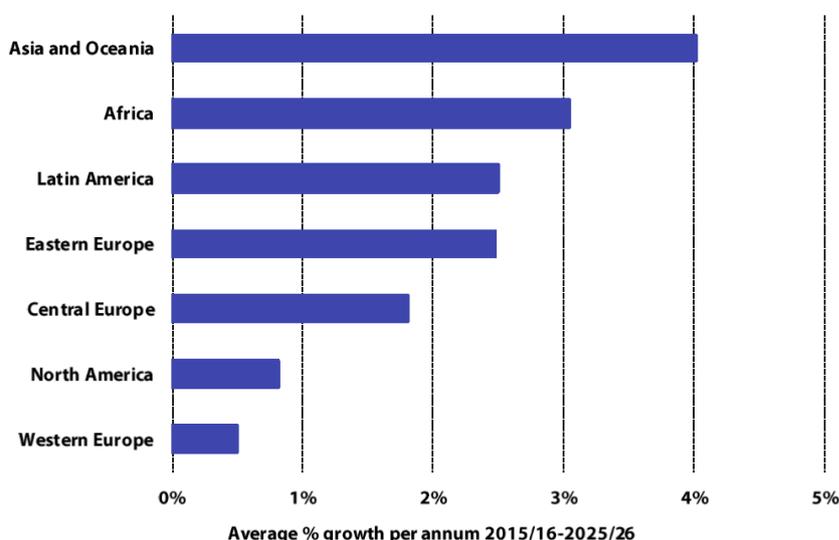


Figure 5-2: Projected growth per annum until 2025/2026 by region (Stapleton, 2016).

5.1.5 Palm Oil

The current OECD-FAO agricultural outlook only provides a projection of palm oil production. Any further information on, e.g., palm oil consumption is not available. As Table 5-7 below shows, demand will grow by 15.3 Mt until 2025, which corresponds to a growth of nearly a quarter.

Table 5-7: Projected global production of palm oil for 2020 and 2025 (OECD-FAO, 2016).

Year	2016	2020	2025
Production (Mt)	63.3	70.0	78.6

Corley (2009) provides an attempt to project the consumption of palm oil and the associated land use requirements. The projection of future consumption takes the point of departure in dietary requirements for vegetable oil. Overall, Corley established six scenarios of demand that differ in terms of assumed vegetable consumption and the future role of soybeans for vegetable oils (see Figure 5-3 below for details).

Based on the discussion in this paper, as living standards improve over time, it is reasonable to assume that the consumption of animal fats will further increase. This will in turn lead to a higher demand for soy as feedstock. In conclusion, the scenario of increasing soy production is 'more likely to be correct' (ibid, p. 137). The corresponding scenario thus estimates a demand of 117 – 256 Mt until 2050. The most likely development of diets, according to the author, is the Medium scenario of 120 Mt.

Estimate	Assumed rate of consumption	Demand in 2050 (millions of tons)					
		Total	Other oils	Soya constant		Soya increasing	
				Soya	Palm	Soya	Palm
Low	At least 20 kg/head	201	48	36	117	60	93
Medium	At least 25 kg/head	240	48	36	156	72	120
High	37 kg/head	340	48	36	256	102	190

Low, medium and high consumption estimates described in text. 'Soya increasing' assumes that soya continues to make up 30% of total production. 'Soya constant' assumes that soya remains constant at the current production level of 35.5 Mt. In each case, palm oil increases to meet the remaining demand.

Figure 5-3: Additional demand for vegetable oil in 2050 (Corley, 2009).

The projection of the additional land requirement to meet the demand has two additional variables that reflect the assumed development of yields until 2050. One scenario foresees a constant yield of 4 Mt/ha, while the other foresees an annually improved yield of 0.027 t/ha/year (which is the recent yield improvement in Malaysia and Indonesia). By 2050, this corresponds to a yield improvement of 52 t/ha/year. The result of the additional land requirement is depicted in Figure 5-4 below. The projections show highly variable results that have a nearly eight-fold difference; and range from 6.8 Mha to 53 Mha. The uncertainty of these projections is thus very high. When limiting the range to the 'most likely to be correct' scenario, the range is reduced to 12 – 19.1 Mha (Corley, 2009, p. 137).

Estimate	Assumed rate of consumption	Additional area of palms required (Mha)			
		Current yield		Improved yield	
		Soya inc.	Soya const.	Soya inc.	Soya const.
Low	At least 20 kg/head	12.1	18.3	6.8	11.5
Medium	At least 25 kg/head	19.1	28.1	12.0	18.9
High	37 kg/head	36.4	53.0	25.4	38.2

Low, medium and high consumption estimates described in text. 'Soya inc.' and 'soya const.' refer to the estimates in Table 1, with soya bean oil production either increasing to maintain 30% of total production, or remaining constant at 35.5 Mt. Current area of oil palms is 11 Mha. Current yield is 4 t/ha year; improved yield is 5.2 t/ha year.

Figure 5-4: Additional area of oil palms required to meet demand for vegetable oil in 2050. As in Corley, 2009.

Future implications on deforestation

According to Corley (2009), the future impact of palm oil production on deforestation is uncertain. Although sufficient grassland is globally available for the projected increase (spread over Brazil, Colombia and Indonesia), it is by no means certain that no further deforestation can be expected. As is generally the case for forest risk commodities, the cultivation of palm oil is financially more attractive in existing forests due to an immediate cash-flow opportunity from the trade of conversion timber. The cultivation on grasslands will in turn provide its first revenue only 2.5 years after field planting. The future outcomes from the Roundtable on Sustainable Palm Oil (RSPO) may (or may not) have an influence on the pathway of future developments, depending on the extent to which developers apply the RSPO principles and sufficient incentives are provided to cultivate on existing grasslands. The results of this study need to be considered with care, as all conclusions rest on data from the previous decade. Unfortunately, no newer literature with such a comprehensive projection could be found.

A recent study by Pirker et al. (2016) took an approach towards a calculation of suitable land for palm oil cultivation. Based on remote sensing, they estimate that 647 Mha of biophysically suitable and unoccupied land is available. This land area shrinks to ca 234 Mha, when 'environmental sustainability criteria' are included. These criteria exclude land with a) high biodiversity, b) intact forest landscapes (IFL) above 20,000 ha, c) above-ground biomass (AGB) above 100 t/ha, and d) peat land.

The total biophysically suitable, unoccupied land under an environmentally sustainable regime corresponds to 17 % of the total suitable land. When only accounting for very suitable land, 19.3 Mha are available. This size broadly corresponds to the land requirement of Corley's most likely scenarios of 12-19.1 Mha. When including also merely 'suitable' land, the land area grows substantially⁽⁵⁴⁾. It should be noted that the results do not account for the competition of agricultural goods for the respective lands. The effectively available area is thus uncertain.

Despite the abundance of land for a sustainable development, the cultivation of palm oil in current forestland is financially more attractive (see above). Without any legal obligation or insufficient incentives for sustainable development, a very high risk of tropical deforestation from palm oil will persist.

The results of Pirker et al.'s study (2016) merits two conclusions in relation to future threats of deforestation through palm oil:

- There is sufficient non-environmentally-sensitive land available, but it is uncertain how much land will eventually be forfeited to other agricultural goods;
- The share of suitable land in environmentally sensitive areas is substantially higher and at major risk through palm-oil expansion, if insufficient incentives are provided to avoid plantations on current forestland.

5.1.6 Coffee

The projections of the future increase of coffee consumption and production indicate that coffee's role as a forest risk commodity is likely to increase. This risk can mainly be attributed to the possibility that traditional tea-drinking regions may develop stronger preferences for coffee and the risk that climate change will force the relocation of coffee production to current forest areas. These findings rest on a study com-

⁽⁵⁴⁾ Pirker *et al.* do not provide specific numbers for only 'suitable' land

missioned by Conservation International, which investigates the relation between coffee's future development and deforestation (Killeen and Harper, 2016).

The underlying study projects that the future consumption of coffee per capita will stagnate for advanced economies, while the consumption in emerging economies will increase. Compared to a baseline of 2010, the global annual consumption of coffee will increase until 2050 by 50 % (to 12 Mt). The projections change if one assumes that traditionally tea-drinking countries change their preference towards coffee (i.e. the Middle East and North Africa, Central-, East- and South Asia) and Sub Saharan Africa increases coffee consumption. The resulting predictions are an increase by 163 % (to 21) Mt. For reference, the annual consumption was 8.1 Mt in 2015.

Killeen and Harper (ibid) project four different scenarios of the likely evolution the global coffee supply. These rest on the consumption scenarios above, the likely change in yield per ha, and the diversification of sourcing by coffee companies. The projections of the resulting footprint range from 12-20 Mha, of which Brazil and Southeast Asia are attributed for the greatest gain. Under the assumption of high coffee consumption (see above), East Africa will experience additional growth. The projections indicate in conclusion a substantial growth in the future.

Future implications on deforestation

The cultivation of coffee requires, depending on the variety, a certain set of climatic conditions that are most exclusively provided in tropical regions (ibid). Under the consideration of the impacts from climate change by 2050, the distribution of suitable land for cultivation is projected to change. More specifically, the relative distribution of Arabica varieties will shift to the greatest extent from Brazil to East Africa and the Andes. In the case of Robusta varieties, the distribution will mostly shift from Central Africa to East Africa as well as Southeast Asia. When comparing the expected suitable land area in 2050 with that of existing forest areas in 2010, the global mean of Arabica and Robusta cultivation will respectively occupy 48 % and 69 % of existing forest areas. Although there is currently a very high abundance of suitable coffee growing areas, the failure to introduce coffee varieties adapted to warmer conditions or management practices that mitigate the impacts of climate change on production will push a migration of production to cooler and more humid geographies. The shift of coffee production landscapes may therefore lead to considerable deforestation as a result of the relocation of production. Many of the expected suitable production areas for coffee in 2050 are currently covered by natural forest ecosystems. Geographically, the greatest risk areas are in Central America, the Andes, and Indonesia.

5.1.7 Liquid bioenergy – biodiesel and bioethanol

Vegetable oil will remain the dominant source for biodiesel, yet alternative source will experience considerable growth. For bioethanol, maize and sugar crops will remain the dominant source, 22 % of sugarcane production (OECD-FAO, 2016).

The global production of bioethanol will increase by 12.8 billion litres (11 %) by 2025, of which more than half of this growth occurs in Brazil (6.29 billion litres, 22 %), followed by Thailand (1.46 billion litres, 98 %). The US will, however, remain as the main producer of bioethanol (see Table 5-8 below). Despite Brazil's major increase, its exports will only increase marginally. In the case of Thailand, the exports will increase five-fold, yet this corresponds only to a small absolute increase of 0.11 billion litres.

Table 5-8: Projected bioethanol production of the three major producers in billions of litres (OECD-FAO, 2016).

Bioethanol	Region	Prod/Export	2015	2020	2025
	USA	Production	56.83	58.14	56.41
		Export	3.31	3.98	2.72
	Brazil	Production	29.23	32.40	35.52
		Export	1.30	1.43	1.37
	Thailand	Production	1.49	2.10	2.95
		Export	0.02	0.06	0.13
	World	Production	115.58	125.11	128.43

The global biodiesel production will increase by 10.5 billion litres until 2025. While the absolute growth is similar, the relative magnitude corresponds to a notable 33 % (OECD-FAO, 2016). The largest increase in production will be seen in the USA (4.44 billion litres), which is exclusively for domestic use, as its exports will even decrease. A similar case can be observed for the Indonesia. The current largest exporter of biodiesel, Argentina, will increase production by 1.52 billion litres, of which about half will provide higher exports of 0.69 billion litres. These exports will however – to the greatest extent – be exported to the USA (see Table 5-9 below).

Table 5-9: Projected biodiesel production of the three major producers in billions of litres (OECD-FAO, 2016)

Biodiesel	Region	Prod/Export	2015	2020	2025
	Argentina	Production	2.08	3.27	3.60
		Export	0.83	1.42	1.52
	USA	Production	5.34	8.04	9.78
		Export	0.34	0.29	0.29
	Indonesia	Production	1.60	2.46	3.69
		Export	0.15	0.00	0.03
	World	Production	30.87	37.94	41.38

Despite the considerable growth in global bioethanol production as well as consumption, the import of bioethanol will in fact decrease in the EU by 0.13 billion litres (22.4 %) by 2025 (Table 5-10 below). The import will however increase dramatically in the medium term (i.e. 2020) by 1.35 billion litres (233 %). According the OECD-FAO (2016) outlook, this development is related to the anticipated continuance of current double counting rules under RED⁵⁵ and the rise of non-agricultural biofuels, such as from waste. In conclusion, the role of the EU as a driver for the global production of bioethanol will temporarily increase sharply until 2020, and subsequently be less significant by 2025 than currently.

⁽⁵⁵⁾ New RED rules currently under negotiation may change this

Table 5-10: Projected bioethanol consumption of EU28 and the world in billions of litres (OECD-FAO, 2016).

Bioethanol	Region	Imp/Consumption	2015	2020	2025
	EU28	Import	0.58	1.93	0.45
		Consumption	7.77	11.51	9.64
	World	Consumption	116.78	126.10	129.21
		Production	115.58	125.11	128.43

Table 5-11 below shows that the projected EU consumption of biodiesel will, similarly to bioethanol, increase until 2020, but decrease below current levels by 2025. In addition to the factors mentioned above, sustainability requirements by the EU on biodiesel and import tariffs will limit EU import (OECD-FAO, 2016). For biodiesel, the role as the EU as a driver for global demand will, in conclusion, see strong growth until 2020, accompanied by moderate growth through 2025.

Table 5-11: Projected biodiesel consumption of EU28 and the world in billions of litres (OECD-FAO, 2016).

Biodiesel	Region	Imp/Consumption	2015	2020	2025
	EU28	Import	0.09	0.45	0.11
		Consumption	11.98	13.00	11.56
	World	Consumption	31.58	38.15	41.58
		Production	30.87	37.94	41.38

5.2 Forest products

5.2.1 Rubber

There is no publicly available literature on future natural rubber production and demand. Based on executive summaries, the fastest growth of demand is expected for the Asian/Pacific region, accounting for two-thirds of demand by 2019 (Freedonia, 2017). Indonesia will in this time experience the fastest growth. Further strong gains are projected for India, Vietnam, Thailand and China, of which the latter remains the largest consumer by far. The maturity of the European rubber market will lead to constrained growth; particularly in Western Europe. In terms of demand quantities, the global natural rubber demand will rise by an average of 2.8 % annually between 2016 and 2025 (IRSG, 2017). Given the nature of rubber production, future production increases will be geographically limited to South East Asia, which produces about 11 Mt of the total global production of 13 Mt (FAOSTAT), while the remainder will be produced in Sub-Saharan Africa. Latin American production is made impossible by the presence of leaf blight, which stunts rubber trees grown in plantations in the area (Mann, 2016). Given that almost all of the increase in production seen in the past 15 years has taken place in SEA, many naturally suitable areas have already been utilized, meaning Sub-Saharan Africa might harbour a large percentage of the increase in growth in the coming decades.

5.2.2 Timber

The global plantation area for timber will grow from 54 Mha to 67 Mha in 2022 and 91 Mha in 2050 (Indufor, 2012). As Figure 5-5 below shows, the regions with the strong-

est growth are Asia and Latin America. The growth in the long-term is likely to decrease due to overall larger uncertainties and a lack of available land for forest plantations. The annual growth from 2012-2022 is 2.28 %, but for 2022-2050 a mere 1.30 % (ibid).

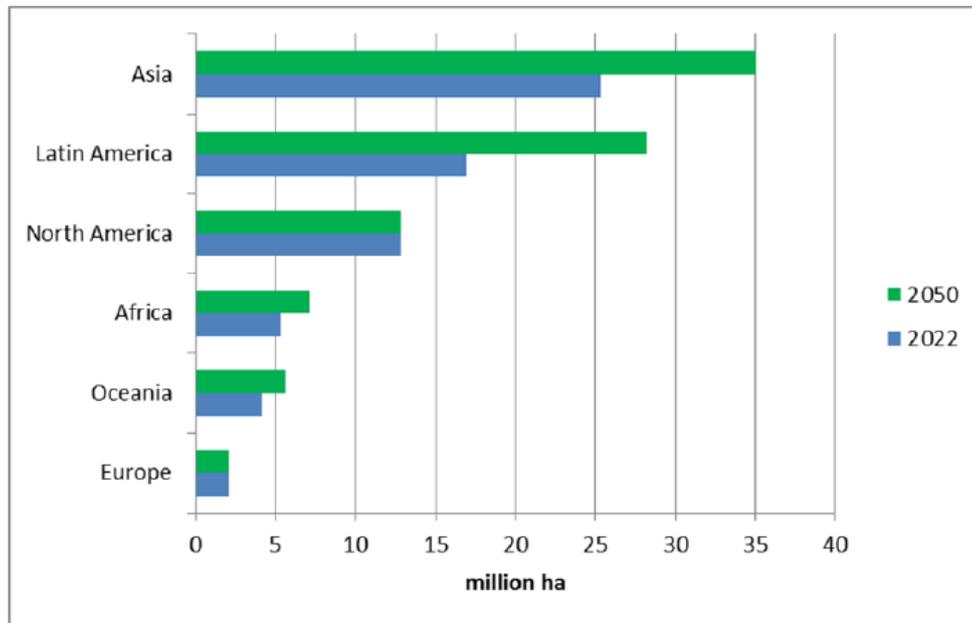


Figure 5-5: Global Plantation Area Forecast, 2022 and 2050 (Indufor, 2012).

The future development of overall plantation supply depends to a great extent on the development of the annual allowable cut, i.e. the amount of allowable harvest. The mean annual growth until 2022 results in a supply of 711 million m³ (i.e. 36.7 %, compared to 520 million m³ in 2012). Beyond 2022, Indufor (2012) provides three scenarios for growth until 2050, in which, on average, 40 % of the harvest potential is used (Baseline), 75 % is used (Optimistic) and 100 % (Theoretical Maximum), as shown in Figure 5-6. Respectively, the projected supply grows to 1,082 million m³ (a 108.1 % increase, with 2012 as baseline), 1,491 million m³ (186.7 %) and 1,988 million m³ (182.3 %). The most likely scenario is the optimistic scenario, as improvements in technology and management are likely to evolve. Furthermore, countries like Brazil and Chile reportedly already achieve coefficients of 0.65-0.7. For all three scenarios, Asia and Latin America will see the greatest growth by far. Latin America will provide in all three scenarios more than half of the supply.

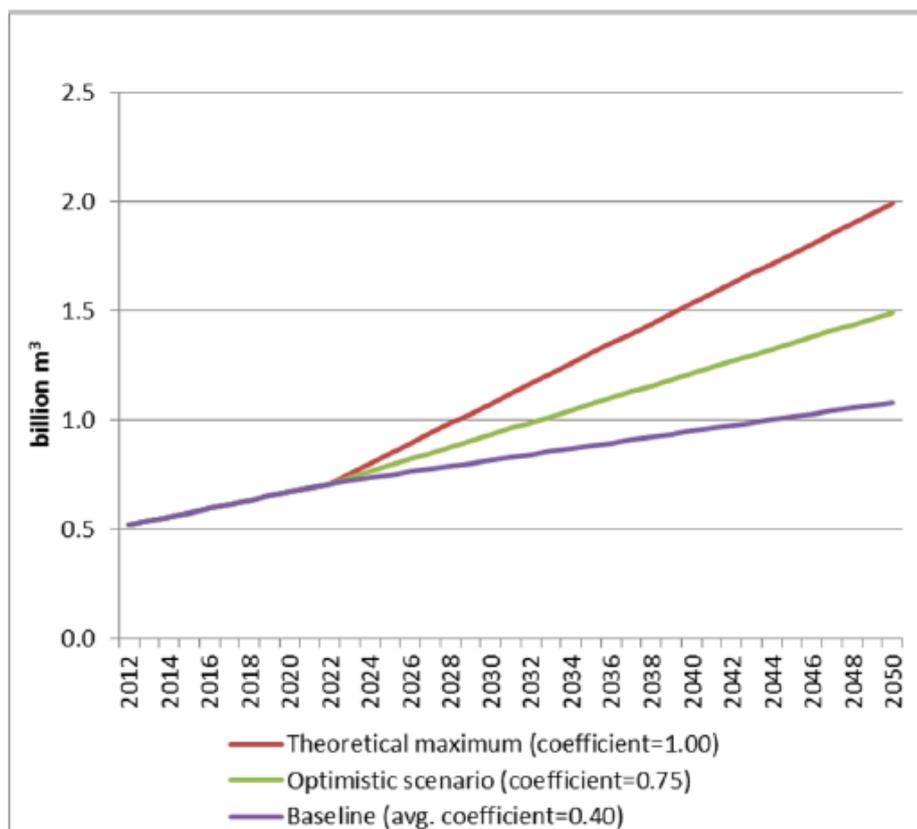


Figure 5-6: Global Plantation Supply Scenarios (Indufor, 2012).

Indufor (2012) estimates the future demand for industrial Roundwood with three scenarios: conservatively realistic (i.e. a very slow development of climate and environmental policies; Scenario I), realistic to partially optimistic (i.e. measures on environmental sustainability increase demand; Scenario II), and clearly optimistic (i.e. measures on environmental sustainability increase demand; Scenario III). Figure 5-7, Figure 5-8, and Figure 5-9 show the demand in Europe, Asia, and Latin America through 2030.

Under Scenario I, the global demand increases by 200 million m^3 (13.3 %, compared to 2010) by 2030. The demand in all three continents will only increase marginally. Scenario II in turn shows a growing demand by 2.5 billion m^3 (166 %), due to a tripling of demand in Asia and Latin America, while Europe's consumption only grows by half of its current demand. Scenario III projects a growth of 4 billion m^3 (266 %), in which Asian and Latin American demand will rise nearly four-fold. The European demand in turn only doubles. Based on these projections, Europe's role will remain constant in the realistic scenario, while it decreases in both optimistic scenarios. The degree of imports through Europe remains unfortunately unclear from this assessment.

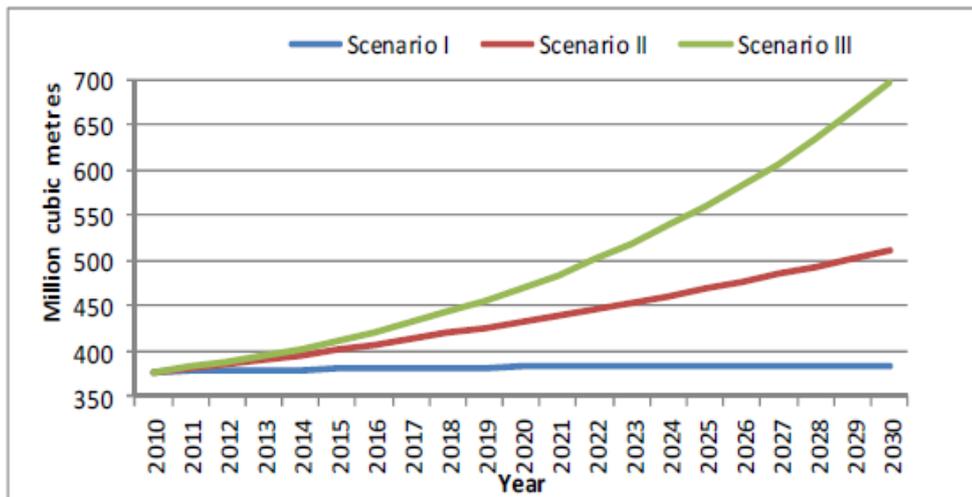


Figure 5-7: Demand for Industrial Roundwood in Europe (Indufor, 2012).

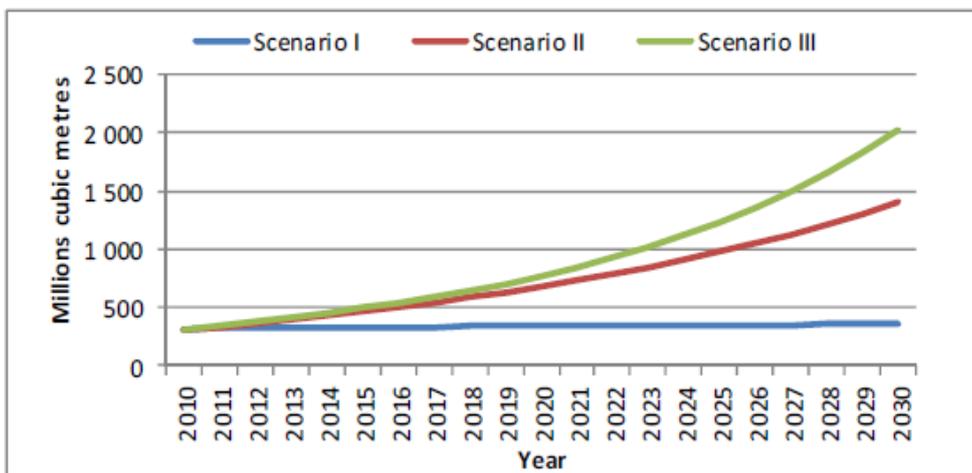


Figure 5-8: Demand for Industrial Roundwood in Asia (Indufor, 2012).

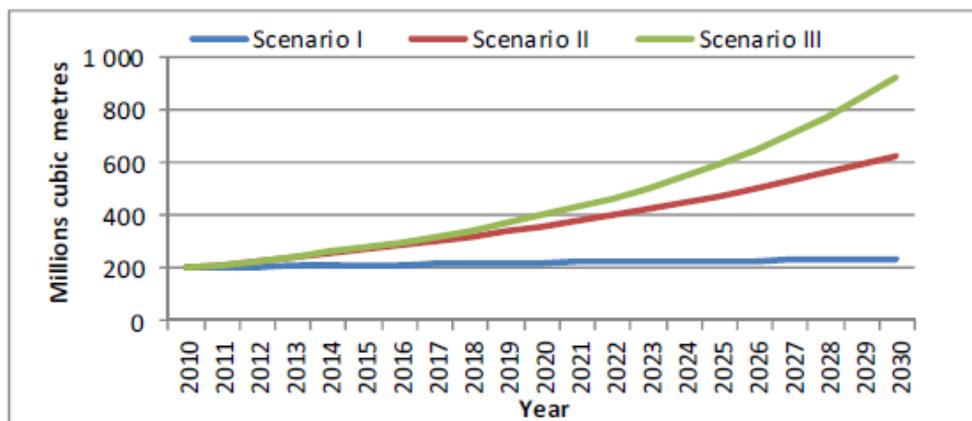


Figure 5-9: Demand for Industrial Roundwood in Latin America (Indufor, 2012).

5.2.3 Pulpwood

The consumption of paper and board will grow by approximately 150 Mt by 2020 (compared to 2011; Indufor, 2012). When compared with a baseline of 2016, this growth reduces to ca. 100 Mt. Over time, China’s role as the primary consumer expands further, with an estimated compound average growth rate (CAGR) of 8.9 % (Figure 5-10). In comparison, the rest of Asia has a CAGR of 2.6 %. Europe will experience a marginal growth of 0.1 %. As in the case for industrial Roundwood, Europe’s role will further diminish.

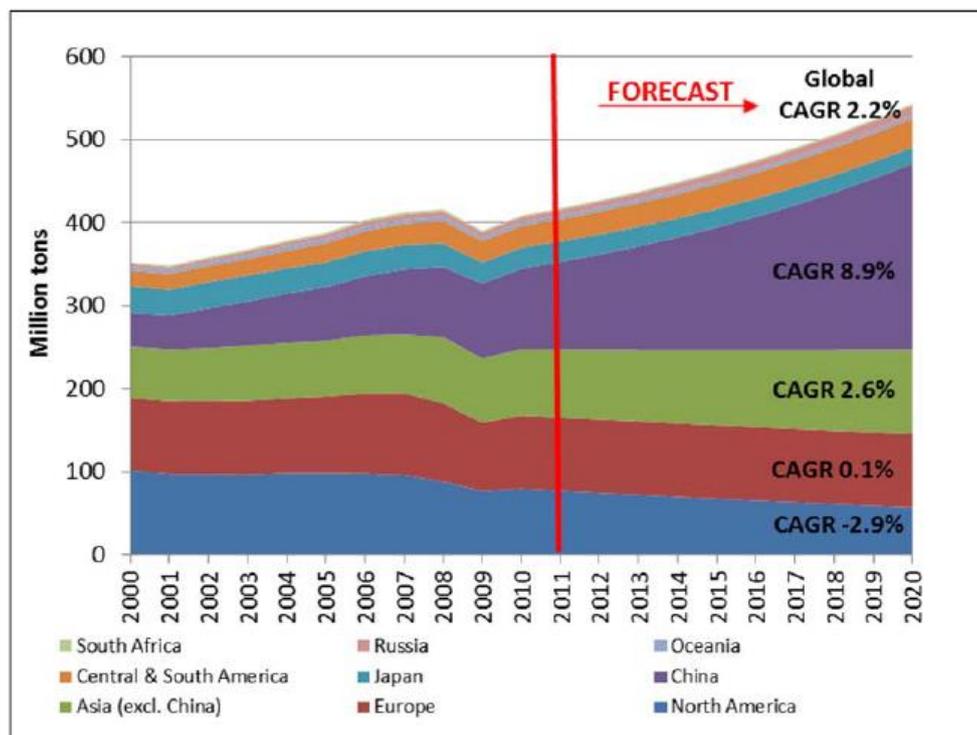


Figure 5-10: Global forecasts for paper & board consumption (Indufor, 2012).

5.2.4 Solid bioenergy: wood pellets

The global consumption of wood pellets will probably experience a prosperous growth in the future (Figure 5-11; Pöyry Management Consulting, 2012b; and Figure 5-12; FutureMetrics, 2017), although various sources disagree on the size of this growth. Between 2016 and 2025, FutureMetrics expect consumption to expand from 14 Mt to 42 Mt and therewith by 184 % (27.2 Mt) – though it should be noted that these figures only include industrial pellet consumption.

By 2025, the major European consumers (Belgium, Denmark, Netherlands, and UK) will reach a saturation point at about 22 Mt. Under the assumption that the UK leaves the EU, the EU’s consumption will drop dramatically by half, to 11 Mt. Currently, the UK accounts for 29 % of total pellet consumption and 69 % of EU pellet imports (AEBIOM, 2016). However, it should be kept in mind that if UK’s consumption is excluded from previous years, EU-27 (EU-28 minus UK) will still have experienced large growth since 2009, driven primarily by consumption increases in DK, NL, BE, IT, and SE. Pöyry Management Consulting (2012b) (Figure 5-11) quotes somewhat larger consumption figures, noting a Western Europe (EU and UK) demand of about 24 Mt in 2015, expecting this to grow to 35 Mt in 2020. Global consumption is in their scenario expected to grow to 59 Mt in 2020, currently standing at 37 Mt.

In Asia, in the projection by FutureMetrics (2017), Japan and South Korea will arise as the second and third largest consumers after the UK, while in the projection by Pöyry Management Consulting (2012b), China will join Japan and South Korea as a large consumer of wood pellets (Figure 5-12). The relevance of the EU in global wood pellet consumption thus strongly depends on whether the UK leaves the EU or not, which is not fully certain at this point in time, though it should of course be kept in mind that even without the UK, the EU is still the largest consumer of wood pellets globally. Further, consulting the National Renewable Energy Action Plans (NREAP), solid biomass (including wood pellets) constitute a significant share of projected use of renewable energy in many EU Member States, meaning that EU demand could still increase in the coming years. In any case, the EU's consumption as share of the world total will decrease due to increase in demand in Asia, while its absolute consumption (in Mt) will likely increase. However, it should be noted that demand is largely fuelled by policy incentives provided by the Renewable Energy Directive (2009/28/EC) and that any changes to the political incentives following from the Climate and Energy Package negotiations can affect the demand for wood pellets from EU Member States.

PELLET CONSUMPTION – OUTLOOK

Western Europe will continue to be the largest pellet consumer in the future. North America will see growth mainly in the residential pellet sector. Asian countries have seen emerging use of pellets recently and this will continue.

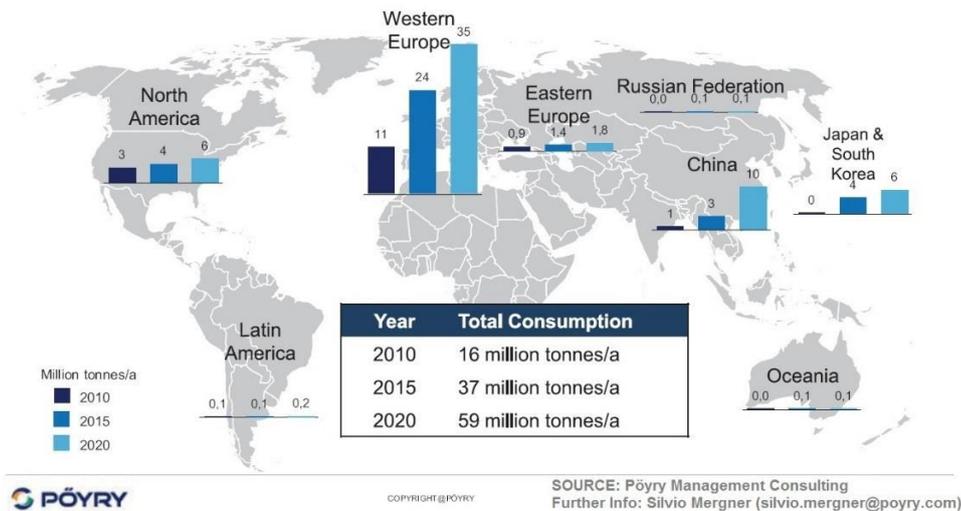


Figure 5-11: Market outlook for 2020 based on Pöyry Management Consulting projections. Map and data courtesy of Pöyry Management Consulting (2012b).

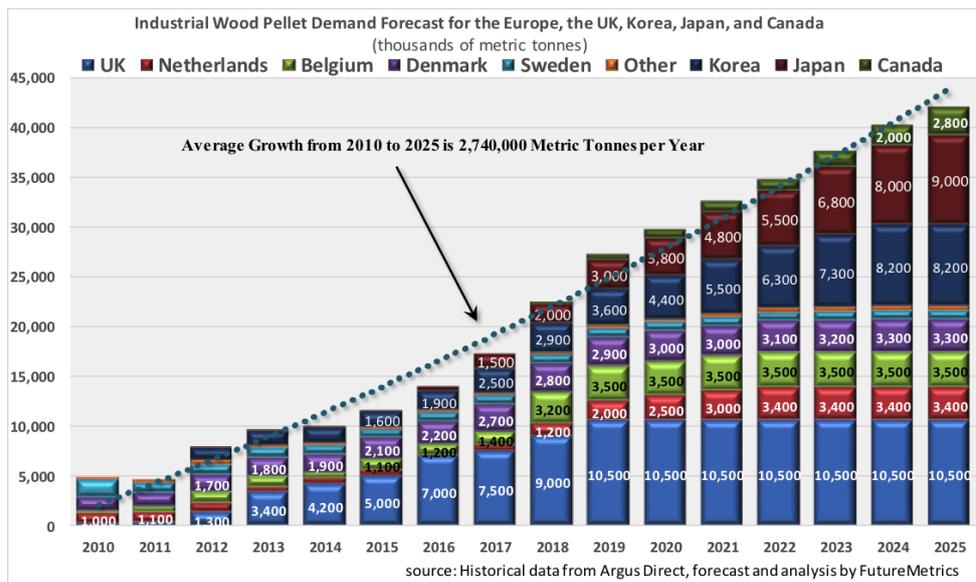


Figure 5-12: Industrial wood pellet demand until 2025, in kilotonnes (FutureMetrics, 2017).

A summary of the projected developments of each commodity is provided in Table 5-13 below.

5.3 Projection of tropical deforestation

Global Projections

A published study by the WWF (2011) estimates that 232 Mha will be deforested by 2050. A more recent study by Busch and Engelmann (2015) projects that 2016-2050, 289 Mha of tropical forest will be cleared (which is the equivalent land area of India). Based on their own data, this would correspond to 1/7th of the global tropical forest area in 2000. The result of this projection rests largely on Brazil’s policy commitments, particularly those from the Programme for Prevention and Control of Deforestation in the Amazon (PPCDAm). Any associated abandoning of Brazil’s commitments would raise the projected deforestation area by about one quarter to 365 Mha. The application of policies and measures similar to the PPCDAm by all other tropical countries would similarly imply a significant reduction in the expected deforestation by one third to 192 Mha.

Figure 5-13 below depicts the predicted annual loss of tropical forest cover from Busch and Engelmann (2015). The projections for 2016 foresee an annual deforestation of 7.5 Mha/yr. Through time, this rate will continuously accelerate until 2050 (i.e. the time-horizon of the study). Particularly through the 2040s, this acceleration will further increase. By 2050, the deforestation rate will then have reached 9.0 Mha/yr.

While Latin America will continue to be the main driver behind the deforestation rate, Asia’s and Africa’s acceleration will lessen over time. Particularly for Asia, this rate will reduce over the long-term. According to Busch and Engelmann (2015), the shape of the deforestation rates in the figure suggests that deforestation follows the trajectory of an inverted U-shape. That is, regions with a currently low deforestation rate but high forest cover will see an acceleration; countries with high deforestation rates and low forest cover will experience a deceleration.

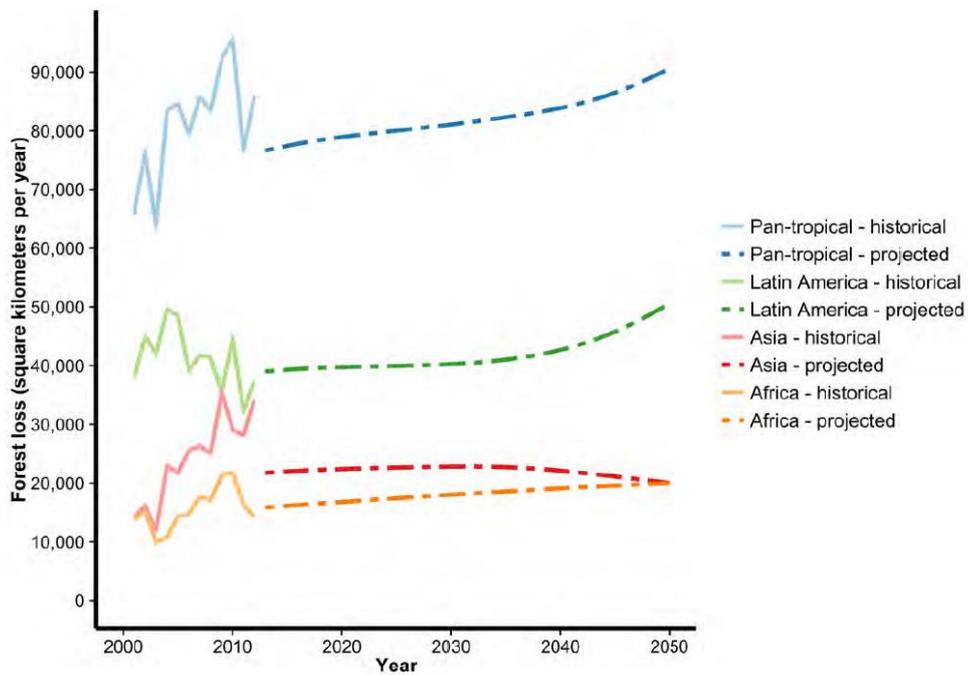


Figure 5-13: Predicted annual tropical forest loss by regions until 2050 (Busch and Engelmann, 2015).

Regional Projections

The WWF (2015) provides estimates on deforestation until 2030 for nearly all tropical forest regions. As shown in Table 5-12, the three regions with the greatest loss in forest area will be the Amazon (23-48 Mha), Greater Mekong (15-30 Mha), and Borneo (22 Mha). Particular forest risk commodities that will drive this loss are Beef, Biofuels, Soy, and Palm Oil. While agricultural production is the main driver by far, other noteworthy drivers are logging, mining and infrastructure. In the case of the Amazon for example, there is a strong correlation between the proximity of infrastructure to tropical forests and their deforestation (as mentioned in chapter 3 above). The total loss for the ten tropical regions will amount to 127-170 Mha.

Table 5-12: Projected deforestation by tropical region for 2010-2030, in Mha (WWF, 2015).

Region		Countries	Forest Risk Commodities	2010-2030 (Mha)
Latin America	Amazon	Brazil, Bolivia, Peru, Ecuador, Colombia, Venezuela, Guyana, Suriname, French Guiana	Beef, Biofuels, Soy, Maize, Palm oil, Timber	23-48
	Atlantic Forest & Gran Chaco	Argentina, Brazil, Bolivia, Paraguay	Soy, Maize, Beef, Timber	10
	Cerrado	Brazil, Bolivia	Beef, Soy	15
	Choco-Darien	Colombia, Colombia, Panama	Beef, Timber	3
Africa	Congo Basin	Cameroon, Central African Republic, DRC, Republic of Congo, Gabon	Palm oil, Soy, Beef, Timber	12
	East Africa	Kenya, Malawi, Mozambique, Tanzania, Zambia, Zimbabwe	Beef, Biofuel, Timber	12
Asia/Oceania	Borneo	Brunei, Indonesia, Malaysia	Palm oil, Timber	22
	East Australia	Australia	Beef, Timber	3-6
	Greater Mekong	Cambodia, Laos, Myanmar, Thailand, Vietnam	Biofuels, Timber	15-30
	New Guinea	Papua New Guinea, Indonesia	Agriculture, Timber	7
	Sumatra	Indonesia	Palm oil, Timber	5
Total				127-170

5.4 Projection of the EU embodied deforestation baseline up to 2030

Global commodity projections

The findings on each of the forest risk commodities is summarised in Table 5-13 below. Points of attention are risk geographies, the developments of the global exports as well as consumption, the development of the EU's imports and its likely future role as a driver of forest risk commodities.

From the table, it becomes clear that the global production and most often also the export of forest risk commodities will further grow. Much of this growth will occur in Argentina, Brazil, India and Indonesia. The projected area of deforestation in these geographies until 2030 accounts for a large majority of the global, tropical deforestation projections by the WWF (2015). Overall, tropical deforestation will accelerate further in the future (Busch and Engelmann, 2015), which is primarily likely to be associated with the production of beef, soy, cocoa, palm oil, and coffee.

Table 5-13: Summary of projected developments of the selected forest risk commodities.

Commodity	Relevant risk geographies	Global Export	Global consumption	EU's import	EU's role as a driver	
Beef	Brazil, Argentina, India	↑	↑	→	↓ nearly constant imports, global growth	
Maize	Argentina, Brazil, India	↑	↑	↓	↓ higher consumption with shift to domestic sources	
Soy	Argentina, Brazil, India, Paraguay	↑	↑	→	↓ EU's consumption growth little compared to global	
Cocoa	?	↑	↑	↑	↓ Growth in consumption, but stronger growth in developing/emerging economies)	
Palm Oil	Brazil, Colombia, Indonesia	↑	↑	?	?	Global consumption will see major increase
Coffee	Brazil, SE-Asia, East/Central Africa, Andes	↑	↑	↑	→	Although EU consumption stagnates and global consumption increases, major coffee roasters are located in the EU
Biodiesel/Bioethanol	Argentina, Brazil, Indonesia, Thailand	→	↑	↑	↑	Strong growth until 2020, reduced growth until 2025
Rubber	India, Indonesia, Thailand, Vietnam	↑	↑	→	↓	Global growth, but stagnant growth in EU
Timber	Asia, Latin America	?	↑	?	↓	Unclear development of EU's imports. EU's consumption grows much less than globally
Pulpwood			↑	→	↓	
Wood Pellets	US, Brazil, Western Africa	↑	↑	↑	→	Expected consumption growth in Asia toward 2025. Consumption growth slowing in EU, but EU still largest consumer of pellets. 'Brexit' renders uncertainty towards total EU demand

In the future, Africa is predicted to experience a growth in deforestation, particularly the Congo Basin and East Africa, of which an estimated 24 Mha are at risk between 2010 and 2030 (WWF, 2015). The major commodities driving this will be Beef, Palm oil, Soy, and Timber.

The EU import of forest risk commodities will stagnate for some (beef, soy, rubber, pulpwood), but also increase for a few (cocoa, coffee, biodiesel/bioethanol). The amount of deforestation that could be associated with the EU's consumption will thus overall increase; particularly in Latin America (primarily Argentina and Brazil). Nevertheless, the role of the EU as a driver behind deforestation will lessen, which will re-

duce the likely impact of any policy options aimed at reducing or redirecting EU consumption only, with the exception of liquid biofuels. That said, it will increase the importance of dialogues with other major market players on FRCs.

Embodied deforestation scenarios

The analysis above shows that today's EU embodied deforestation is very likely to range between 0.25 Mha (Henders et al. (2015)) and 0.5 Mha per year (Vito et al. (2013)). Other studies such as Peterson et al. (2014) (~0.45 Mha) also arrive at an EU embodied deforestation rate within this respective range.

For the projection of the EU embodied deforestation baseline up to 2030, further information on the future development of land use demand in the EU is needed. Vito et al. (2013) provides an estimation of total additional land use requirements by the EU from 2008 to 2030. Based on the assumption of a slight European population increase and a stabilization of the current average meat consumption per capita by the EU27, the study estimates that 5.33 Mha to 5.47 Mha of additional land will be required to satisfy EU's future demand (if no land use productivity increase occurs). This estimate takes both additional land required for food and for biofuel purposes into account.

By making some sound assumptions on how these additional land use requirements translate into deforestation, a projection of EU embodied deforestation up to 2030 can be estimated. Table 5-14 below summarizes these assumptions. We assume that land use productivity increases by 0.8 % per year. While yields for some crops have in some periods grown above 3 % *per annum*, yields are currently growing slower than throughout the green revolution, and for some of the larger crops, current yield growth is slowing down and nearing 1 %⁽⁵⁶⁾. Thus, a projected productivity increase of 0.8 % is a conservative estimate, which means that crop yield growth rate should be able to remain above this for the entire period, despite the recent slowdown in crop yield growth rates (Ray et al., 2013). According to IEEP (2014), there are 1.35 Mha of land available in the EU that is suitable for agricultural production, but currently abandoned or fallow. We assume that 50 % of this land, i.e. 0.68 Mha, can be brought back into production to satisfy some of the EU's additional land use requirements by 2030. The expected increase in land demand is based on the assumption of a slight European population increase and a stabilization of the current average meat consumption per capita by the EU27 (note that Alexandratos & Bruinsma, 2012 expect EU meat consumption to slightly increase, which would then make land demand even larger). Lastly, it is assumed that 50 % of the additional land use requirements sourced from outside the EU is likely to result in deforestation internationally. This is based on the premise that increased agricultural areas is likely to lead to deforestation, as not all demand for increased land areas for agriculture can be met through the utilization of fallow, barren, or otherwise unproductive land, but will come from land currently forest. In an analysis of the source of new forest land, Gibbs et al. (2010) found that across the tropics, 'between 1980 and 2000 more than 55 % of new agricultural land came at the expense of intact forests, and another 28 % came from disturbed forests.' Thus, 50 % of new agricultural land coming from forest is lower than the historical trend, yet realistic given lower deforestation rates from 2000-2010 than from 1990-2000.

⁽⁵⁶⁾ Ray et al. (2013) analyse yield growth for four major crops (maize, rice, wheat, and soybean), which currently produce nearly two-thirds of global agricultural calories, and find that 'yields in these top four crops are increasing at 1.6 %, 1.0 %, 0.9 %, and 1.3 % per year, non-compounding rates, respectively.' Ray et al. (2013) further note that the historical growth rates seen are less than the 2.4 % per year rate required to double global production by 2050, meaning that if production is to double by 2050 (or even grow 70 %) larger agricultural areas are required.

Table 5-14: Assumptions on translating the EU additional land use requirements by 2030 into a future EU embodied deforestation rate.

Indicator	Value	Source
Land use efficiency gain per year	0.8 %	World Bank data on cereal yield development in the EU
Available agricultural land compensated by degraded and fallow land in EU	0.68 Mha	IEEP, (2014)
Share of the additional land use requirement sourced from outside the EU resulting in deforestation.	50 %	(Valin et al.2015)

Assuming that this embodied deforestation from EU’s future additional land use requirements occurs in addition to the current deforestation rate, we can derive a potential range of EU embodied deforestation rates from 2015 to 2030 (see Figure 5-14).

In 2015, the EU embodied deforestation rate is assumed to lie between its identified lower and upper boundary, i.e. 0.25 Mha and 0.5 Mha respectively, the former being derived from Henders et al. (2015) and the latter from Vito et al. (2013). By 2030, due to the additional future land use requirements (between 5.33 Mha and 5.47 Mha), the EU embodied deforestation rate is very likely to increase to a range between 0.34 Mha and 0.59 Mha in 2030.

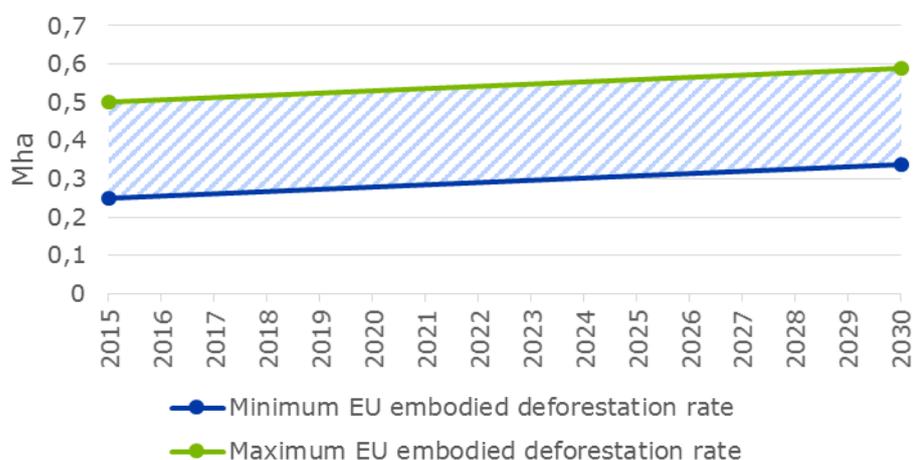


Figure 5-14: Approximate range of EU embodied deforestation rate from 2015 to 2030.

The above projection sets the stage for future EU action to address deforestation and forest degradation. The projection can serve as starting point or baseline for an Impact Assessment of possible EU action. The project shows, that in a no new action scenario EU consumption will continue to drive increasing deforestation rates. This means that halting deforestation requires action, and that reversing the trend requires further and/or more effective action.

The overview of current private sector initiatives and EU action should be seen against this backdrop.

6 OVERVIEW OF CURRENT INITIATIVES TO ADDRESS DEFORESTATION

This chapter describes the current global context for EU action in terms of initiatives that directly or indirectly address deforestation. This chapter serves as an important basis for the scoping of possible policy options in Part II. The chapter draws on information gathered as part of the inventory mapping of existing policies, legislation, and initiatives that directly or indirectly address deforestation (specific deliverable under task 1); supplemented with grey literature and scientific papers where they add value.

This chapter focuses on describing key EU policies, initiatives and actions notably FLEGT, but also REDD+ initiatives, as well as Private Sector and Civil Society action. The chapter does not provide an exhaustive analysis of all deforestation initiatives and their effectiveness in halting deforestation; rather it aims to set out key existing initiatives upon which a possible further EU effort could build on, identify gaps and possible synergies. Prior to describing those initiatives, the first part of this chapter provides a general summary analysis of all the initiatives that were mapped in the inventory (Task 1). Whenever reference is made to a specific initiative in the inventory, a number is given in parenthesis, e.g. (#34). This number is the unique identifier of the initiative in the inventory.

6.1 Initiatives set in relation to drivers

The inventory provided a quite comprehensive identification of EU and international initiatives on deforestation. It includes, among others, larger national MS initiatives and a few selected national initiatives on the producer side. The inventory includes initiatives that explicitly, but not necessarily exclusively, address deforestation. In Fig. 6-1 below, all the mapped initiatives are categorised according to a) the relevant supply chain node, and b) the relevant driver that they target ⁽⁵⁷⁾.

The resulting distribution (Figure 6-1), gives a first indication of where in the supply chain action has been taken on deforestation. The density of initiatives is highest for the demand side, with 109 initiatives, of which 78 alone target the EU demand side. However, this result may be influenced by the fact that the inventory itself is mostly concerned with action taken by EU and its Member States and does not provide necessarily a detailed analysis of actions taken by other, i.e. producer country governments. There are 70 supply-side initiatives, and much fewer in the trade node and by investors. As it concerns factors behind the underlying causes, most initiatives (76) aim to address cultural factors, i.e. behaviour. The remaining factors are all addressed in 42-50 initiatives.

⁽⁵⁷⁾ The allocation of initiatives to supply chain nodes has followed the principle definition of nodes, found in section 2.2.3. It should be noted that available material on initiatives seldom contains information on drivers, and in many cases, identified initiatives are not solely and/or directly targeting deforestation or forest risk commodities. As a result, the allocation in some cases relies on the expert judgment of the study team.

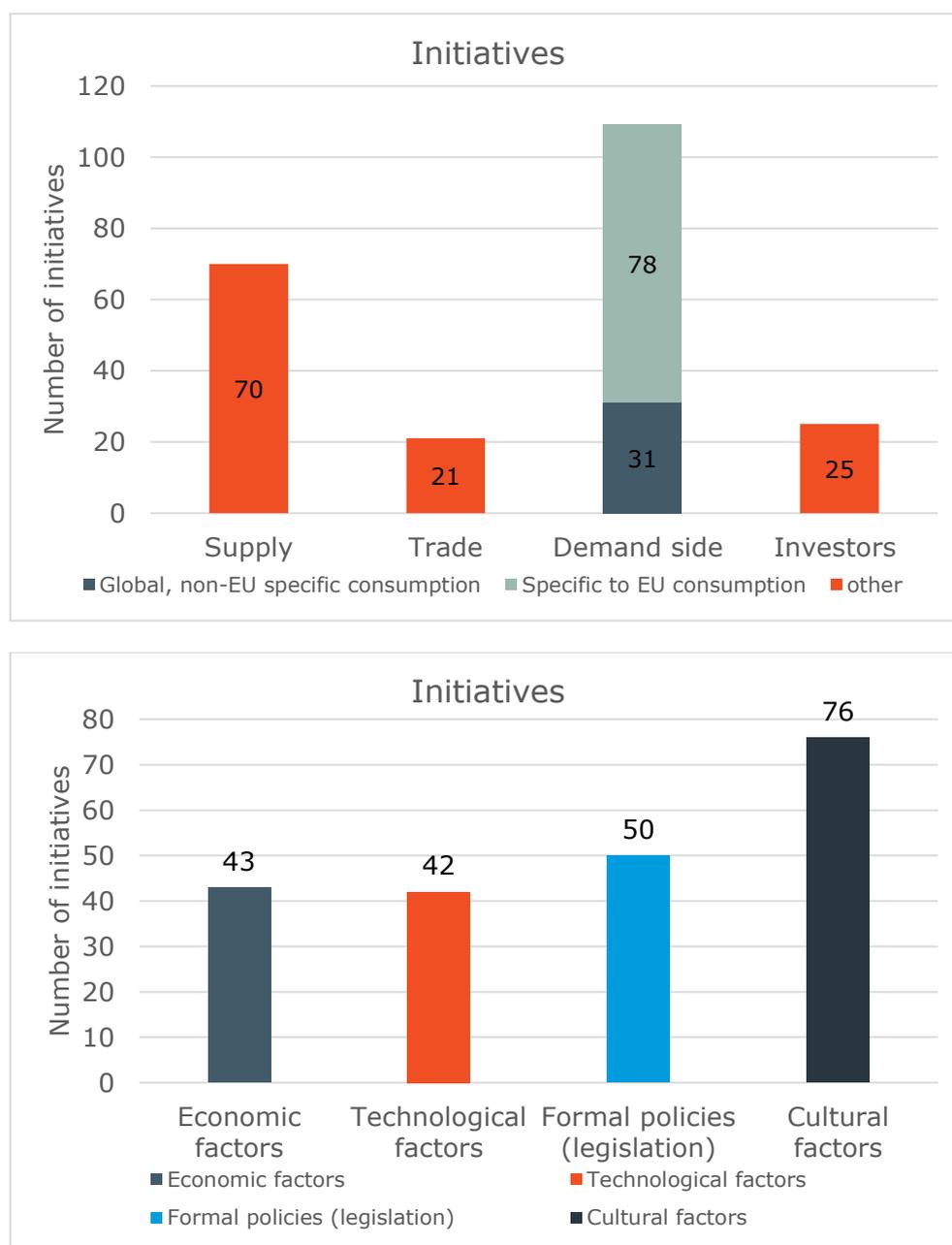


Figure 6-1: Histograms showing distribution of initiatives relative to supply chain (top) and factors (below)

The overview shows how action to change cultural factors such as behaviour dominates, and that demand-side action is more common than trade, investor and supply-side action. Interestingly, there are quite few initiatives addressing economic factors, compared to behaviour (cultural) and policy initiatives. Most of the initiatives are led by the private sector and are of a voluntary nature.

The most glaring gap that emerges from the inventory is that most initiatives concern specific commodities (timber and timber products, beef, soy and palm oil), and very few address other important soft commodities (Cocoa, Maize, Coffee, Rubber) linked to agricultural drivers of deforestation. In general, very few initiatives address agricultural drivers explicitly, and given the large scale of the contribution of agricultural expansion, this represents a major gap.

6.2 Current EU action

With a number of landmark initiatives over the past 15 years, EU has taken global lead in reducing its global environmental footprint, and at the same time promoting sustainable growth, job creation and inclusion. Considering the scoping of this study, namely deforestation as a result of a growing global appetite for goods and commodities, the issues at stake are twofold; both how the EU uses, produces and sources the goods it needs to grow and prosper while minimizing environmental impact. At the same time, the EU also has a key role to play as part of the solution by stepping up its efforts to achieve international commitments in relation to the complex challenges of deforestation. The described policies and resulting EU initiatives are then specific manifestations of the intention to govern and reduce the EU land footprint.

The sub-chapter describes the current EU policies, legislation and initiatives that address or potentially can address the drivers of deforestation and forest degradation within and outside EU borders. The descriptions are short and mainly emphasizes the relevance for driving or addressing deforestation. The description provided here does not substitute or preclude any specific analysis of potential to mainstream policy options or instruments into a wider array of EU policies. This is the perspective applied in Part II.

A limited number of EU initiatives can directly address the drivers of deforestation; others do it only more indirectly. The EU FLEGT Action Plan (henceforth FLEGT AP) is a key EU initiative that has major potentials for promoting the halting of deforestation and forest degradation. Linked to FLEGT AP are the REDD+ framework and related initiatives by the EU and other actors in the context of the UNFCCC. REDD+, which is part also of the Paris Agreement on climate change, will also be key for any further EU action, including action taken in the context of the FLEGT AP. Thus, this initiative is also described in more detail.

The overview of EU initiatives is based on the following overall clustering:

- EU FLEGT Action Plan
- Climate & energy sector measures
- International development cooperation measures
- International trade measures
- Agricultural measures
- Other policies.

The distribution of all identified EU (and MS) initiatives across factors of deforestation and supply chain nodes can be seen in appendix A (the previously mentioned inventory). This table has been cleared for all non-EU and MS initiatives.

6.2.1 EU FLEGT Action Plan

The EU FLEGT Action Plan (AP) has been in place since 2003, and is a key piece in the EU's efforts to combat illegal logging and related trade, thereby contributing to promoting sustainable forest management and halting deforestation. In this subsection, the FLEGT AP is given particular emphasis and described in more detail. The text will describe and explain the role and contribution of the FLEGT AP, and outline findings from the recent evaluation. Furthermore, the text serves to identify linkages and stepping stones for further action to support policy development in Part II.

The EU FLEGT Action Plan is an innovative means of using trade instruments to strengthen forest governance and bring illegal forestry and land-use activities under the rule of law. Illegal logging was and remains an important problem, and addressing it through improved governance has positive spill-over effects on forest management more broadly, including in terms of sustainability. An evaluation of the FLEGT action plan was recently completed; henceforth: 'the evaluation'⁽⁵⁸⁾.

Supply side measures

The FLEGT action plan includes a package of supply-side and demand-side measures across different pillars, including development cooperation support, promoting trade in legal timber, investment and finance, public procurement, support to private sector initiatives, better implementation of existing legislation and conflict timber. Supply-side measures support timber-producing countries in curbing illegal logging, ensuring legal compliance at a national level and strengthening trade in legal timber with the EU. They further include the support to improving governance systems, establishing verification of legality systems⁽⁵⁹⁾, enhancing transparency and stakeholder participation, capacity building, and policy reform. On the supply side, VPAs are bilateral trade agreements that clarify and apply the country's legal standards to the whole timber sector, and use trade as a lever to improve law enforcement and address forest governance challenges. Support for improving governance systems in timber producing countries has generally concentrated on VPA countries, even though examples of support to other countries (mainly in the form of technical assistance) are included in the inventory (#37).

The evaluation also found that NGOs have played an important role in increasing the capacity of stakeholders. However, most capacity building has benefited civil society and national-level government actors, leaving the private sector and local-level authorities on the margin. It was not feasible to map out all actions undertaken by NGOs to build capacity in forest countries. However, this may be an area for further analysis and potential intervention to support local-level capacity and private sector involvement, prioritising the high deforestation risk geographies, jurisdictions or biomes.

Demand side measures

As part of the FLEGT Action Plan, the EU has promoted a number of demand-side measures act to reduce demand for illegal timber and products thereof. Public procurement policies that hold specific requirements on legality or sustainability of timber and wood products is one of these areas. While, green public procurement is a broad policy area concerned with several environmental issues (Public Procurement Directives (#95, #96), in line with the FLEGT AP, procurement policies of MS, as well as voluntary GPP criteria developed by the Commission reflect legality and sustainability requirements for timber. These policies can thus support the goals of the FLEGT action plan and the EUTR. The Directives further allow, but do not require, environmental sustainability to be taken into account in public procurement. Other initiatives focus on Green Public Procurement (GPP). Examples are the Commission Communication of 2008 (#98) and a multitude of Member State GPP policies (#116 ff.). The scope of these policies varies, as does their level of ambition. In any case, the inherent variation between MS approaches to defining sustainability, in combination with the limited market leverage that a single buyer can mobilize, reduces the additional impact that

⁽⁵⁸⁾ https://ec.europa.eu/europeaid/evaluation-eu-flegt-action-plan-forest-law-enforcement-governance-and-trade-2004-2014_en and related Commission Staff Working Document Evaluation of the EU Action Plan for Forest Law Enforcement Governance and Trade (FLEGT), SWD(2016)275.

⁽⁵⁹⁾ So-called Timber Legality Assurance Systems (TLAS).

could be achieved ⁽⁶⁰⁾. Varying national requirements may send different signals to the market, which then may not be conducive to the best possible outcomes.

A key action on the demand-side, are trade-related measures include the EU Timber Regulation (EUTR) and voluntary private sector initiatives. Voluntary private sector initiatives include, among other things, code of conducts and private sustainable forest management certification schemes (#131 ff.). Generally, these voluntary initiatives aim to demonstrate the environmental sustainability of products, which includes but goes beyond legality. Given that the verification of legality has proven to be one of the most difficult aspects of the FLEGT action plan to implement, the evaluation recommends that potential synergies with voluntary schemes could be further explored and exploited.

Due diligence obligation for operators and traders

The EU Timber Regulation (EUTR) prohibits the placing of illegally harvested timber and products derived from such timber on the market. To ensure this, operators, defined as such who first place timber products on the EU market, must exercise 'due diligence'. Further down in the supply chain, any trader of timber must keep records of their traded timber products. The onus is on all market participants who intend to sell a timber product on the EU market. The EUTR is thus a demand-side measure that reduces the placing on the market of risk timber, including both domestic or imported timber. More importantly however, it incentivises third countries to use supply side measures provided by the FLEGT (e.g. VPAs or third party certification schemes), which facilitates the due diligence for operators since FLEGT licences are deemed to be automatically compliant with the EUTR requirements. The Regulation thus aims to contribute to combating illegal logging, which is a major cause of tropical deforestation and forest degradation. In conclusion, the due diligence system employed by the EUTR has a twofold impact, as it reduces the import of risk timber, but also provides incentives for suppliers to provide legal timber. The EUTR's concept for tackling legality can be an interesting model for similar action in other supply chains. The principle of legality requirements has also been applied in other relevant fields, such as with the EU's Illegal, Unreported and Unregulated Fishing (IUU) Regulation or the recent EU Conflict Minerals Regulation, and these could serve as inspiration as well.

China is an increasingly important player in the value chain of timber products. A Bilateral Coordination Mechanism (BCM) for policy dialogue on forest governance and law enforcement between the EU and China already exists, and relevant initiatives can be taken within that framework.

The main points on potential for improvements from the recent evaluation are presented in the text box below.

⁽⁶⁰⁾ As reflected in the recent FLEGT evaluation (May, 2016). 80 % of MS have implemented Timber Public Procurement policies, however these remain under MS competence and hence vary in scope and nature.

Text Box 6-1: Main points from FLEGT AP Evaluation.

Main points from FLEGT AP Evaluation.

The key findings emerging from the evaluation are the following:

1. The EU FLEGT Action Plan continues to be fully relevant but needs to address new challenges, in particular with regard to deforestation and forest conversion.
2. The overall design is innovative, comprehensive and future-proof, but objectives and intervention logics need to be clarified. Main pillars and action areas should be retained, but FLEGT support to producing countries should be delivered in a more demand-driven and flexible manner, while bottlenecks affecting VPAs should be addressed and the private sector more involved.
3. The Action Plan has not been implemented in a sufficiently balanced manner; strategic direction and monitoring of FLEGT Action should be improved; management and outcome monitoring also need strengthening and require corresponding human and financial resources.
4. Communication has initially not been commensurate to the importance of the EU FLEGT Action Plan as an innovative and experimental policy initiative. More attention should be given to internal and external FLEGT communication at all levels.
5. While the Action Plan contributes to its specific objectives, effectiveness across action areas varies widely. Shifts in priorities and approaches within and between actions areas are required, notably with regard to VPA and EUTR implementation and private sector engagement.
6. While the direct FLEGT objective of decreased EU imports of illegal wood is being achieved, a shift in geographical focus to non-VPA countries and focus on international coalitions is required - if global illegal logging and trade is to be addressed.
7. The EU FLEGT Action Plan is resulting in improved forest governance in all targeted countries, both VPA and non-VPA. However, fundamental governance challenges persist, slow down progress and need more effective tackling.
8. FLEGT's contribution to the higher objective of Sustainable Forest Management is unclear and needs to be made more explicit. FLEGT has proven to have potential to make an important contribution to poverty reduction, but this requires more attention for domestic timber markets and support for the actors operating in them.
9. FLEGT is largely coherent with EU and international policies. While the principle of basing VPAs primarily on national legislation should be maintained, due attention should be given to obligations deriving from international conventions as well.
10. The FLEGT Action Plan has clear EU added-value through its market leverage and increased political weight. However, effective implementation requires broader political and financial support and promotion across EU Member States, as well as enhanced coordination.

https://ec.europa.eu/europeaid/sites/devco/files/executive-summary-swd-2016_276_f1_en.pdf

EU FLEGT AP as starting point for future action

Previous analysis showed that deforestation is mainly due to (legal or illegal) agricultural expansion. The FLEGT action plan does not directly address this reality. Indeed, the most glaring gap that emerges from the inventory is that most initiatives concern timber and timber products, and very few address agricultural drivers of deforestation. Mitigating the impact of agriculture on forests should be a priority for future forest protection efforts. This is also recognised in the FLEGT AP evaluation (see text box above). The FLEGT AP already contributes, albeit indirectly, to the protection of forests from different drivers of deforestation (including agriculture) by promoting better governance, clearer land tenure laws, and NGOs' and civil society's involvement in forest-related decision-making.

Future useful actions can be taken within the framework of the FLEGT AP to protect forests from agricultural expansion. For example, VPAs generally include provisions to ensure the legality of timber from conversion areas and that the timber does not come from forest lands illegally converted to agriculture. However, while such initiatives can reduce the commercial value of 'conversion timber' and can provide a space for to discuss land-related issues, they will not by themselves stop land conversion, as the revenue that can be obtained from agricultural commodities (not from conversion timber) is the main economic driver of conversion. More ambitious actions on the legality and sustainability of agricultural commodities, or of land planning and land use would entail an increase in scope of FLEGT or a new initiative.

A key development since the FLEGT AP has been a shift of focus towards climate change. Although the approaches employed by FLEGT and REDD+ are different, they can be complementary. REDD+ (#14) is arguably the initiative that has attracted most attention and funding in recent years. Experience shows that REDD+ cannot be successful if issues of legality and governance are not resolved. At the same time, REDD+ has the aim of addressing agricultural drivers of deforestation and forest degradation. Despite this complementarity, only a few countries (e.g. Guyana) have started to integrate both FLEGT and REDD+ processes and develop strategies how both processes could assist their national sustainable development agenda. The potential of a more integrated approach between the FLEGT and REDD+ processes could be considered in the context of future forest protection efforts. This could entail integrating FLEGT into EU and MS REDD+ programmes and funding by streamlining and prioritizing REDD+ support to advance VPA implementation and more broadly forest and land-use governance reforms.

6.2.2 Energy & Climate policies

This section covers EU Policies and strategies in the area of Energy & Climate relevant for the supply chains of the forest risk commodities subject to this study. It further covers MS initiatives listed in the inventory relevant for those same supply chains. The policies covered are those listed in the table below (Table 6-1).

Most of the policies address the energy sector in its capacity of biomass user and will be relevant for the sourcing policies of energy entities. The LULUCF pieces concern Member States and not private entities, and Member State policies to accomplish goals or aims of these two policies may vary from one MS to another.

Key Legislation

The current and future Renewable Energy Directives (RED and REDII⁶¹), are centre-pieces in EU Renewable Energy (RE) regulation and contains measures on transparency, sourcing and sustainability of biomass for energy purposes, both in the form of woody biomass, and crops or other biomass used for biofuels. Current and proposed criteria for sustainability of biomass are not preventing import or use of un-sustainable biomass, but render bioenergy produced from non-compliant biomass not eligible for public support and exclude it from counting towards RE-targets. The sustainability criteria also include requirements related to greenhouse gas emissions from the direct supply chain (not including combustion emissions, indirect GHG emission or biogenic emission other than direct LUC).

⁶¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52016PC0767R%2801%29>

Table 6-1: List of EU initiatives in the field of Energy & Climate policy relevant for Forest Risk Commodity Supply Chains.

Policy	Policy owner	Supply	Trade	Demand	Investors
EU initiatives	EC				
REDII: Proposal for a Directive on the promotion of the use of energy from renewable sources (recast) (Note: Not included in Initiative inventory)	ENER/CLIMA	D	D	D	
Directive 2009/28/EC on the promotion of the use of energy from renewable sources (RED) (60-a)	ENER/CLIMA	D	D	D	
Directive (EU) 2015/1513 (on indirect land-use change) (ILUC Directive) (61-b)	ENER/CLIMA			D	D
Directive 2003/87/EC on the EU Emissions Trading (56)	ENER/CLIMA			D	
Commission Report on the sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling (COM(2010)11) (biomass report) (63)	ENER	D		D	
EU Guidelines on State aid for environmental protection and energy 2014-2020 (64-a)	COMP/ENER/ENV			D	
Decision 529/2013/EU on accounting rules on greenhouse gas emissions and removals resulting from activities relating to land use, land-use change and forestry and on information concerning actions relating to those activities (LULUCF accounting systems) (57)	CLIMA	D		D	
Proposal for a regulation on the inclusion of GHG emissions and removals from LULUCF into the 2030 climate and energy framework (Note: Not included in inventory)	CLIMA	D		D	
MS initiatives	MS				
UK - Renewables Obligation Order (114)	UK	D		D	
Belgium - Flanders - Flemish Green Power Certificates (111)	BE	D		D	
Belgium - Wallonia - Green Certificates (112)	BE			D	
Netherlands - Green Deal Sustainable Biomass (115-a)	NL	D		D	
Germany - Renewable Energies Act (113)	DE			D	

In addition, sustainable biomass cannot be biomass produced or harvested in breach of any national law in the producer country. The proposal for a revised RED extends requirements for guarantees of origin and sets forth to increase transparency of use of biomass. As a result, Forest Risk Commodity supply chains feeding large energy producers (above 20MW capacity), should become more accessible and more easily subject to independent third party scrutiny. Thereby, this body of regulation supports halting illegal deforestation.

The ILUC Directive amendments to the RED directive and introduce factors to be added to the calculation of the GHG benefits of substituting fossil fuels with biofuels and bioliquids. The factors are quantifications of the GHG emissions related to indirect land use change: Where pasture or agricultural land previously destined for food and feed markets is diverted to biofuel production, the non-fuel demand will still need to be satisfied either through intensification of current production or by bringing non-agricultural land into production elsewhere. Hence, land use change or deforestation may be the outcome. The values will make biomass feedstocks associated with high ILUC less attractive for energy producers, and potentially reduce deforestation associated with EU demand for biomass feedstocks. Concerned categories of feedstock are cereals and other starch-rich crops, sugars and oil crops.

The European Union Emission Trading Scheme has direct implications on the use of biomass, as the accounting rules for the use of biomass by EU energy installations favours biomass over other fuels, such as oil, coal and gas. The EU-ETS legislation rely on the sustainability rules of the RED legislation (now and post 2020) to identify the biomass that should be exempted from the obligation to return allowances from. The EU-ETS does not tackle deforestation, but creates or maintains EU demand. Current EU demand is mainly satisfied by domestic production and imports from Russia and North America, so expectedly the EU-ETS would not be associated with significant tropical deforestation.

The State Aid Guidelines for Energy and Environment (Directive (2014)25) sets out how MS are allowed to support to Renewable Energy production until 2020, and is further intended to guide rules after 2020 in order to ensure stable market conditions. The 2014 guideline sets out that investment aid to food-crops based RE production should not be eligible for aid from 2014 onwards and that operating aid should be terminated by 2020 at latest. While the effect of excluding aid to food-crop based bio-energy remains to be seen, this would expectedly reduce EU energy sector demand for certain food crops.

The above-mentioned regulation, and the 2010 and 2015 Commission reports on sustainability of (solid) Biomass for Energy purposes, together sets the stage for demand, sourcing and sustainability of biomass feedstocks used by major EU installations. The relevant biomass feedstocks are in principle all non-food crops as well as wood, both as logs, pellets and sawdust, as long as they are used for energy purposes. On one hand, the EU subsidises and thereby increases demand for the biomass feedstocks and land to grow it, but at the same time several measures are in place to govern the sustainability of the biomass, including its legality. For biofuels, legality is already covered and will be so for solid biomass after 2020 (depending on the outcome of legislative procedure). The three pieces of legislation could be starting points for further EU action to address deforestation, both legal and illegal, associated with EU energy production, including bio-fuelled transport.

Other legislation

The existing decision 529 (2013) and the proposed LULUCF regulation concerns the setting up of MRV ⁽⁶²⁾ and accounting systems for GHG emissions and removals from the land sector at national scale. The decision and the proposal are closely aligned with principles set out in IPCC ⁽⁶³⁾ guidelines and staged by UNFCCC COP decisions. Following this legislation, EU Member States are obliged to put in place systems that can keep track of the carbon stored in wood and wood products imported to (and exported from) third countries, in the so-called *Harvested Wood Products* pool. While MS capabilities on reporting such information vary significantly, it is expected that the obligations in the legislation will lead to a gradual increase in capacity over the coming 10-15 years. In order to improve reporting, MS will have to obtain better data on imports of wood and wood products, which may help gain momentum and support behind transparency initiatives on trade in FRCs.

Member state initiatives

A number of Member States initiatives relating to the use of bioenergy (specifically solid biomass such as wood pellets or wood chips) are also of relevance to deforestation. These are briefly described in the following.

Belgium – Flanders – Flemish Green Power Certificates

The Regional government of Flanders has enacted a regulation, which promotes renewable energy production using Green Power Certificates. Detailed life cycle analysis (LCA) of the energy balance and sustainability requirements are part of the regulation, with financial incentives provided for complying with the scheme. Each electricity supplier is obliged to support a specific amount of electricity generated from renewable energy sources, evidenced by submitting a specific number of green certificates to VREG (the Flemish Regional Government). Only certificates issued by VREG are accepted. A verification procedure for energy balance and the sustainability of the wood pellets supply chain has been developed by SGS and Laborelec (Electrabel). By placing requirements on energy producers to source sustainable biomass and ensure reductions of CO₂ on the energy balance, the law affects the type of biomass demanded by Belgian power producers, thus placing requirements on those supplying the biomass to supply biomass that fulfils the sustainability requirements.

Belgium – Wallonia – Green Certificates

The Regional Government of Wallonia has implemented a regulation, which promotes renewable energy production. Detailed life cycle analysis (LCA) of the energy balance and sustainability requirements are part of the regulation, with financial incentives provided for complying with the scheme. Within the regulation, certification of timber is encouraged but not mandatory. The Wallonian Energy Commission (CWaPE) issues green certificates, while grid operators and providers are obliged to buy green certificates, whose price is fixed by the government, and present them annually to CWaPE. CWaPE is in charge of controlling the implementation of the scheme by grid operators and providers. The regulation does not require use of biomass originating in certified forest, thus not necessarily affecting supply of biomass. Demand is affected by CWaPE regulating the amount of green certificates issued.

Germany – Renewable Energies Act

The German Federal Ministry for Economic Affairs and Energy implemented in 2012 a Renewable Energy Act. This included, inter alia, a feed-in-tariff for biomass to incen-

⁽⁶²⁾ Monitoring, Reporting and Verification.

⁽⁶³⁾ Intergovernmental Panel on Climate Change, see <http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol4.html>.

tivise the production of energy from renewable sources. The regulation contains sustainability criteria to ensure that feedstock is sourced from sustainable sources. Thus, the regulation mainly affects production of biomass by requiring the biomass producers to source sustainably produced biomass.

UK – Renewables Obligation Order

The UK government enacted the Renewables Obligation Order in 2011, which place an obligation on UK electricity suppliers to obtain an increasing proportion of electricity from renewable sources. As concerns biomass, consistency with criteria given under the Renewable Energy Directive (EC/2009/28) is required. Biomass electricity generators over 50kW are required to report regarding general restrictions against using materials sourced from land with high biodiversity value or high carbon stock. This includes primary forest, peatland, and wetlands. Operators of plants generating electricity from biomass derived from wood must provide the Authority (the Office of Gas and Electricity Markets, OFGEM) with information on the source of the wood, description of the forestry/land management practices used, and whether the biomass meets the Timber Standard. The Timber Standard includes legality and sustainability requirements for timber. Eligible renewable electricity generators report the amount of renewable electricity and sustainability information to OFGEM. OFGEM issues Renewables Obligation Certificates (ROCs) to electricity generators, who sell them to suppliers. Suppliers present ROCs to OFGEM to demonstrate their compliance with the Renewables Obligation Order (ROO). The sustainability reports need to be independently audited. The ROO thus affects the demand for biomass by placing a requirement on electricity suppliers to increase the proportion of electricity produced from renewable sources, which in the UK has turned out to be mostly solid biomass in the form of wood pellets. It also affects supply by requiring those supplying biomass to adhere to certain sustainability requirements, notably by placing restrictions on sourcing areas.

Netherlands – Green Deal Sustainable Biomass

The Dutch Ministry of Economic Affairs, Agriculture and Innovation's 2012 Green Deal on Sustainable Biomass is a joint declaration of intent between government, local authorities, business and civil society organisations. Energy producers declare the use of solid biomass and commit to a 60 % decrease in GHG emissions compared to fossil fuels, receiving financial incentives to do so. Primary biomass must be FSC-certified or equivalent, secondary biomass (sawdust, trimmings etc.) legally harvested. The deal thus affect demand for biomass by providing financial incentives to source this, and affect the supply by requiring certification and/or legality of supply.

Energy policy affecting factors

All the mentioned EU policies are formal policies, hence allocated under the Policy and Institutional factor. Nevertheless, the sustainability criteria of the RE-Directive(s) pertain to both land tenure and technological and economic factors.

The mandatory requirements prescribe legal harvest in accordance with national laws and this entails that illegally harvested biomass will not be legible for public support, hence the economic factor is influenced. The economic incentive to produce sustainably is increased. Also, fulfilment of the sustainability requirements as such is considered adhered to, if a supplier is certified by an approved certification scheme. Since most schemes contain standards for the management of the land on which the biomass is produced, the technological factor is influenced as well.

6.2.3 Trade policies

This section covers EU policies, foreign trade agreements, regulations and mechanisms relevant for the trading of the forest risk commodities subject to this study. These are listed in Table 6-2 below.

Table 6-2: Trade policies and trade related regulation.

Policy	Policy owner	Supply	Trade	Demand	Investors
EU initiatives					
Trade for All Towards a more responsible trade and investment policy' (COM(2015) 497 final)	DG TRADE	D	D	D	D
EU bilateral trade agreements (cumulative)	DG TRADE	D	D	D	D
Trade Sustainability Impact Assessments ('Trade SIAs')	DG TRADE	D	D	D	D
Council Regulation (EC) No 338/97 on the protection of species of wild fauna and flora by regulating trade therein (and implementing regulations)	DG ENV		D	D	
Commission Communication 'EU Action Plan against Wildlife Trafficking' (COM(2016) 87 final)	DG ENV		D	D	
Examples of Member State initiatives, such as the Dutch Sustainable Trade Initiative	Member State specific		D	D	D

EU's 'Trade for All' policy

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. It also promotes an ambitious and innovative sustainable development chapter in all trade and investment agreements and the taking into account of sustainable development considerations in all relevant areas of FTAs (e.g. energy and raw materials). Furthermore, it calls for increased transparency of supply chains and due diligence reporting improved consumer information via additional incentives for supply-chain due diligence reporting by large EU companies, including by publishing annually a list of reports submitted by 'responsible supply chain reporting' companies. Potentially, these policy mechanisms can impact with positive effects on many of the drivers of deforestation covering both supply, trade, demand and investors.

Free trade agreements (FTAs)

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 manage-

ment 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 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.

Sustainable trade impact assessments (trade SIAs)

The use of trade sustainability impact assessments (trade SIAs) may be a specific mechanism in the FTAs as part of stepping up efforts on avoiding deforestation. Potentially, the carrying out of thorough impact assessments (in line with the BR Guidelines) focusing on a broader range of potential instruments and measures to be implemented through FTAs, could assist in mitigating the drivers of deforestation.

The EU Wildlife Regulations

Regulation (EC) No. 338/97 on endangered species (the EU Wildlife Regulations) ensure the implementation of CITES⁽⁶⁴⁾ in the EU. The Regulations support CITES implementation and enforcement of rules related to tropical forest species and products, including timber. It also covers certain species of trees through controls on trade of the endangered species and plants. The Wildlife Regulations contribute to reducing timber extraction pressures and can control demands for certain tropical forestry products.

Action Plan against EU Wildlife trafficking

The 2016 Commission Action Plan against EU Wildlife trafficking aims at ensuring consistency among existing EU policies with a bearing on the illegal trade in natural resources. These include – amongst others – the EU Action Plan on Forest Law Enforcement, Governance and Trade (FLEGT) and the EU policy and legislation against illegal wildlife trade (implementing CITES). In particular, the Action Plan calls for stronger enforcement of existing rules, funding, diplomatic rules and multilateral cooperation. A number of species of tropical trees are listed under CITES and the EU wildlife trade regulations, and the Action Plan may thus potentially contribute to reducing illegal timber trade.

6.2.4 Development Cooperation policies

The table below (Table 6-3) lists the identified relevant EU initiatives.

⁽⁶⁴⁾ CITES: the Convention on International Trade in Endangered Species of Wild Fauna and Flora. See <https://www.cites.org/>.

Table 6-3: Development cooperation initiatives

Policy	Policy owner	Supply	Trade	Demand	Investors
EU initiatives					
Sustainable Development Goals: Ending deforestation by 2020	UN, Union and Member States	D	D	D	D
Our World, our Dignity, our Future - Proposal for a new European Consensus on Development, COM (2016) 740 final	DG DEVCO	D	D	D	D
Next steps for a sustainable European future – EU action for sustainability, COM (2016) 739	DG DEVCO/DG ENV	D	D	D	D
Shared vision, Common action: A stronger Europe - Global Strategy on EU's Foreign and Security Policy, June 2016	DG External Action	D	D	D	D
Development Cooperation Instrument	DG DEVCO	D	D	D	D
Global Public Goods and Challenges (under DCI)	DG DEVCO	D	D	D	D
Policy coherence for development (PCD)	DG DEVCO	D	D	D	D
EU Action Plan on Human Rights and Democracy 2015-2019	DG External Action				D
Commission Staff Working Document on Implementing the UN Guiding Principles on Business and Human Rights ('Ruggie Principles')	DG External Action				D

UN Sustainable Development Goals

The UN Sustainable Development Goals (SDGs) include the ambitious target of ending deforestation by 2020 (SDG 15.2) and ensure sustainable consumption and production patterns (SDG 12) by achieving sustainable management and efficient use of natural resources by 2030 (SDG 12.2). The EU and its Member States are obliged to comply with the commitments made in the context of the United Nations (TFEU Art. 208(2)). The SDGs also promote public procurement practices that are sustainable in accordance with national policies and priorities (SDG 12.7), and that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature (SDG 12.8). The SDGs in particular can encourage governments, multilaterals and private actors to improve institutional and policy factors causing deforestation, e.g. infrastructure extension and timber extraction. The SDGs may also enhance efforts in relation to influencing cultural factors, as countries can measure progress and citizens can hold institutions accountable. Overall, the 2030 Agenda catalyses a joined-up approach between the EU's external action and its other policies

and coherence across EU financing instruments – the SDGs are thus to be fully integrated into the European policy framework and Commission priorities.

The European Consensus on Development

The EU's development policy plays a central role in the EU response to the 2030 Agenda. The European Consensus on Development aims to update the development response to current global challenges and promote the implementation of the 2030 Agenda in partnership with developing countries, thus providing a common approach to development cooperation and policy coherence. The European Consensus emphasizes *inter alia* that the EU will support sustainable management of natural resources including forests, will promote co-benefits from sustainable management and enhance integration of sustainability in all cooperation sectors and enhance the profile of environment issues in dialogues with the EU's partners. It also highlights that sustainable agriculture remains a key driver for poverty eradication and sustainable development. Investments must therefore *inter alia* protect soils, prevent deforestation and maintain healthy ecosystems. The EU will also seek to improve governance relating to the tenure of land and forests and for sustainable management of natural resources.

European Union Global Strategy

The European Union Global Strategy stresses that prosperity for the EU requires fulfilment of the Sustainable Development Goals worldwide as well as in Europe. This also involves an open and fair international economic system and sustainable access to the global commons. The interest in sharing global economic and environmental rules is stressed in this respect. It is emphasized that environmental degradation and resource scarcity know no borders, and the EU will seek to enhance energy and environmental resilience and support governments to devise sustainable responses to food production through development, diplomacy and scientific cooperation.

Development Cooperation Instrument (DCI)

Actions financed under the Development Cooperation Instrument (DCI) are implemented under direct centralised management by the Commission and/or through the devolved Union Delegations with the possibility of joint management where appropriate for specific actions, e.g. with UN agencies or IFIs. The main programming document is the Multiannual Indicative Programme (MIP), which includes indicative financial allocations for priority areas of action. MIPs are drawn up for both geographic programmes (on the basis of a strategy document) and thematic programmes.

Global Public Goods and Challenges Programme (GPGC)

Among the thematic programmes of the DCI, the Global Public Goods and Challenges Programme (GPGC) addresses *inter alia* climate change, environment, energy, human development, food security and migration. The GPGC is of particular interest for further supporting the halting of deforestation and degradation in line with EU and international obligations, as it in principle can address and support the implementation of multilateral environmental agreements.

Policy coherence for development (PCD)

Policy coherence for development, notably the requirement to ensure consistency between different areas of EU's external action and between these and other policies is embedded in the 2030 Agenda. This implies mainstreaming sustainable development in all related EU policies and across international frameworks. Policy initiatives should therefore, whenever relevant, indicate how they contribute to sustainable development in developing countries. Policy coherence for development is potentially an important mechanism for both the EU and the Member States in the promotion of future

EU efforts to halt deforestation and degradation, thus encouraging joint analyses across Commission services, institutions and Member States.

EU Action Plan on Human Rights and Democracy

The EU Action Plan on Human Rights and Democracy (2015-2019) does not target deforestation explicitly, but promotes – in line with the UN Declaration on the Right of Indigenous Peoples – the economic, social and cultural rights of indigenous peoples related to their land rights. Its potential for dealing with deforestation issues is thus limited.

UN Guiding Principles on Business and Human Rights

The EU staff working document on implementing the UN Guiding Principles on Business and Human Rights (UNGPs) addresses corporate social responsibility, and the Commission has actively encouraged Member States to develop national action plans in line with the UNGPs. The framework can potentially be used for promoting and advancing the human rights of indigenous peoples affected by deforestation, whether in relation to agricultural expansion, infrastructure extension and/or wood extraction projects. However the UNGPs’ potential impacts on deforestation may be less effective because they are not explicitly focused on deforestation issues.

6.2.5 Agricultural policy

European agriculture serves a double role in relation to deforestation; both as a producer of crops that can substitute for FRCs with the same uses, and as importer of mainly protein feed based on crops that are associated with deforestation, such as soy (cake). Both contribute to EU (net) demand for FRCs imported from third countries.

The EU Common Agricultural Policy (CAP) contains a range of initiatives that are relevant for one or both of these roles. The subject of the CAP is EU agriculture and forests, as well as import and export of agricultural commodities and products.

The EU CAP initiatives identified are listed in Table 6-4 below.

Table 6-4: EU CAP initiatives

Policy	Policy owner	Supply	Trade	Demand	Investors
EU initiatives					
Regulation No. 1308/2013 on common organisation of markets in agricultural products (and related EU legislation)	DG AGRI			D	
Regulation (EU) No 1305/2013: European Agricultural Fund for Rural Development (EAFRD)	DG AGRI			D	

The Common Market Organisation regulation of the CAP holds measures to intervene on markets and prices for agricultural products in the internal market. Of relevance in the context of deforestation is the effect of the Common Organisation of Markets (#71) regulation. This initiative introduces a number of trade barriers via e.g. import

tariffs ⁽⁶⁵⁾, sector aid schemes and import licences that essentially protect EU production. By increasing barriers for third party exports to the EU and at the same time improving the financial viability of EU farmers (through Direct Payments and RDPs), it effectively increases the EU’s own production of a number of FRC or their substitutes, as compared to a situation without these interventions. This is notwithstanding that the trade interventions of the CAP may have other implications for third party producers and the factors that cause deforestation, such as that driven by difficult livelihoods and poverty. EU is a main importer of several FRCs ⁽⁶⁶⁾ and soy imported for feed to EU farm animals is a concern ⁽⁶⁷⁾.

The second EU regulation mentioned is the main legislation behind the Rural Development Programmes (RDPs) (#65). RDPs includes EU-MS co-financed, voluntary measures targeted at promoting sustainable growth and inclusion at the regional scale. The measures represent opportunities for financial support or advice to farmers (or other actors). As such, the RDPs address the 'economic factor' by providing various sorts of compensation for income foregone, non-productive investment support or support to maintaining production in areas of constraint, which improve the competitiveness of EU agriculture and increase EU production compared to a situation without this. This influence relates in particular to articles 18 and 31, which concern restoration of agricultural production after natural disasters and payments to areas facing natural constraints, both of which *inter alia* increase EU production. The RDPs are further relevant because they hold examples of voluntary measures that deal with environmental protection, sustainability, viability and production improvements for holdings or forest landowners that can be up-scaled or used as models for action in third countries.

6.2.6 Other policies: Financial Disclosure

This section includes one piece of regulation found to be of relevance (Table 6-5).

Table 6-5: Financial disclosure policies

Policy	Policy owner	Supply	Trade	Demand	Investors
EU initiatives	EC				
Directive 2014/95/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups	DG FISMA				D
Non-binding guidelines on non-Financial information (93)					

The Directive on disclosure of non-financial and diversity information sets out that large public-interest entities and groups shall disclose annual information, starting from 2018 on e.g.:

⁽⁶⁵⁾ Fern (*Duty free*; 2015) lists in a recent report a number of import tariffs on risk commodities, in the range of <1 to 10 %. None of these differentiate between legal or illegal FRCs, or whether the FRC originate from recently deforested land. In a complementary study, FERN outlines how these could be used to differentiate between deforestation and deforestation free commodities (Fern, WTO; 2015).

⁽⁶⁶⁾ VITO, 2013a and analysis in previous chapters.

⁽⁶⁷⁾ WWF, 2015: Eating up forests – how EU consumption drives deforestation and land conversion.

- Environmental matters,
- Social and employee aspects,
- Respect for human rights,
- Anticorruption and bribery issues.

The aim of the Directive is, amongst others, to encourage businesses to divulge information on sustainability such as social and environmental factors with a view to identifying sustainability risks and increasing investor and consumer trust to ensure a sustainable global economy by combining long-term profitability with social justice and environmental protection.

Commission guidelines on disclosure

The legislations thus aims to improve CSR in general through transparency, but the relevance of the legislation for efforts to reduce deforestation by the private sector depends on the major FRC importers and users being subject to the legislation and whether they chose to include information on policies, actions and outcomes to halt deforestation. The directive sets out that the Commission shall publish guidelines for disclosure, but these are expected after the deadline for this report. Until then, companies are advised to follow UN Global Compact, OECD and ISO 26000 guidelines.

Notwithstanding the content of the expected Commission guidelines, the Directive may be useful in supporting future action on deforestation. In particular, if the guidelines hold information on how to gather and report information on land footprint, deforestation, or the legality of FRCs. Reporting and disclosure of information remains an issue for many private sector actors, even some of those that have taken zero-deforestation pledges. The guidelines may help remove practical barriers, if any to this.

6.3 REDD+

There are a significant number of initiatives globally that relate to REDD+. These are undertaken by all sorts of actors, and with specific as well as very general objectives.

REDD+ was first introduced into the COP agenda at its eleventh session in Montreal, and a comprehensive framework of rules was approved at COP19 in Warsaw in 2013. REDD+ is essentially a performance-based mechanism, aiming at incentivising countries to reduce emissions from deforestation and forest degradation. Ultimately, it creates a financial value for the carbon stored in forests, thus offering incentives for forest countries to 'keep trees standing'. By increasing the opportunity cost of deforestation, REDD+ can in principle counteract drivers including agricultural expansion. Indeed, REDD+ is one of the few measures that has a direct potential to address agricultural expansion as the main driver of deforestation.

In various countries, REDD+ is now moving beyond readiness and into its investment phase, thereby scaling-up the policies and measures they have designed to address the direct and indirect drivers of deforestation and forest degradation. Both readiness and investment phase are mainly funded by public climate finance.

In a few countries, REDD+ performance-based incentives are being rolled out, whereby countries receive benefits for reduced emissions from deforestation and forest degradation below a pre-identified reference level. Unlike many of the other initiatives considered in this report, REDD+ differs in that it aims to utilise market-based tools to reward performance in curbing deforestation. It incentivises both national and sub-national bodies to implement policies and measures to achieve REDD+ objectives.

REDD+ can be considered a broad umbrella, with many activities and programmes falling under the REDD+ objectives (see box). How well REDD+ as a measure reduces deforestation and forest degradation therefore ultimately depends on the policies and measures adopted within its framework.

REDD+ 'objectives', as laid down in decision 2/CP.13 (2007)

1. *Invites* Parties to further strengthen and support ongoing efforts to reduce emissions from deforestation and forest degradation on a voluntary basis;
2. *Encourages* all Parties, in a position to do so, to support capacity-building, provide technical assistance, facilitate the transfer of technology to improve, *inter alia*, data collection, estimation of emissions from deforestation and forest degradation, monitoring and reporting, and address the institutional needs of developing countries to estimate and reduce emissions from deforestation and forest degradation;
3. *Further encourages* Parties to explore a range of actions, identify options and undertake efforts, including demonstration activities, to address the drivers of deforestation relevant to their national circumstances, with a view to reducing emissions from deforestation and forest degradation and thus enhancing forest carbon stocks due to sustainable management of forests;

As REDD+ has evolved over time, the concept has also broadened beyond what is being negotiated within the UNFCCC, with many actors developing and implementing initiatives to address deforestation and forest degradation. In particular private and public sector initiatives around sustainable global supply chains are highly complementary to REDD+, and offer an additional opportunity for the private sector to engage on ways to reduce (emissions from) deforestation and forest degradation (i.e. in addition to engagement through the carbon market, private sector engages increasingly through commodity supply chains). These initiatives are addressing directly agricultural expansion, the major driver of deforestation, through supply chain interventions (e.g. certification, supply chain transparency...), investments (e.g. risk assessments) and through establishing the enabling environment to guarantee responsible commodity sourcing and production (e.g. land-use planning, impact monitoring, public-private partnerships...). As such, these initiatives are contributing to national REDD+ and NDC implementation.

In turn, ongoing REDD+ investments are mainly focused on building stakeholder capacities, MRV systems, increased understanding of drivers, national strategies, land-use planning, clarification of tenure, etc. These are all very valuable to assist countries in progressing on their low carbon and sustainable growth agenda – that may include responsible commodity sourcing and production. In fact, responsible supply chain approaches, primarily driven by the private sector, do not have the leverage to initiate the necessary land-use governance reforms, hence the need for complementary REDD+ (performance-based) incentives and approaches.

As REDD+ implementation progresses and is increasingly entwined with responsible commodity sourcing and production, working at jurisdictional level (i.e. with national or local governments) has gained momentum as it allows for the achievement of various objectives at larger scale. Though there is no single definition of a jurisdictional approach, it is considered that the jurisdictional level is closer to where land-use decisions are taken and commodity production is happening. The jurisdictional approach requires the participation of government together with other stakeholders to address complex issues in relation to land use governance, incentives, monitoring etc.

The European Commission commits approximately EUR 25 million a year to initiatives piloting REDD+ in Asia, Africa, and Latin America ⁽⁶⁸⁾. In addition, various EU Member States and institutions are listed in the inventory as involved with REDD+ on a bilateral basis, e.g. #109 (Germany) and #157 (the Netherlands), a multilateral basis, e.g. # 108 (The Nordic Climate Facility), or as part of multinational institutions, e.g. #18 (BioCarbon Fund Initiative for Sustainable Forest Landscapes). Even within the EU, there are various initiatives carried out by Member States with different priorities being pursued; for example, Germany focuses support on the biodiversity benefits of REDD+, while the UK focuses on forest governance ⁽⁶⁹⁾, which may or may not be mutually reinforcing or efficient. It would be desirable to review in more depth the REDD+ projects that are funded by EU bodies and the Member States to understand whether synergies are being identified and properly exploited and if further coordination would be desirable. In doing so, it will be important to consider what safeguards are being relied upon by different donors, what good practices can be identified in this regard, and whether enhanced coordination could improve the uptake of such practices.

The EU and REDD+

The EU's approach to REDD+ fits in with other deforestation and carbon emission initiatives, including the Forest Carbon Partnership Facility, the EU REDD Facility, and the UN REDD programme. The EU has also shown an interest in integrated actions that serve both REDD+ and FLEGT objectives at the same time, thereby in particular focusing on forest and land-use governance.

REDD+ pilot projects have shown that sound governance is a key precondition for the success of individual REDD+ projects, and arguably also for REDD+ as an approach. FLEGT can thus support successful REDD+ implementation by supporting better governance. By rewarding the maintenance and enhancement of forest carbon stocks, REDD+ can help address drivers of deforestation that are not directly addressed by FLEGT, such as agricultural expansion, while also recognising the role of forests within the climate change agenda. The potential of a more integrated approach between the FLEGT action plan and REDD+ could thus be considered in the context of future forest protection efforts.

While REDD+ can contribute to addressing supply-side drivers of deforestation and supporting commodity production to meet demand side standards, it cannot address the demand for products responsible for forest loss. EU demand contributes to driving the supply of such products and the profitability of associated trade, which is unlikely to be fully offset by REDD+ incentives alone.

6.4 Analysis of private sector initiatives

This section presents key trends and structures in the private sector and in civil society action. It is focused on the initiatives identified in the inventory mapping existing initiatives, but observations are supplemented by grey literature. It includes three crosscutting, in-depth assessments on pledges, certification schemes and transparency initiatives. It further includes an overview of private sector initiatives per commodity or group of commodities.

6.4.1 Commodity-level assessment of private initiatives

According to the 2016 review of NYDF progress by Climate Focus, the majority of pledges concern palm oil, while several other forest risk commodities remain largely

⁽⁶⁸⁾ http://ec.europa.eu/clima/policies/forests/deforestation_en

⁽⁶⁹⁾ <http://www.euredd.efi.int/initiatives>

unaddressed, such as meat (cattle) and soy. The recent Supply-change report on company commitments confirms this picture (see Figure 6-2).

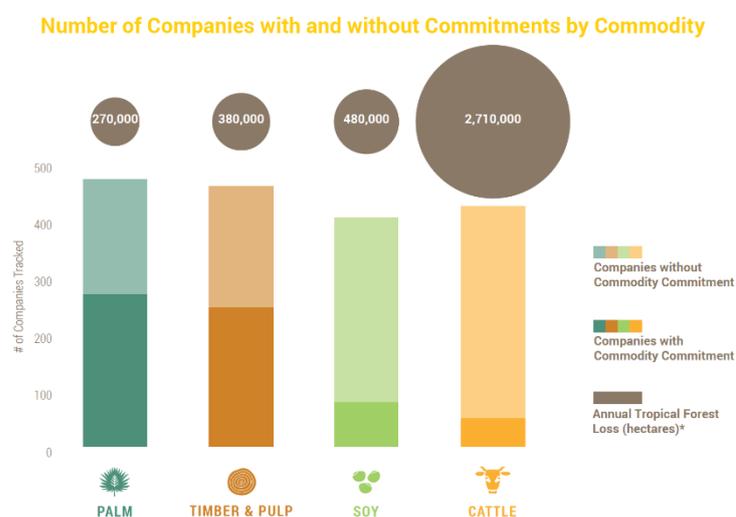


Figure 6-2. Overview of company commitments. Source: www.supply-change.org, September 2017.

The table below (Table 6-6) sums up the number of private sector and civil society initiatives on forest risk commodities identified and assessed for this study ⁽⁷⁰⁾. Of the 57 initiatives, nearly half (25) have an unspecified commodity focus (Table 6-6). The most initiatives specified for a commodity focus are on Soy (14), Palm oil (13), Timber (non-coniferous – 11) and beef (10). Solid and liquid bioenergy are only addressed by one initiative each, and there are no initiatives on maize and rubber. Particularly for Coffee, the number of initiatives is low, which is a concern. Several pressures, such as the growing global demand for coffee in the future together with increased pressure for geographical relocations due to impacts of climate change, may lead to additional deforestation (Killeen and Harper, 2016). *Supply-change.org* in a 2017 review ⁽⁷¹⁾ finds that most company commitments concern palm oil and timber, and alarmingly few target beef.

Table 6-6: Number of private sector and civil society initiatives on forest risk commodities

Commodity	Unspecified	Soy	Palm oil	Beef/meat/leather	Cocoa	Maize	Coffee	Rubber	Timber	Pulpwood	Wood pellets	Biodiesel	Bioethanol
No. of initiatives	25	14	13	10	1	0	2	0	11	5	1	1	1

The majority of the commodity-specific initiatives are focused on one commodity, while a few address 3 or more commodities (8 initiatives). The 'Nestle responsible

⁽⁷⁰⁾ Identification concluded April 2016.

⁽⁷¹⁾ Stephen Donofrio, Philip Rothrock, and Jonathan Leonard, *Supply Change: Tracking Corporate Commitments to Deforestation-free Supply Chains, 2017* (Washington, DC: Forest Trends, 2017).

sourcing code and zero net deforestation pledge’ (151) is by far the most comprehensive initiative, addressing Soy, Palm oil, Beef, Cocoa, Maize, Coffee, and Timber.

Allocating the initiatives among trade nodes, as in the figure below (Figure 6-3), shows that 20 of the 'unspecified' initiatives address supply chains. Commodity-specific initiatives in turn address mostly demand (global and EU) and trade nodes – with the exception of timber. For the case of timber, the relatively higher number of supply chain initiatives can be explained in part by FLEGT and in part by the high level of attention that forests, deforestation and timber have received over the years compared to more industrial goods and commodities. Soy, Palm oil, Beef, and Timber exhibit a fairly balanced coverage along the trade nodes. However, for soy and beef, only one initiative targets the supply.

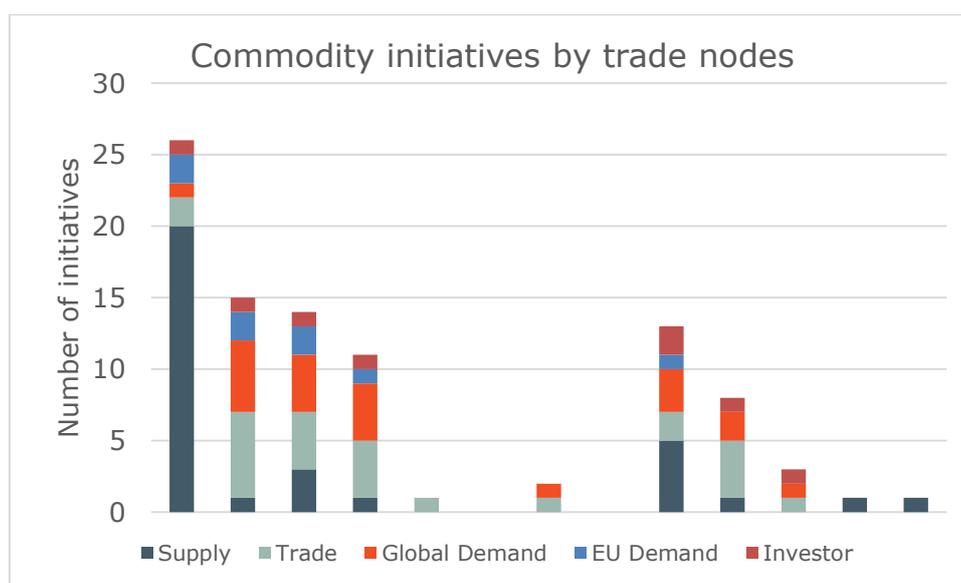


Figure 6-3: Commodity initiative distributed by trade node. One initiative may cover multiple nodes.

6.4.2 Progress on zero-deforestation pledges and commitments

In a recent assessment of the progress towards eliminating deforestation from the production of agricultural commodities, it is found that more than 415 international companies have pledged to reduce or eliminate deforestation associated with food or household products ⁽⁷²⁾. Some of these have signed up to the New York Declaration on Forests (NYDF, #3), while some are part of the 250 companies ⁽⁷³⁾ screened as part of the Forest500 initiative (#168). *Supply-change.org* further follows 550 companies with pledges or commitments, most of which are also part of the two other mentioned reviews. All three report a continuous increase in company commitments in recent years, and *supply-change.org* ⁽⁷⁴⁾ further finds that in 2017 the number of commitments backed by transparent data showing progress has increased from 36% of commitments in 2016 to 51% of commitments in 2017.

The basic rationale behind the commitments or pledges and the action to meet them is to exclude deforesters from the market by reducing demand for the commodities they produce. Yet this is only realistic when a critical mass of companies acts in concert. Critical mass is building on pledges concerning palm oil, but the other FRCs lag behind

⁽⁷²⁾ Climate Focus: Progress on the New York Declaration on Forests, Goal 2 assessment. November 2016.

⁽⁷³⁾ Rautner et al., The Forest 500 programme. Global Canopy Programme, 2015.

⁽⁷⁴⁾ Stephen Donofrio, Philip Rothrock, and Jonathan Leonard, *Supply Change: Tracking Corporate Commitments to Deforestation-free Supply Chains, 2017* (Washington, DC: Forest Trends, 2017).

⁽⁷⁵⁾. Also, initiatives aiming at reducing demand need to be complemented by actions down the supply chain in order to ensure production can meet the demand-side requirements.

The New York Declaration on Forests (NYDF) is a voluntary and non-legally binding political declaration, which grew out of dialogue among governments, companies and civil society, linked to the United Nations Secretary-General's Climate Summit held in New York in 2014. The Declaration pledges to halve the rate of deforestation by 2020, to end it by 2030, and to restore hundreds of millions of acres of degraded land. Fifty-three companies signed up at the summit, with many more joining since. The recent assessment by Climate Focus on the progress towards goal 2 of the NYDF shows that while most (56-87 % depending on type of standard) of the 415 companies have adopted policies or strategies to meet their pledge, only 45 % of the companies disclose information on their progress. Reportedly, two-thirds of the relevant companies have traceability systems.

The same picture is observed for Consumer Goods Forum members, many of whom are partners to NYDF or have taken other pledges. In a 2015 analysis of progress among Forest 500 companies (see footnote 73, previous page), a key observation is that only 7 % of companies are zero or net-zero deforestation free, and that the majority of companies have made little progress, failing to adopt policies or failing to disclose information.

The EU Retail Forum (#172) contains 182 commitments by EU retailers on, among other things, sustainable sourcing, recycling, labelling and certificates. However, only TESCO and Carrefour take specific pledges to achieve zero-deforestation. Some of the companies under the EU Retail Forum have made similar pledges under NYDF or Forest500, or implement individual initiatives (e.g. IKEA, #154). A group of Norwegian food sector companies committed in 2015 to a charter, which should serve as appendix for all future supply contracts, requiring suppliers to follow ProTerra Certification ⁽⁷⁶⁾. The Norwegian commitment represents an approach to pledges where the action is clear and tangible and includes a legally binding element.

The findings show that implementation is difficult and lacking, as pointed out by the EU REDD Facility recently ⁽⁷⁷⁾. The journey towards sustainable or zero deforestation supply chains can be seen as built of stepping stones, each step providing an improvement. This does, however, foreshadow the risk that little effect will be achieved globally if the holistic and market view is not taken into consideration ⁽⁷⁸⁾. If substantial demand remains for commodities that are not deforestation-free, then the market may be split and impact on deforestation would be reduced. This is further discussed in the next subsection on certification schemes.

Altogether, recent research records five risks for the approach 'corporate deforestation pledges' ⁽⁷⁹⁾:

- 1 The risk of splitting the market;
- 2 The risk of deepening rural food insecurity and poverty;

⁽⁷⁵⁾ Earth Innovation Institute, 2016: Making Corporate Deforestation Pledges Work

⁽⁷⁶⁾ Norwegian commitments on sustainable soy and forests, 14 October 2015

⁽⁷⁷⁾ EU-REDD Facility: Deforestation free commodity trade, 2016.

⁽⁷⁸⁾ Rainforest Alliance Position Paper, 2015: Halting Deforestation and Achieving Sustainability in Agricultural and Forestry Supply Chains

⁽⁷⁹⁾ Earth Innovation Institute, 2016: Making Corporate Deforestation Pledges Work.

- 3 The risk of penalizing farmers and businesses that are striving to keep up;
- 4 The risk of antagonizing governments and farmers; and
- 5 The risk of creating too many new rules as requirements for producers.

The four last of the above risks revolve around social and economic dynamics and interlinkages in a given area or region. Not bringing stakeholders or governments on board, not supporting local strategies or developments and not taking into consideration local circumstances may create tensions, distrust or wrong incentives. In short, the risks can be mitigated by, e.g., involving stakeholders, engaging in roundtables and international standards, and making sure consistently to compensate for sustainable production and lost land. In particular, partnering with local governments and bringing together local stakeholders within a jurisdictional approach, offer a way to reduce the risk of leakage (i.e. shifting deforestation to other actors within the jurisdiction) and to make certification cheaper, more efficient and more inclusive of small producers.

6.4.3 Certification schemes

Pledges and sustainability standards are intrinsically linked. The pledges made by a long list of companies to work towards zero-deforestation supply chains, often will rely on third party certification of the sustainability and/or legality of the supply chain, to prove progress and ensure transparency. As the EU Retail Forum data shows, many companies have pledged to ensure sustainable supply or a certain level of certification.

Certification can be obtained for a forest, a supply chain or an FRC product, and are based on third-party audits measuring procedures, systems and performance against predetermined standards, conducted for certifying bodies accredited to award the relevant certificates.

Forest Certification and Chain of Custody

In the inventory, the main forest certifications FSC (#132) and PEFC (#133) are included, but forest area certification in many tropical countries remains low. By 2002, 2-6 % of tropical forests were certified ⁽⁸⁰⁾, and in 2013, FSC reported that 4-5 % of ITTO-member tropical forest areas were certified by FSC alone. FSC reports a 50 % increase since 2007. PEFC certification is even lower, with less than 6 % of total PEFC certified forest found in Latin America, Asia and Africa altogether. Both of these frameworks are quite complex and may be challenging to implement in many tropical countries. The Rainforest Alliance legality verification (#134) provides for verification that timber originates from forest sources that have documented legal rights to harvest. This fits well with the EUTR system, and conceptually with the sustainability requirements underway for solid biomass for energy purposes under the post-2020 Renewable Energy Directive (currently being negotiated).

Several of the certification schemes offer Chain-of-Custody (CoC) certification that essentially serves to testify that a trader or retailer is in control of its supply chains and that these respect certain sustainability standards. Both FSC and PEFC offer such CoC certification, and around 32 000 and 19 000 CoC certificates have been issued globally by the two respectively.

⁽⁸⁰⁾ ITTO, 2005: *Forest certification: pending challenges for tropical timber*.

Agricultural commodities

There are a number of certification initiatives targeting one or more agricultural commodities⁽⁸¹⁾. These include RSPO, RTRS, RSB, GTPS⁽⁸²⁾, ProTerra and ASC, which are all international roundtable or industry-NGO collaborative schemes. The former three are commodity-specific, and the latter two are specific to all agricultural commodities. Other certification schemes relevant to agriculture could be Fairtrade, Rainforest Alliance, UTZ and Naturland. ISCC could also apply, but this solely covers GHG emissions. All the mentioned schemes exclude land that has been subject to an initial conversion from forests – i.e. has been deforested. However in very different ways, ranging from 'avoid negative impacts on protected areas' (Fairtrade) to 'prohibiting clearing of primary forest'⁽⁸³⁾. Notwithstanding, these schemes in principle rule out any agricultural commodity being certified if the land it is produced on has been subject to deforestation.

The 'Roundtables' are built on the same recipe, being a collaborative setup where a number of stakeholders 'meet around a table', and discuss and agree on a certain set of standards that are practical to implement, yet solid and comprehensive. One such example is the fact that both RSPO and RTRS recognize that agricultural expansion is difficult to prevent, and therefore recently have added conditions for how expansion must happen if non-avoidable. With the conditions comes guidance and maps, and the enterprise will have to conduct a 'HCV⁽⁸⁴⁾ assessment' that includes both individual plant and ecosystem considerations⁽⁸⁵⁾. The expansion will then have to avoid these, and mitigate risks. The idea of a 'Deforestation Environmental Impact Assessment' may help make unavoidable deforestation more intelligent, yet may also risk 'blue-printing' some deforestation.

Recently the HCS approach is gaining increasingly tracking with private sector and NGOs. The HCS approach provides a tool to help companies distinguish forest areas from non-forest areas. It uses vegetation classifications (e.g. High Density Forest; Medium Density Forest; Low Density Forest; Young Regenerating Forest; Scrub; Clear/Open Land), which can be identified using satellite imagery or other remote sensing technologies, as well as field plot measurements. HCS and HCV are similar but distinct concepts. HCV is intended to maintain environmental and social values of particular importance. HCS is a strategy to for achieving zero deforestation by identifying and protecting viable and carbon-rich natural forest areas, areas of HCV and community lands of particular importance. The role of local and national governments in the use of this approach need to be strengthened for greater effectiveness, in particular:

- 1 to support national interpretations of the HCS standard, which can complement and precise existing provisions regarding forests of particular importance in the national forest policy or legislation.
- 2 to map such forests across entire regions subject to deforestation, involving local stakeholders in the process (the HCS mapping being ideally integrated into a broader participatory land-use planning process)

The certification schemes still come with some principal limitations to be handled. As with the pledges, one key issue is the challenge of monitoring, disclosure and en-

⁽⁸¹⁾ Initiatives 137-144 and 179 in inventory

⁽⁸²⁾ Brazilian Roundtable on Sustainable Livestock (GTPS), #179

⁽⁸³⁾ Findings taken from Smit et al., 2015: Implementing deforestation free supply chains – certification and beyond.

⁽⁸⁴⁾ High Conservation Value

⁽⁸⁵⁾ ISEAL Alliance, 2016: How sustainability standards can contribute to landscape approaches and zero deforestation commitments

forcement. There are recent examples of certified producers being in a state of non-compliance for years, large variations in enforcement on the ground and lack of capability to implement once training ends or verification has been achieved. This could indicate a need to step up support and build capacity among producers.

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.

Landscape, jurisdiction, and supply chain

Lastly, one main concern with certification (of individual producers or supply chains) is that they fail to see the full context and surroundings. Even if 9 out of 10 commercial 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⁽⁸⁶⁾. 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⁽⁸⁷⁾. As an example, the State of Sabah in Malaysia is planning to qualify for full jurisdictional RSPO certification⁽⁸⁸⁾. Jurisdictional approaches resemble the FLEGT approach in VPA countries, in that it covers an administrative area (national in the case of VPAs) and aims at ensuring compliance with legality and/or sustainability standards by all actors and stakeholders involved in a specific supply chain (timber), and not only the actors involved in certification. It thus raises the bar for the whole sector and ensure illegal/unsustainable operators cannot undercut legitimate operators by offering cheaper products. Integrating supply chain approaches with jurisdictional approaches requires a combination of financial, fiscal, technical and trade incentives to trigger the required change at jurisdictional level. There could be achievable efficiency gains and reduced administrative costs if the VPA process partly or fully overlaps with those of jurisdictional approaches for zero-deforestation commodity production.

6.5 Transparency in FRC trade

Global trade in FRCs is complex, time-consuming to unravel completely, and long-term time series datasets are few if existing at all. Good data can help understanding supply chains in more detail for the benefit of research, companies and policy makers. Under UNFCCC, the CBD or other international conventions, obligations to submit national reports and inventories exist. In the case of the Kyoto Protocol and the Paris Agreement, developed countries are to submit inventory information on so-called Harvested Wood Products, including some trade data on timber. There is no multilateral convention or EU framework that requires national-level reporting on trade in FRCs or indeed deforestation rates, so until now, data on the trade, origin and value of FRCs are scattered and incomplete. Initiatives to deal with this situation are mainly private.

⁽⁸⁶⁾ ISEAL Alliance, 2016: How sustainability standards can contribute to landscape approaches and zero deforestation commitments. See also: <http://www.rspo.org/certification/rspo-next>.

⁽⁸⁷⁾ WWF, 2016: Jurisdictional approaches to zero deforestation Commodities.

⁽⁸⁸⁾ <http://www.rspo.org/news-and-events/announcements/rspo-congratulates-the-sabah-state-government-for-its-recent-milestone-decision-towards-palm-oil-sustainability>

Over the last couple of years, there has been significant progress in the availability and use of satellite imagery to monitor deforestation and forest degradation, even in close to real-time. This kind of spatial information is also increasingly accessible to public and private actors, as well as civil society organisations, and at a reasonable cost. However, monitoring commodity trade flows and their environmental and social impacts continues to be a challenge. The routes commodities take and the actors involved are known for only a fraction of the global trade in commodities, such as for certified products. Information is not easily accessible nor compiled in useful ways. Thus, the many public and private sector actors involved in trading, transforming or consuming such commodities are often not aware of the adverse effects and business risks associated with their activities.

There is an urgent need to better understand complex supply chain connections to stop deforestation associated with traded commodities, and to minimise and avoid the associated environmental and social risks. A clear understanding of where commodities originate, how they move around the globe and where they end up will help to identify strategic targets and entry points to achieve more sustainable global supply chains. A number of initiatives are now underway linking information on local drivers of deforestation with social, environmental and legal indicators as well as with financial and fiscal information, disclosing information about companies and governments action in production areas and along supply chains. These information systems will increasingly prompt public and private actors to act more quickly to ensure their risk exposure reduces over time. Interventions would need to promote the availability of supply chain related information and support assessment of related forest risk to accelerate action by stakeholders on both the demand and supply side as well as by investors in FRC.

Initiatives include the Transparency for Sustainable Economies (Trase) (#171) by SEI and GCP⁽⁸⁹⁾ and the Supply Change project (#166) by Forest Trends, all of which provide information on trades and volumes of FRCs. A critical barrier for increasing transparency is that most information on shipments and batches of FRCs are confidential, apart from data disclosed in customs clearings or as part of a certification or pledge progress report.

Transparency for Sustainable Economies (Trase)

Trase is a sustainability platform, launched in 2016, which can be used by governments, companies, investors and others to better understand and address environmental and social impacts linked to their supply chains. It allows assessing the production, trade, and demand of a various forest risk commodities. Relying on various sets of production, trade and customs data, it illustrates the flows of globally-traded commodities from production landscapes to consumer countries at scale. It can thus be used to assess questions such as:

- > Where are commodities produced?
- > Who trades in them?
- > Where are they consumed?
- > What are the sustainability risks and opportunities?

Trase's supply chain mapping relies on the triangulation of several key sources of data. To trace exports back to production landscapes it uses sub-national production data from national governments, publically available data on the supply chain logistics of companies, as well as data on the sub-national origin of shipped goods gathered at port level. The mapping of global trade flows relies chiefly on customs decla-

⁸⁹ <https://trase.earth/> by SEI and GCP.

rations and bills of lading, which are based on legal contracts between trading partners, and on official global trade data (e.g. from the UN Food and Agricultural Organization) to account for re-exports between countries.

Trase is continuously expanding and currently focusses on a handful of commodities – including soy, beef, palm oil and timber. More data and information on commodities and risk factors will be integrated in the tool as they become available. A few drawbacks include the lack of aggregated EU-level data (only available for individual Member States) and lower transparency due to the combined use of several sets of data, which make it difficult to see which dataset drives what result. The tool can be accessed at: <https://www.trase.earth/>.

Trase can be seen as a first try at increasing transparency in supply, trade, and demand for forest risk commodities. This is done using export and import data, especially customs data, to link commodities bought in certain regions to production of said commodity in another region. As lack of transparency and insufficient knowledge on where commodities originate and under which circumstances they were produced is relevant when assessing deforestation as a result of demand for commodities. Tools such as Trase will be valuable in furthering our understanding of this and increasing transparency.

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APPENDIX A OVERVIEW OF INITIATIVES

Table A-1 Overview of number of initiatives according to underlying drivers and supply chain nodes. Own production based on modification of framework by Geist & Lambin (2001). Further information on individual initiatives available in the full inventory published as a separate document.

	Supply	Trade	Demand side	Investors	
	Non-EU Supply/ Producer (concerning producers of commodities outside of the EU)	Chain/Trading (pertaining to, targeting or done by marketers, traders, retailers and middlemen)	Global, non-EU specific, consumption	Specific to EU Consumption	(Initiatives addressing investors at one, more or all stages of the supply chain)
Economic factors					
Market growth & commercialisation					
Economic structures	<ul style="list-style-type: none"> > Amazon Fund - Norway and Brazilian Development Bank (BNDES) (126) > The Netherlands Forest climate fund – Bosk- limaatfonds (127) > The International Climate Fund (ICF) (UK) (128) > Norway's International Climate and Forest Initiative (NICFI) (contributing to the implementation of REDD+) (129) > The Nordic Climate Facility (NCF) (124) > EU Development Cooperation Thematic Programme 'Global Public Goods and Challenges' for the period 2014-2020, Commission Implementing Decision C(2014) 5072 final (mainly component 2 on Ecosys- 	>	<ul style="list-style-type: none"> > EU-Ukraine Deep and Comprehensive Free Trade Area (82) > Trade agreement between EU and Columbia and Peru (to be extended to Ecuador (no number) > The EU - South Korea Free Trade Agreement (83) > EU - Canada Comprehensive Economic and Trade Agreement (CETA) (84) > The EU - Central America Association Agreement with a strong trade component (85) 	<ul style="list-style-type: none"> > Directive (EU) 2015/1513 (on indirect land-use change) (ILUC Directive) (61-b) > National green public procurement requirements (116-b) > Funding instrument EU LIFE+ for forestry projects (43) > UK - Renewables Obligation Order (114) > Belgium - Flanders - Flemish Green Power Certificates (111) > Belgium - Wallonia - Green Certificates (112) > Netherlands - Green Deal Sustainable Biomass (115-a) > Directive 2003/87/EC on the EU Emissions Trading (56) > EIB and EBRD forest-related projects (92) 	>

	Supply	Trade	Demand side	Investors
	<p>tems)</p> <ul style="list-style-type: none"> > Germany's International Climate Initiative (ICI) (21) > The German Government International Climate Initiative - Internationale Klimaschutzinitiative (IKI) (125) > EU Blending Instrument, themes on Forestry, Agriculture, Food and Biodiversity 			
Urbanization & Industrialization	<p>[No initiatives found. This does not mean no initiatives exist, but expectedly these would be local land use/planning or environmental protection policies]</p>			
Technological factors				
Agro-technical change	<ul style="list-style-type: none"> > Amazon Regional Protected Areas programme (ARPA) (108) 	<ul style="list-style-type: none"> > Commission Communication 'Trade for All Towards a more responsible trade and investment policy' (COM(2015) 497 final) (87-a) > Amsterdam Declaration 'Towards Eliminating Deforestation from Agricultural Commodity Chains with European Countries' (106-a) > The Amsterdam Declaration in Support of a Fully Sustainable Palm Oil Supply Chain by 2020 (107-a) > Sustainable Trade Initiative - Initiatief Duur- 		<ul style="list-style-type: none"> > Danube Soya Standard (137) > Commission Communication 'Addressing the challenges of deforestation and forest degradation to tackle climate change and biodiversity loss'(COM (2008)645 final) (35) > Commission Report on the sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling (COM(2010)11) (biomass report) (63)

	Supply	Trade	Demand side	Investors	
		zame Handel (NL, DK, CH) (130-a)			
Forest sector technology and management changes	<ul style="list-style-type: none"> > EU Technical Assistance: Support for partner countries' efforts to monitor forests(37) 	>	>	<ul style="list-style-type: none"> > Commission Report on the sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling (COM(2010)11) (biomass report) (63) > Netherlands - Green Deal Sustainable Biomass (115-b) > UK - Woodland Carbon Code (109) 	<ul style="list-style-type: none"> > Non-binding guidelines on non-financial information (Directive 2014/95/EU) (93)
Agricultural production factors	>	>		>	
Policy and Institutional factors					
Formal policies (legislation)	<ul style="list-style-type: none"> > Commission Communication: Policy Coherence for Development: Accelerating progress towards attaining the Millennium Development Goals {SEC(2005) 455} > Commission Communication: Policy Coherence for Development - Establishing the policy framework for a whole-of-the-Union approach COM(2009) 458 final > Commission Communication: Increasing the impact of EU Development Policy: an Agenda for Change (Policy Priority 2). COM(2011) 637 final 	<ul style="list-style-type: none"> > Council Regulation (EC) No 338/97 on the protection of species of wild fauna and flora by regulating trade therein (and implementing regulations) (80) 	>	<ul style="list-style-type: none"> > EU State-aid Guidelines for Agriculture & Forestry Sectors and in Rural Areas 2014-2020 (36-a) > EU Guidelines on State aid for environmental protection and energy 2014-2020 (64-a) > Regulation (EU) No 1305/2013: European Agricultural Fund for Rural Development (EAFRD) (65-b) > Regulation No. 1308/2013 on common organisation of markets in agricultural products (and related EU legislation) (71) > Voluntary coupled support (VCS) under Regulation No 1307/2013 (CAP direct payments) (72) > EU cohesion policy (94) > Germany - Renewable Energies Act (113) 	<ul style="list-style-type: none"> > Directive (EU) 2015/849 on the prevention of the use of the financial system for the purpose of money laundering or terrorist financing (89) > Directive 2014/95/EU amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings

	Supply	Trade	Demand side	Investors
			<ul style="list-style-type: none"> > Directive 2003/87/EC on the EU Emissions Trading (56) > Decision 529/2013/EU on accounting rules on greenhouse gas emissions and removals resulting from activities relating to land use, land-use change and forestry and on information concerning actions relating to those activities (LULUCF accounting systems) (57) > Directive 2009/28/EC on the promotion of the use of energy from renewable sources (RED) (60-a) > Directive (EC) 2009/30 (Fuel Quality Directive) (62) > Regulation (EU) No 1169/2011 on the provision of food information to consumers (97) > Directive 2014/24/EU on public procurement (95) > National green public procurement requirements (116-a) > Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sectors (96) > Directive (EU) 2015/1513 (on indirect land-use change) (ILUC Directive) (61-a) > Decision No 1386/2013/EU on a General Union Environment Action Programme to 2020 'Living well, within the limits 	<p>and groups (90)</p> <ul style="list-style-type: none"> > Norwegian Government Responsible Investment Policy (122)

	Supply	Trade	Demand side	Investors	
Policy climate: Governance and legality and property rights	<ul style="list-style-type: none"> > FLEGT Voluntary Partnership Agreements (VPAs) (32) > Commission Communication 'Forest Law Enforcement, Governance and Trade (FLEGT) - Proposal for an EU Action Plan' (COM(2003) 251 final) (FLEGT AP) (30) > 	<ul style="list-style-type: none"> > Regulation (EU) No 995/2010 laying down the obligations of operators who place timber and timber products on the market (EUTR) (31) 	<ul style="list-style-type: none"> > Commission Staff Working Document on Implementing the UN Guiding Principles on Business and Human Rights (100-a) 	<p>of our planet' (38)</p> <ul style="list-style-type: none"> > Council Regulation (EC) No 2173/2005 on the establishment of a FLEGT licensing scheme for imports of timber into the European Community (FLEGT Regulation) (33) > Commission Regulation (EC) No 1024/2008 laying down detailed measures for the implementation of the FLEGT Regulation (33) > EU Action Plan on Human Rights and Democracy 2015-2019 (99) > Commission Communication 'Forest Law Enforcement, Governance and Trade (FLEGT) - Proposal for an EU Action Plan' (COM(2003) 251 final) (FLEGT AP) (30) > Commission Staff Working Document on Implementing the UN Guiding Principles on Business and Human Rights (100-a) 	<ul style="list-style-type: none"> >
Cultural factors					
Public behaviour, attitudes and beliefs	<ul style="list-style-type: none"> > 	<ul style="list-style-type: none"> > 	<ul style="list-style-type: none"> > 	<ul style="list-style-type: none"> > European Climate Adaptation Platform (58) > European Food Sustainable Consumption and Production Roundtable (55) 	<ul style="list-style-type: none"> >
Private sector behaviour, attitudes and beliefs		<ul style="list-style-type: none"> > Trade Sustainability Impact Assessment (Trade SIA) (88) > European Timber Trade Federation (104) 		<ul style="list-style-type: none"> > Sustainable Production of Palm Oil: UK Statement (105) > Regulation (EU) No 1169/2011 on the provision of food information to consumers (97) > Directive 2014/24/EU on pu- 	<ul style="list-style-type: none"> > European Investment Bank (EIB): Statement of Environmental and Social Principles and

	Supply	Trade	Demand side	Investors
				blic procurement (95)
				Standards (91)
Government sector behaviour, attitude and beliefs	<ul style="list-style-type: none"> > Commission Communication: Policy Coherence for Development: Accelerating progress towards attaining the Millennium Development Goals {SEC(2005) 455} > Commission Communication: Policy Coherence for Development - Establishing the policy framework for a whole-of-the-Union approach COM(2009) 458 final > Commission Communication: Increasing the impact of EU Development Policy: an Agenda for Change (Policy 19 Priority 2). COM(2011) 637 final 	>	<ul style="list-style-type: none"> > National green public procurement requirements (116-a) > Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sectors (96) > Regulation (EC) No 66/2010 on the EU Ecolabel (45) > EU Business and biodiversity platform (44) > European Food Sustainable Consumption and Production Roundtable (55) > EU Global Climate Change Alliance+ (GCCA) (59) > Regulation (EU) No 1169/2011 on the provision of food information to consumers (97) > Directive 2014/24/EU on public procurement (95) > A new EU Forest Strategy: for forests and the forest-based sector, COM(2013) 659 final (34) > Commission Communication 'Addressing the challenges of deforestation and forest degradation to tackle climate change and biodiversity loss'(COM (2008)645 final) (35) > Commission Communication 'Towards a circular economy: A zero waste programme for 	>

	Supply	Trade	Demand side	Investors
			<p>Europe' (COM(2015) 614 final) (40)</p> <ul style="list-style-type: none"> <li data-bbox="1444 336 1816 448">> Commission Communication 'Roadmap to a Resources Efficient Europe' (COM (2011)571 final) (41) <li data-bbox="1444 456 1816 600">> Commission Communication 'Our life insurance, our natural capital: an EU biodiversity strategy to 2020' (COM(2011) 244 final) (42) <li data-bbox="1444 608 1816 807">> Commission Communication 'Making raw materials available for Europe's future well-being - Proposal for a European innovation partnership on raw materials' (COM(2012) 82 final) (47) <li data-bbox="1444 815 1816 951">> Commission Communication 'Thematic Strategy on the sustainable use of natural resources' (COM(2005)670) (52) <li data-bbox="1444 959 1816 1102">> Commission Communication 'Tackling the challenges in commodity markets and on raw materials' (COM(2011)25 final) (48) <li data-bbox="1444 1110 1816 1254">> Commission Communication 'Trade for All Towards a more responsible trade and investment policy' (COM(2015) 497 final) (87-b) <li data-bbox="1444 1262 1816 1374">> Commission Communication 'EU Action Plan against Wildlife Trafficking' (COM(2016)87) (86-b) <li data-bbox="1444 1382 1816 1420">> Commission Communication 'Public Procurement for a Bet- 	

	Supply	Trade	Demand side	Investors
			<p>ter Environment’ (COM(2008)400) (98)</p> <ul style="list-style-type: none"> > Commission Communication ‘Innovation for a sustainable Future - The Eco-innovation Action Plan’ (COM(2011) 899 final) (Eco-AP) (102) > Commission Communication ‘Innovating for Sustainable Growth: A Bio economy for Europe’ (COM(2012) 60) (101) > Commission Communication ‘Building the Single Market for Green Products - Facilitating better information on the environmental performance of products and organisations’ (COM(2013)196) (54) > Commission Staff Working Document ‘A blueprint for the EU forest-based industries (woodworking, furniture, pulp & paper manufacturing and converting, printing)’ (SWD(2013) 343 final) (EU Strategy for forest-based industries) (46) > Commission Communication ‘A renewed EU strategy 2011-14 for Corporate Social Responsibility’ (COM(2011)681 final) (49) > Commission Communication ‘Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan’ (COM(2008)397 final) (50) > Commission Communication 	

	Supply	Trade	Demand side	Investors
				<p>'Integrated Product Policy - Building on Environmental Life-cycle thinking' (COM(2003) 302 final) (51)</p> <ul style="list-style-type: none"> > Commission Recommendation on the use of common methods to measure and communicate the life cycle environmental performance of products and organisations (2013/179/EU)(Product Environmental Footprint pilot) (53)

Feasibility study on options to step up EU action against deforestation

Part II

A potential EU initiative on deforestation:
Possible interventions

FINAL REPORT

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Feasibility study on options to step up EU action against deforestation

Part II

A potential EU initiative on deforestation: Possible interventions

FINAL REPORT

ABSTRACT

This study explores the feasibility of options to step up EU action against deforestation. Its results are presented in two reports: 'Part I: Background analysis and setting the scene: scale and trends of global deforestation and assessment of EU contribution' and 'Part II: A potential EU initiative on deforestation: possible interventions'. Part I analyses recent global and regional trends in deforestation and the linkages with the production and consumption of twelve key Forest Risk Commodities, with a focus on the role of the EU and its impacts. Further, the study reviews relevant EU policies, legislation and initiatives and ongoing international and regional efforts by private sector, governments and civil society. Building on the analytical insights gained in Part I, the Part II report makes suggestions on the framing of a possible EU initiative to tackle deforestation and its root causes and drivers. This includes specific objectives and a range of potential EU interventions tackling different dimension of the problem (supply and demand side drivers, as well as the role of finance & investments). All identified interventions are assessed against a shared set of assessment criteria: feasibility and effectiveness; political acceptance, technical complexity; and administrative costs. Given the complexity of the problem, any potential EU initiative should consider a package of interventions which addresses the supply, demand and finance dimensions, building on and reinforcing existing EU action as well as government and private sector commitments on zero deforestation and other relevant international initiatives.

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EXECUTIVE SUMMARY

This study, entitled 'Feasibility study on options to step up EU action against deforestation', explores the feasibility of options for stepping up EU action against deforestation and forest degradation in tropical forests. It is divided into two parts:

- Part I, 'Background analysis and setting the scene: scale and trends of global deforestation and assessment of EU contribution', provides detailed background information. It summarises research and data on recent trends in global deforestation, the extent to which activities in the EU contribute to the problem and forward projections for likely future developments. It also summarises the initiatives undertaken by international and EU actors to influence the drivers, causes and trends in deforestation.
- Part II, 'A potential EU initiative on deforestation: possible interventions', analyses the problem of deforestation and forest degradation, its root causes and drivers. Based on this analysis, it develops objectives for a possible EU initiative to address the problem, identifies a range of potential interventions and analyses them in terms of feasibility and effectiveness, political acceptance, technical complexity and administrative costs. Finally, it makes proposals on how different interventions could be combined around different options.

Preliminary findings from the work were presented during a stakeholders' conference on 'Tackling illegal logging and deforestation: progress made and opportunities for future action' organised by the European Commission on 21–23 June 2017 in Brussels¹. The reflections of stakeholders during the event and subsequent written contributions submitted through the European Commission have informed the report. A list of stakeholders that provided written inputs and considerations is provided in Annex II.

The methodology used for the identification and analysis of options aims to follow the logic of the EC Better Regulation Guidelines for impact assessments. As a feasibility study, the study concentrates on: a) providing a **solid background** against which to identify problems, drivers, objectives, and assess the feasibility of any potential interventions (Part I); b) conduct the **feasibility assessment** in terms of identifying the problems to be addressed, its drivers and the objectives to pursue; as well as selecting a number of relevant interventions, assess them against a set of pre-defined criteria and consider how to combine them into options (Part II).

The problem of deforestation

The overall problem is framed as the continued loss of forests and forest ecosystem services through deforestation and forest degradation in the tropics².

According to FAO estimates, around 7.6 million ha of forests were lost every year at the global level between 2010 and 2015.³ While the rate of deforestation appears to have slowed compared to previous decades, it nevertheless remains alarmingly high. Furthermore, there are substantial regional differences, with deforestation at its highest in tropical and sub-tropical regions, particularly in the three major forest basins of the Amazon (South America), Congo (Central Africa) and Southeast Asia.

¹ <http://illegallogging-deforestation-conference.eu>

² Although deforestation and forest degradation is not limited to the tropics, but also take place in some temperate and boreal areas, the scope of this study is limited to the tropics. The reasoning behind this is that most of the global forest loss is found in tropical countries, while the forest area is growing in boreal countries. Further, the commodities driving deforestation are (for the most part) produced in tropical areas.

³ Food and Agriculture Organization of the United Nations, *Global forest resources assessment 2015*. Rome, Italy: FAO. Available at: www.fao.org/forest-resources-assessment/en.

The associated environmental, economic and social impacts are significant. The livelihoods of more than 1.6 billion people are estimated to be dependent on forest resources. Forests are not only an essential source of timber, food and fibres, but they are also home to 80% of the world’s terrestrial biodiversity, are a major provider of various ecosystem services, and play a significant role in the global carbon cycle. Deforestation accounts annually for more greenhouse emissions than the total EU economy.⁴

This loss of forest can be categorised as both deforestation (i.e. ‘The conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold.’, by FAO) and forest degradation (i.e. ‘the reduction of the capacity of a forest to provide goods and services’, according to the FAO).

There are many underlying drivers of deforestation, but agricultural expansion for the production of a number of key commodities is a key driver across all geographies. This in turn is linked to a growth in global demand for commodities such as palm oil, soy and beef. Forest degradation is linked more to the extraction of timber and non-timber forest products than to agriculture.

Table 1 Simplified overview of the key causalities of deforestation and of degradation

	Deforestation	Forest degradation
Agricultural expansion	Dominant	Only indirectly through subsistence and small-scale farming or shifting cultivation.
Forest products extraction	Yes, mainly linked to (commercial) timber extraction and subsequent land use change	Dominant
Infrastructure	Yes, <10%	Only indirectly, e.g. through expanding transportation networks (road, rail, etc.), thus making forest areas accessible to harvesting
Urban sprawl	Yes, <10%	Only indirectly, e.g. by harvest in forest by urban dwellers
Mining	Yes, <10%	Only indirectly, e.g. by release of pollutants
Natural causes (forest fires, climate change, pests & disease)	Only indirectly	Yes

The cultivation of crops or maintaining animal pasture can be the cause of deforestation or forest degradation to the extent that this involves land-use change or has a significant impact on forest ecosystem. The term ‘forest risk commodity’ (FRC) is used in this study to refer to those commodities that are most commonly related to deforestation and degradation. FRCs are defined as: *“globally traded goods and raw materials that originate from tropical forest ecosystems, either directly from within forest areas, or from areas previously under forest cover, whose extraction or production contributes significantly to global tropical deforestation and degradation”*.⁵ It should nevertheless be emphasised that production of forest risk commodities does not necessarily cause deforestation or forest degradation, but in practice they are often associated.

⁴ Grassi G, House J, Dentener F, Federici S, den Elzen M, Penman J. (2017) The key role of forests in meeting climate targets requires science for credible mitigation. *Nature Climate Change*, 7:220-226

⁵ Rautner et al., (2013)

This study focuses mainly on seven key forest risk commodities: palm oil, soy, rubber, beef, maize, cocoa and coffee. The focus on these seven commodities is motivated by the result of the analyses undertaken in the context of this work and available in Part I of this report. These analyses build on a wealth of literature covering matters such as traded volumes, past and projected deforestation rates, the EU’s share of global demand, and the extent to which EU imports originate from areas defined as risk geographies. Other studies suggest that among the seven commodities, beef, soy and palm oil are the main contributors to deforestation, though beef is more likely to be consumed in its country of origin than palm oil and soy, which are more extensively exported.

The role of a possible EU action – problem, drivers and objectives

A possible EU initiative would be concerned with addressing the global problem by focusing on EU’s contribution to deforestation and forest degradation associated with the production of FRCs or products made from them. This includes also the contribution generated through flows of finance and investment from the EU to activities associated with deforestation overseas. More specifically the problem to be addressed is formulated as:

The problem is a continued loss of tropical and subtropical forests and forest ecosystem services. This is a result of both legal and illegal deforestation and forest degradation, though mostly for the permanent conversion of forest land into agriculture and pasture for the production of commodities, such as soy, beef and palm oil. The EU demands (imports and consumes) a range of commodities (and commodity-based products), while a range of EU-based actors plays a role in investments in forest risk sectors and supply chains. This translates into an EU land footprint that contributes to global land pressure.

Possible steps taken to address this problem will also be supportive of the EU’s commitment to the Paris Agreement on climate change and to the 2030 Agenda for Sustainable Development, particularly SDG 15. SDG 15 requires countries to protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, halt and reverse land degradation and halt biodiversity loss.

Deforestation associated with the cultivation of forest risk commodities can be driven by factors on the supply side, i.e. in the country of origin; by factors on the demand side, e.g. in the EU; and by flows of investments and finance from the EU to producer countries.

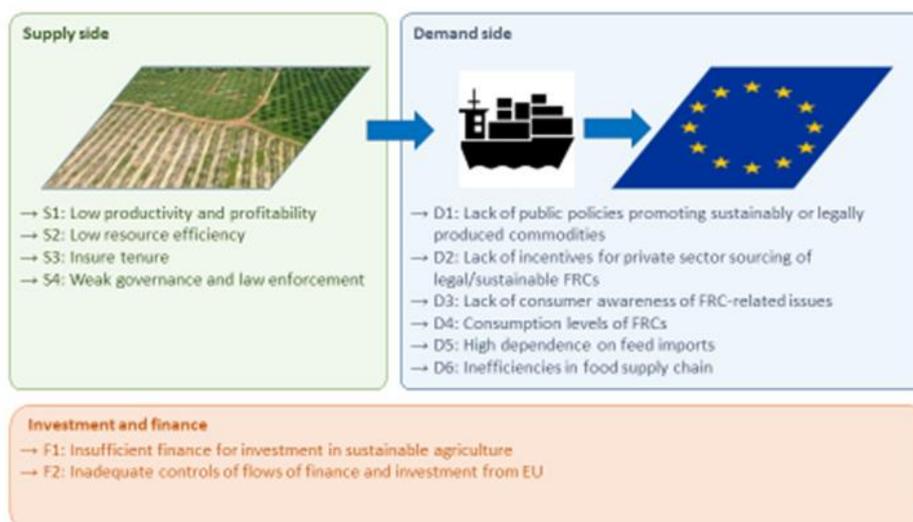


Figure 1 Overview of drivers of deforestation and forest degradation

This study identifies specific drivers of the problem. The drivers are categorised according to whether they are demand-side drivers, supply-side drivers or drivers related to finance and investment.

Table 2 Detailed overview of categories of drivers

Category, driver and brief explanation		
Supply	Low productivity	Low productivity (below the technical optimal production) at farm, plot or plantation level or in processing implies a need for more land in order to increase production to meet demand.
	Low resource efficiency, resulting in waste and loss	Commodities are lost in production, storage or treatment (at the farm, plantation, or in the forest). This may be due to insufficient knowledge, care, or equipment. The loss implies a need for more land to produce a given final output than what would be needed if waste and loss was reduced.
	Insecure tenure	Investments in land and produce from land are difficult to safeguard. In particular, the right to the goods and services provided by land is difficult to compensate for (in case of loss) or incentivise (e.g. to encourage certain uses of land) when ownership is unclear or uncertain. Use and access rights to forests by indigenous and forest communities are more difficult to safeguard when tenure rights are insecure or undefined.
	Weak governance and law enforcement	Lack of cross-sectoral coordination, and illegality and weak law enforcement. This includes unclear or inappropriate legal and policy frameworks, poor or absent land-use planning, land grabs and illegal deforestation, corruption, low capacity of public agencies, no rule of law, lack of law enforcement, limited capacity to monitor.
Demand	Lack of public policies promoting commodities produced with less impact on deforestation	Lack of multilateral frameworks/international standards; no policy in place to promote trade in legally and sustainably produced commodities and to act against illegal commodities (other than timber and biofuels).
	Lack of incentives for private sector sourcing of FRCs produced with less impact on deforestation	Lack of a level playing field; best practices not always recognized by the markets; efforts by progressive market players can be frustrated by the difficulties and/or the high costs of demonstrating compliance in producer countries (i.e. traceability/certification) and/or uncondusive legal and policy frameworks.
	Lack of consumer awareness	Unrealised potential in affecting the behaviour of consumers and companies because of lack of awareness of the issues.
	Consumption levels of FRCs	High levels of human consumption of animal-derived protein drive higher production of meat, which requires more land per unit of output than crops: meat consumption (in particular beef) increases the demand for land and thus the pressure on forests.
	High EU dependence on feed imports	High levels of agricultural productivity in the EU (and other developed countries) rely (to some extent) on imported protein feed, such as soy cake from South America for pigs and cattle. The so-called 'protein deficiency' leads to demand for land to produce soy in third countries.
	Inefficiencies in food supply chains	Losses in the later stages of the supply chain, during transport, processing and consumption, mean that additional production – and therefore pressure on land use and forests – is needed to meet demand.
	Policy-driven increase in demand for com-	Policies in other areas can force or incite market actors to change behaviour with spill-over effects on deforestation. Renewable energy policy is one such possible example. It promotes increased consumption of conventional biofuels, which can

Category, driver and brief explanation		
Demand	modities	place more demand on productive land and indirectly foster deforestation and other land-use change. (Direct land use change is not allowed under the EU bio-fuel sustainability criteria, but indirect land use change may still take place.)
	Insufficient finance for investment in sustainable agriculture	Lack of access to finance can be an important barrier in producer countries, preventing actors throughout the supply chain from being able to take steps to engage in production that reduces or halts the impact on forests.
	Inadequate controls of flows of finance and investments from EU	In the absence of adequate scrutiny, investments and finance originating from the EU can fund activities that contribute to deforestation.

Having established the problem and its drivers the study formulates the overall objective of a possible EU action as follows:

The overall objective of the actions proposed in this report is to reduce tropical commodity-driven deforestation and forest degradation by developing a more coherent and comprehensive EU approach and stepping up EU action. The action should also contribute to the EU’s efforts towards the implementation of the Paris Agreement and the Agenda 2030 for Sustainable Development, particularly SDG 15’s target.

This overall objective is translated into more specific objectives designed to address the three groups of drivers of deforestation described above:

Table 3 Specific objectives addressing each of the groups of drivers

Driver category	Specific objective	Specific thematic objectives
Supply	Achieve broader uptake of sustainable or deforestation-free agricultural practices in producer countries, and promoting better protection of forests in tropical countries	<ul style="list-style-type: none"> • Support sustainable/deforestation-free agriculture in tropical forests • Promote better protection of tropical forests • Working in partnership to increase the flow of sustainable forest risk commodities from tropical countries to the EU
Demand	Achieve more sustainable supply chains, including reduced EU demand for FRCs associated with deforestation, and increased EU demand for sustainable and deforestation-free products	<ul style="list-style-type: none"> • Support private sector initiatives • Encourage the consumption of sustainable and deforestation-free products through improved transparency and information • Regulate EU market access to promote sustainable and deforestation-free products • Reduce EU demand for forest risk commodities
Investment & Finance	Achieve improved access to public and private investment and financial support, in particular to smallholders, that can promote sustainable landscapes, and achieve enhanced transparency of investment in and financing of activities associated with deforestation and forest degradation	<ul style="list-style-type: none"> • Increase availability of finance to smallholders • Increase transparency in financing of high-deforestation-risk sectors

Existing EU policies on deforestation and forest degradation

A range of existing EU initiatives already addresses some of these drivers of deforestation. They do so directly or indirectly:

- The EU FLEGT Action Plan, designed to tackle illegal logging and strengthen forest governance in producer countries, including the EU Timber Regulation and Voluntary Partnership Agreements between the EU and timber-producing countries. While not addressing deforestation caused by agricultural expansion, these measures may nevertheless improve countries' ability to govern land use and reduce deforestation.
- REDD+ activities aim to reduce greenhouse gas emissions from deforestation and forest degradation and improve the sustainable management of forests and the conservation and management of forest stocks, through delivering results-based finance.
- EU development cooperation provides a significant flow of financial support for agriculture, forestry, domestic energy, environment and other sectors relevant to deforestation. The EU and its Member States account for over half of global spending on development aid, and their development cooperation programmes are increasingly more aligned with the UN Sustainable Development Goals, including the goal of ending deforestation by 2020.

- EU Renewable Energy Policy specifies sustainability criteria which liquid biofuel feedstocks must meet if they are to qualify for financial and regulatory support (criteria for solid biomass are under development); these include requirements related to the supply chain and direct land-use change, and affect demand for biofuels and feedstocks, including palm oil and soybean oil, in the EU.
- Other policy areas relevant to deforestation include Green Public Procurement, the Circular Economy Package, the EU Forest Strategy (all in the area of environment), trade policies (such as free trade agreements and Aid for Trade) and the Common Agricultural Policy. Research and consumer protection policies are also relevant.

Modifying these policies, or implementing them in different ways or alongside complementary activities, provide possible means of affecting the EU's impact on forests. This may be just as important as establishing entirely new policy interventions.

Selected possible interventions

This report identifies and assesses 20 specific possible interventions that could be implemented as part of an EU initiative to step up action against deforestation. Their identification has been informed by consulting a wide spectrum of publications and research in the area, together with discussions among stakeholders at the conference on tackling illegal logging and deforestation organised by the EC in June 2017.

In identifying the possible interventions, a range of dimensions has been considered. This includes for example alignment with the international policy architecture, including WTO rules, and an aspiration to build on the efforts and momentum of the EU's current engagement in bilateral and multilateral initiatives. Further, the aspiration has been to provide for a variety of approaches and underlying intervention logics. Other factors taken into consideration include the potential impact on SMEs and on small-holder producers in developing countries. Finally, the selection of interventions has paid attention to the already existing wide range of privately driven initiatives and to the importance of the private sector in achieving the objective.

The identified interventions listed below are assessed with a particular view to five specific elements: the objective, i.e. the extent to which the intervention delivers on the objective; the feasibility of the intervention; the likelihood of its political acceptance; the ease of its technical design and implementation; and the extent to which it is likely to generate high administrative costs, in particular for SMEs. It is important to note that the assessment of individual interventions disregards the mutually supportive effects that can emerge from the combined use of several interventions.

The assessments of the interventions build on existing literature and on feedback received from within the Commission services and from stakeholders. Further in-depth assessments would be needed to provide stronger and more comparable results that also consider other elements, such as wider social and economic impacts.

Specific thematic objective	Identified and assessed intervention	Drivers affected	Key points on assessment criteria
SUPPLY-SIDE INTERVENTIONS			
Support sustainable / deforestation-free agriculture in tropical countries	Best practice support to small-holder producers in risk geographies via technical assistance	Low productivity Low resource efficiency	High feasibility and some contribution to the objective
	Using jurisdictional REDD+ projects to promote sustainable and deforestation-free agricultural production	Weak governance and law enforcement	High feasibility and some contribution to the objective
Promote better protection of tropical forests	Support to jurisdictions to strengthen sustainable forest management and land use planning, governance, and law enforcement	Weak governance and law enforcement	High contribution to the objective, and only technical complexity involved
	Support jurisdictions to improve monitoring of deforestation and illegal activities	Weak governance and law enforcement	Some contribution to the objective, legally simple and high probability of acceptance. Some complexity in implementation
Working in partnership to increase the flow of sustainable forest risk commodities from tropical countries to the EU	Bilateral partnership agreements on forest risk commodities	Weak governance and law enforcement (but potentially relevant to all other supply-side drivers)	High contribution to the objective, but also high complexity in design and implementation as well as high administrative cost impacts, and some legal complexity
DEMAND-SIDE INTERVENTIONS			
Regulate EU market access to promote sustainable and deforestation-free products	Due diligence regulation for forest risk commodities	Lack of public policies promoting commodities produced with less impact on deforestation Lack of incentives for private sector sourcing FRCs produced with less impact on deforestation	High contribution to the objective, but technically and politically very challenging
	Public procurement policies for sustainably produced forest risk commodities	Lack of public policies promoting commodities produced with less impact on deforestation	Some contribution to the objective and fairly feasible, although administrative costs and legal complexities may be high
	Lower import duties for commodities complying with certain sustainable production and/or deforestation-free criteria	Lack of incentives for private sector sourcing FRCs produced with less impact on deforestation	Rather low contribution to the objective and low feasibility
	Encouragement for similar actions by other countries	Lack of public policies promoting commodities produced with less impact on deforestation Lack of incentives for private sector sourcing FRCs pro-	N.A. (Supporting intervention)

Specific thematic objective	Identified and assessed intervention	Drivers affected	Key points on assessment criteria
		duced with less impact on deforestation	
Encourage the consumption of sustainable and deforestation-free products through improved transparency and information and/or private sector initiatives	Support for a sustainable agricultural commodity trader platform	Lack of incentives for private sector sourcing FRCs produced with less impact on deforestation	Small contribution to the objective, but fairly feasible in particular as regards the ease of design and implementation
	Encouragement for private sector initiatives on forest risk commodities	Lack of incentives for private sector sourcing FRCs produced with less impact on deforestation	Medium contribution to the objective, but high feasibility
	Strengthen and expand existing transparency platforms through voluntary reporting and data compilation	Lack of consumer awareness of FRC related issues	Low contribution to the objective, but fairly feasible although there may be some reluctance in achieving political acceptance
	Consumer information campaign in partnership with industries and NGOs	Lack of consumer awareness of FRC related issues	Low contribution to the objective, but fairly feasible in particular as regards acceptance of the intervention
	Incubating new certification schemes via partnerships with industry and NGOs	Lack of consumer awareness of FRC related issues	Fairly small contribution to the objective, but somewhat feasible, in particular administrative cost impact is small
Promote trade in legal and sustainable forest risk commodities through cross-cutting means	Promotion of trade in legal and sustainable forest risk commodities through trade and investment agreements	Low productivity Low resource efficiency Lack of public policies promoting commodities produced with less impact on deforestation	Low contribution to the objective, but fairly feasible in particular administrative costs impacts are small and the intervention is legally simple
Reduce EU demand for forest risk commodities	Encouragement for lower consumption of forest risk commodities in food	Consumption levels of FRCs Inefficiencies in food supply chains	Low contribution to the objective and low level of political acceptance. Otherwise high level of feasibility
	Extending sustainability criteria for bioenergy feedstocks to uses other than energy	Lack of public policies promoting commodities produced with less impact on deforestation	Low contribution to the objective and low feasibility
	Rural Development (CAP) Focus Area dedicated to actions that reduce the protein deficit of the EU livestock sector	High dependence on feed imports	Low contribution to the objective and fairly feasible in particular with regards to administrative costs where the impact is small
FINANCE AND INVESTMENT			
Increase availability	Financing mechanism for sus-	Insufficient finance	Some contribution to the

Specific thematic objective	Identified and assessed intervention	Drivers affected	Key points on assessment criteria
of finance to small-holders	sustainable agriculture	for investment in sustainable agriculture	objective and high feasibility in particular as regards acceptance and administrative cost impacts
Increase transparency in financing of high deforestation risk sectors	Mandatory disclosure of information on deforestation proofing on financial investments linked to production or processing of FRCs	Inadequate controls on flows of finance and investment from EU	Low contribution to the objective, some feasibility

Conclusion

As a major importer of many FRCs, the EU is clearly part of the problem of global deforestation. Yet it can also be part of the solution, by stepping up its efforts to address the impacts of its consumption and adopting a coherent and comprehensive approach.

Given the complexity of the problem of global deforestation, its multiple underlying causes and proximate drivers and the complex dynamics of FRC supply chains, it should be clear that no single intervention on its own can tackle the problem. What is needed in a potential EU initiative is a package of interventions which address the supply, demand and finance dimensions, building on and reinforcing existing EU action as well as government and private sector commitments on zero deforestation and other relevant international initiatives.

Three possible options are identified in this study:

- **Option A** builds on existing measures and legislation, without requiring any new measures – a ‘better implementation’ option, potentially consisting of a new EU Communication on deforestation reflecting the significant global developments over the last ten years and presenting a coherent EU response based on current action as well as better use of existing policies, legislation and mechanisms to tackle deforestation. The potential interventions in this option include:
 - Best practice support to smallholder producers in risk geographies via technical assistance.
 - Support jurisdictions to improve forest and land use planning, governance and land enforcement.
 - Support jurisdictions to improve monitoring of deforestation and illegal activities
 - Strengthen and expand existing transparency platforms through voluntary reporting and data compilation
 - Rural development (CAP) Focus Areas dedicated to actions that that reduce the protein deficit of the EU livestock sector
 - Financing mechanism for sustainable agriculture.
- **Option B** includes the introduction of new measures not requiring new legislation – with, accordingly, a greater impact on the objective but requiring a greater expenditure of resources. This can be seen as Option A (a new EU Communication) plus an EU Deforestation Action Plan, potentially including the following interventions:
 - Using jurisdictional REDD+ projects to promote sustainable and deforestation-free agricultural production.

- Public procurement policies for sustainably produced forest risk commodities.
- Support for a sustainable Agricultural Commodity trader platform.
- Encouragement for private sector initiatives on forest risk commodities.
- Consumer information campaign in partnership with industries and NGOs.
- Incubating new certification schemes via partnership with industry and NGOs.
- Promotion of trade in legal and sustainable forest risk commodities through trade and investment agreements.
- Encouragement for lower consumption of forest risk commodities in food.
- **Option C** includes new legislative action – it combines Option A and Option B with interventions requiring new legislation or regulation. This should have the greatest impact on the objective while at the same time requiring the largest effort and time on the part of the EU. The potential interventions in this option include:
 - Bilateral partnership agreements on forest risk commodities.
 - Due diligence regulation for forest risk commodities.
 - Lower import duties for commodities complying with certain sustainable production and/or deforestation criteria.
 - Extending sustainability criteria for bioenergy feedstocks to uses other than energy.
 - Mandatory disclosure of information on deforestation proofing of financial investments linked to production or processing of FRCs.

The remaining intervention – encouragement for similar actions by other countries – fits into all the three options, as the EU should aim to encourage other countries to follow similar actions, whatever they are.

1 INTRODUCTION

1.1 Study objective and background

This study provides input for defining and assessing policy options to step up EU action on deforestation and forest degradation. The study will inform future consideration by the European Commission (EC) on potential actions to tackle deforestation and forest degradation, including considering the feasibility of an Action Plan or other suitable instrument containing specific measures to tackle deforestation and forest degradation, as mentioned in the 7th Environmental Action Programme⁶ and the EU Forest Strategy.⁷

This study is a direct follow-up to the 2013 study on the impact of EU consumption on deforestation (VITO, 2013),⁸ which carried out an extensive problem analysis including a sophisticated modelling of 'embodied' deforestation, as well as an initial policy analysis. This in turn was a response to one of the specific actions envisaged in the Commission's 2008 Communication on deforestation.⁹

The study consists of a report in two parts:

- Part I, 'Background analysis and setting the scene: scale and trends of global deforestation and assessment of EU contribution'¹⁰ includes a comprehensive background analysis. This provides a situation analysis that considers deforestation trends and geographies, as well as production, trade and EU imports, along with a forward analysis and a review of current initiatives to address deforestation.
- Part II: 'Proposals for a potential EU initiative on Deforestation', which provides a definition of the problem and its drivers, identifies overall and specific objectives of a potential EU initiative and presents concrete proposals for EU interventions, along with an assessment of those, and provides a set of options that could be pursued for a possible EU initiative.
- Further, a comprehensive mapping of 186 existing, global and regional initiatives has been undertaken as a first step of the analysis and feeds into the analysis of the context for a possible EU action. Though not covering national initiatives in producer countries, it covers public, NGO and private sector initiatives.¹¹

The study also provides material for use in a future public consultation in the form of a comprehensive questionnaire with open and closed questions, based on the contents

⁶ <http://ec.europa.eu/environment/action-programme/>

⁷ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: *A new EU Forest Strategy: for forests and the forest-based sector* (COM(2013) 659 final, 20 September 2013)

⁸ European Commission (2012). The impact of EU consumption on deforestation: Task 4 Final Report: The impact of EU consumption on deforestation: Proposal of specific Community policy, legislative measures and other initiatives for further consideration by the Commission. European Commission, DG ENV, VITO, HIVA and IUCN NL. Available at:

<http://ec.europa.eu/environment/forests/pdf/3.%20eport%20policies%20proposal.pdf>.

⁹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: *Addressing the challenges of deforestation and forest degradation to tackle climate change and biodiversity loss* (COM(2008) 645 final, 16 October 2008).

¹⁰ The basis for drafting this report (Part II) is essentially the Part I report. Additional sources were consulted to a limited extent and on a strict as-needed basis. Stakeholder consultations and other primary data collection do not form part of the feasibility assessment, although consultations have been indirectly carried out through various presentations of intermediate study results at different forums. While Part II provides detailed and additional analysis, this Part II report constitutes a standalone document that can be read and used independently of Part I.

¹¹ Mapping concluded August 2016. Later initiatives not covered.

of the above reports, in particular Part II, including the identification of possible options.

1.2 Study scope

This study is a feasibility study. It should thus be seen as a preparatory and explorative work preceding a possible future impact assessment. It therefore provides a comprehensive background analysis (Part I) against which to identify and assess problems, drivers, objectives and possible interventions. Part I therefore constitutes the background against which this report (Part II) has been prepared.

This report follows the logic of an impact assessment. The methodology used for the identification and analysis of options has been aligned with and builds on the EC Better Regulation Guidelines for impact assessments¹². The report concentrates on analysing the problem and identifying objectives, and on identifying and assessing specific and relevant interventions that may be part of a potential EU initiative. The specific framing of options and the detailed assessment of their impacts would be part of a possible future impact assessment study. The following provides a simplified overview of the main steps of an impact assessment. This feasibility study concentrates on the first three elements (problem, drivers and objectives) *and* on identifying and assessing specific interventions that would be relevant to include when framing specific options. The specific interventions that this report identifies and assesses can thus be seen as possible individual building blocks. The interventions are assessed in this report based on pre-defined specific common criteria (described below), whereas a fully-fledged analysis of impacts would be part of a possible future impact assessment study, which would then also set out specific and concrete options for analysis.

The problem definition and understanding of the underlying causes builds on earlier studies and evaluations carried out by the EC, including the above-mentioned VITO study and the impact assessment accompanying the 2008 Communication mentioned above, as well as other available literature and updated data analyses. The analysis of problems, drivers and objectives presented in this report is based on the detailed background analysis presented in Part I, which provides an updated situation analysis of global issues of deforestation and forest degradation, and hence on the development of (some of) the drivers during the period 2004–2016.

The study has also drawn on the independent evaluation of the EU's Forest Law Enforcement, Governance and Trade Action Plan, which was originally agreed in 2003.¹³ The evaluation, which covers the first eleven years of the implementation of the Action Plan (2003–2014), was published in June 2016, and documents the achievements, challenges and lessons learned.¹⁴ In particular, some of the findings concerning the possible future strategic focus of EU FLEGT will feed into the development of the policy options in this report, while the lessons learned about specific measures such as the FLEGT Voluntary Partnership Agreements and the EU Timber Regulation have proved useful when developing specific policy interventions.

¹² Better regulation is about developing EU policies and laws in a transparent manner, supported by evidence and in consultation with citizens and stakeholders so that, among other things, EU actions are based on evidence and understanding of the impacts and the regulatory burden on businesses, citizens and public administrations is kept to a minimum. While this study is a feasibility study, and not an impact assessment per se, it has been carried out along the lines of an impact assessment. Detailed Better Regulation guidelines are found here: http://ec.europa.eu/smart-regulation/guidelines/toc_guide_en.htm

¹³ Communication from the Commission to the Council and the European Parliament: *Forest Law Enforcement, Governance and Trade (FLEGT): Proposal for an EU Action Plan* (COM (2003) 251 final, 21 May 2003).

¹⁴ https://ec.europa.eu/europeaid/evaluation-eu-flegt-action-plan-forest-law-enforcement-governance-and-trade-2004-2014_en; https://ec.europa.eu/europeaid/sites/devco/files/staff-working-document-2016-275-f1_en.pdf

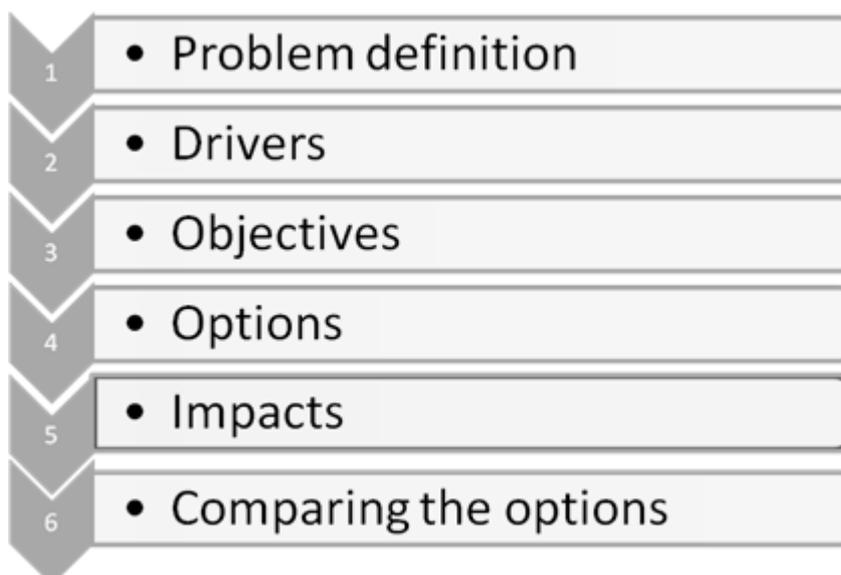


Figure 1-1 Main analytical elements of an impact assessment

The individual possible interventions are assessed against common pre-defined criteria: their contribution to addressing the problems of deforestation and forest degradation (effectiveness and efficiency); the extent to which they require new legislation and the legal complexities that would be involved; their technical and administrative complexity, and their political acceptance. This also includes their coherence with other EU objectives and previous policy choices. As already noted, the specific framing of options and the detailed assessment of their impacts would be addressed in a possible future impact assessment study. Here, however, the report finally provides a suggestion for a possible set of options for a potential EU initiative, and describes how the analysed interventions could be integrated into the different options.

1.3 Structure of this report

The following overview of the contents of this report demonstrates how the study has echoed the steps of an impact assessment.

1	Introduction
2	The problem
3	The underlying drivers
4	The objectives
5	Selecting the interventions
6	Assessing the interventions
7	Conclusions and proposals on a possible EU action

Figure 1-2 Structure of report

Hence, this report is structured as follows:

- **Chapter 2 provides the problem definition**, focusing on the main problems of deforestation and forest degradation.
- **Chapter 3 identifies the key underlying drivers** of deforestation and forest degradation.
- **Chapter 4 sets out the objectives**, including an overarching objective and a series of more specific objectives related to the underlying drivers and focusing on the scope for EU action.

Thus, Chapters 2, 3 and 4 pay particular attention to establishing a problem definition that encapsulates the essentials of the full problem analyses and expressly considers the EU's stake in it. The chapters synthesise the drivers into a manageable number that captures their main characteristics and sets out a manageable number of objectives that relate well to the problem and its drivers.

- **Chapter 5 explains how the interventions were selected.** The chapter explains the background against which the interventions have been identified, and sets out the key sources that have been consulted to define them as well as the key principles for selecting them. The chapter also provides an overview of the interventions.
- **Chapter 6 describes and analyses each intervention that could form part of an EU initiative on deforestation.** Each intervention is described and analysed in terms of its contribution to addressing the problems of deforestation and forest degradation, the extent to which it requires new legislation, its technical and administrative complexity and its political acceptance. The chapter concludes with a brief comparative assessment of the interventions.
- Chapter 7 provides a possible set of options for a potential EU action.

2 THE PROBLEM¹⁵

The overall problem that is the subject of this study can be framed as the continued loss of forests and forest ecosystem services through deforestation and forest degradation in the tropics.¹⁶

According to FAO estimates,¹⁷ a gross loss of forest area of around 7.6 million hectares (Mha) per year has been seen at global level between 2010 and 2015, mostly in the tropics, especially Latin America, Africa, and parts of Asia, which show higher rates of forest loss than other regions. At the same time, there is an annual forest gain of 4.3 Mha per year (mostly in the temperate and boreal regions), resulting in a global net annual decrease in forest area of 3.3 Mha. While the loss of forest is still significant, the rate of annual net loss of forest has slowed from 0.18% in the 1990s to 0.08% over the last five-year period. For the period from 1990-2015, the average loss of forest area is 0.13%, while the rate of loss of natural forest at global level was much higher at 0.24% (FAO, 2015a). Natural forest area decreased by a net 6.5 Mha per year in the period 2010-2015, which is a reduction in net annual natural forest loss compared to the period 1990-2000, where an average of 10.6 Mha was lost annually. However, in Africa, the annual loss of natural forests for the period 1990-2015 is significantly higher than the global average, at 0.52. In Latin America and Asia, the annual rate of loss of natural forests stands at 0.27% and 0.22%, close to the global average of 0.24%. For Latin America, this is a precipitous drop from the 1990s, where annual forest loss was above 0.50%. The associated environmental, economic and social impact of the loss of natural forests is significant. The livelihoods of more than 1.6 billion people are estimated to be dependent on forest resources to some extent (World Bank, 2004). Forests are not only an essential source of timber, food and fibre, they are also home to the majority of terrestrial biodiversity, are a major provider of various ecosystem services,¹⁸ and play a significant role in the global carbon cycle. Deforestation and forest degradation accounts annually for more GHG emissions than the total EU economy, and avoided deforestation and forest degradation represents the vast majority of the LULUCF mitigation potential up to 2030, which has been estimated to be about a fourth of the global (all-sectors) mitigation potential.¹⁹

Forests serve multiple purposes including as habitats and providing livelihoods. They also have cultural and religious value, are a source of raw materials and play an important role in global and local climate and water systems. Loss of forests and forest functions through deforestation and degradation therefore leads to loss of biodiversity, release of CO₂ and has implications for sustainable development, in particular in many low-income countries. This is reflected by the important role of forests in several UN conventions, including the CBD and UNFCCC, especially the recent Paris Agreement, and the UN Sustainable Development Goals (SDG 2015).

¹⁵ Part I provides an in-depth analysis of the current situation and development trends. Part I constitutes an important basis for identifying the problem to address. The problem analysis and the resulting problem formulation presented here thus largely builds on the analyses and conclusions of Part I, supplemented where necessary with additional sources to back up key observations.

¹⁶ Although deforestation and forest degradation is not limited to the tropics, but also take place in some temperate and boreal areas, the scope of this study is limited to the tropics. The reasoning behind this is that most of the global forest loss is found in tropical countries, while the forest area is growing in boreal countries. Further, the commodities driving deforestation are (for the most part) produced in tropical areas.

¹⁷ FAO Forest Resource Assessment 2015 serves as the basis for all numbers reported in the present section. While not directly reported here, another relevant study with regard to deforestation and the FAO Forest Resource Assessments is Keenan et al. (2015), which compares FAO's FRA with remote sensing.

¹⁸ Including water regulation, soil protection, disaster risk reduction, etc.

¹⁹ Grassi G, House J, Dentener F, Federici S, den Elzen M, Penman J. (2017) The key role of forests in meeting climate targets requires science for credible mitigation. *Nature Climate Change*, 7:220-226

2.1 The global problem: commodity driven deforestation and forest degradation – with a particular focus on tropical areas

According to the definitions used by the FAO, deforestation is the loss of forest land through 'the conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold',²⁰ while forest degradation is 'the reduction of the capacity of a forest to provide goods and services'. Deforestation has happened globally since before modern times, and many global landscapes have been transformed from forest-rich to landscapes dominated by agriculture and urban areas, but at different tempi and times. The process is difficult to trace and monitor, as it is often gradual, site-specific, and happens at various scales. Modern technologies like remote sensing, drones and GIS may foster better monitoring in the future,²¹ but reliable monitoring is still time-consuming and requires much *ground truthing*.²² Deforestation can be identified through remote sensing to a certain extent.

In terms of risk geographies, the highest rates of deforestation have been observed in particular in Latin America (3.5 – 4.0 Mha/yr since 1990)²³ (the Amazon basin), South-East Asia (1.45 Mha/yr between 2000 and 2010) (Sumatra and Borneo, and the Mekong Delta) and Sub-Saharan Africa (0.6 Mha/yr between 1990 and 2010) (Western Africa and the Congo basin), while North America, China and Europe exhibit stable or increasing forest land (FAO, 2016).²⁴ However, this growth is largely due to an increase in plantation forest (US and China) or afforestation (China and EU). The growth in forest area also partly hides a loss of natural forest areas, as an increase in areas of managed forest has been seen in some regions, especially the US, EU, and China. The reason for this is partly that European landscapes are more mature in the sense that the deforestation took place centuries ago, and partly that remaining forests are subject to legislative protection.²⁵

FAO *State of the World's Forests 2016* presented the following estimates of the importance of the proximate drivers of deforestation in a regional and global context.²⁶ It showed how agricultural expansion (commercial and subsistence) drove more than 80% of all deforestation, while mining, urban expansion and infrastructure were responsible for less than 10% each, although differences could be observed from region to region. The production, trade and consumption of agricultural commodities thus drives the bulk of deforestation, in particular in Latin America, while urban expansion and infrastructure play a comparatively greater role in Asia. Intensive farming practices may lead to deteriorating environmental conditions in and around fields, with negative implications for the surrounding nature (through the use of pesticides, unsustainable water extraction, land and soil degradation) and for forests, both in terms of deforestation and forest degradation.

²⁰ FAO FRA 2015 Global Forest Resource Assessment 2015.

²¹ Goetz et al. (2015)

²² De Sy et al. (2012) and Tyukavina et al (2017).

²³ Data for sub-regions for: Latin America: FAO, 2011c. South-East Asia: Stibig et al., 2014. Sub-Saharan Africa: FAO, 2011c. The recent FAO Forest Resource Assessment (2015a) put the loss of natural forest per year for the period 2010-2015 at 3.1 Mha for Africa as a whole, 1.0 Mha for Asia, and 2.2 Mha for South America.

²⁴ It should nevertheless be noted that global and national statistics may hide important geographical variations. For instance, the Southeastern US, the main source of pellet imports into the EU, has observed a net decline in forest area over recent years.

²⁵ It should be noted here that in the Southeastern US, where a significant production of wood pellets exported to the EU take place, forests (especially privately-owned forests), are not well protected by the legislation in place. See also Olesen et al. (2016).

²⁶ Proximate causes can be understood as the activities that lead to the clearing of land or degradation of forest, e.g. through the construction of a road or expansion of an agricultural area. In turn, underlying causes are factors that control the demand for commodities, products or services that result from the activities. This includes economic growth, population expansion, political developments, technological changes and cultural factors. See Chapter 3 below for a more detailed description.

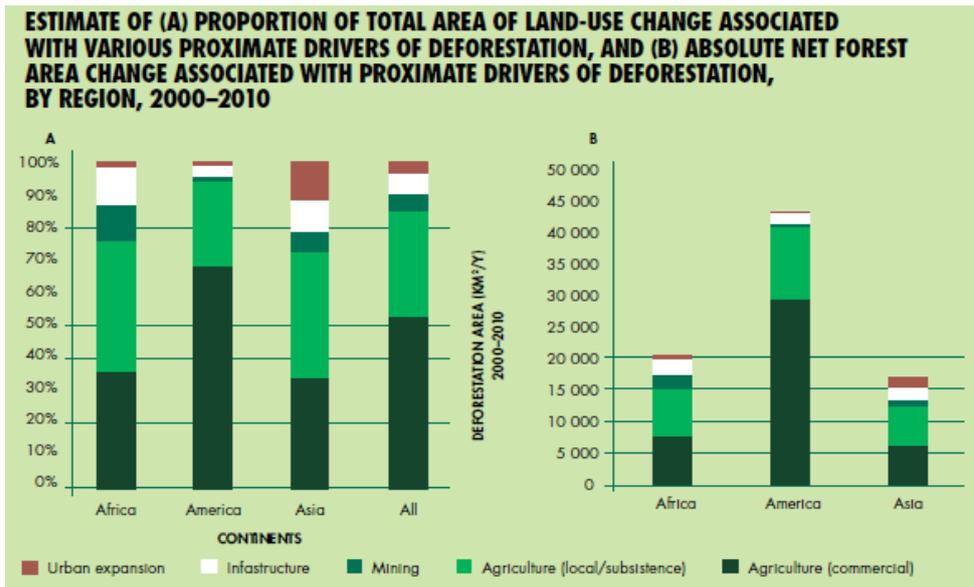


Figure 2-1 Overview of proximate drivers of deforestation. From FAO SOFO 2016, based on Hosonuma et al. (2012)

2.1.1 Forest degradation

Forest degradation (FAO, 2015) means that the ecosystem services provided by the forest, such as water filtration, soil protection, and climate change mitigation, are reduced or lost. The ITTO estimated in 2002 that up to 850 Mha of tropical forest and forest land may have been in a degraded state (ITTO, 2002 as in FAO, 2011a). However, degradation is 'difficult to detect with most forms of measurement' (FAO, 2015a) leading to large variations in estimates. For example, other estimates state that potentially more than one billion ha are in a degraded state (FAO, 2011a, while FAO (2015a) assesses that at least 185 Mha is affected by partial canopy cover loss. Thus, due to varying definitions of forest degradation and difficulties in its quantification, comprehensive data is close to non-existent. Forest degradation does not involve, in the short term, any land-use change, while often leading to deforestation in the long term. Activities requiring a permanent land-use change, such as agricultural expansion, mining, and infrastructure are directly linked to deforestation, but are much less important causes of degradation, which they affect only indirectly. Instead, as evidenced by recent research,²⁷ degradation is closely linked to the extraction of forest products,²⁸ such as timber harvesting, fuelwood gathering, charcoal making, the collection of non-timber forest products (NTFP) and grazing – sometimes associated with informal economic activity – along with natural causes of degradation, such as climate change, forest fires, pests (e.g. mountain pine beetle) and diseases.

In principle, all commodities with a spatial component, in the sense that they are 'grown on land', may be the cause of deforestation or forest degradation, directly or indirectly (through Indirect Land Use Change, ILUC). The term Forest Risk Commodity (henceforth 'FRC') used in this study refers to the commodities that are most commonly related to deforestation and degradation (see Table 2-2 for more on quantification). The applied definition is found in the box below.

²⁷ <https://www.giz.de/de/downloads/giz2013-en-key-drivers-deforestation-forest-degradation-philippines.pdf>

²⁸ Products are not equal to commodities. Products are wider in scope.

Forest risk commodities have been defined as:
'globally traded goods and raw materials that originate from tropical forest ecosystems, either directly from within forest areas, or from areas previously under forest cover, whose extraction or production contributes significantly to global tropical deforestation and degradation'

Rautner et al., 2013, p. 15

To untangle and exemplify this definition, a non-exhaustive list of FRCs and some FRC-based products with a spatial component is found below in Table 2-1.

It is important to note that forest risk commodities can and are in many cases produced without causing deforestation and degradation. Hence, the production of any such commodity does not necessarily lead to direct deforestation.

Table 2-1: Non-exhaustive list of FRCs and FRC-based products with a spatial component.

Annual Crops	Perennial Crops	Forest based	Livestock	Extractive industries
Maize	Coffee	Timber	Beef	Gold
Sugar (cane)	Bananas	Wood pellets Cellulose	Leather	Silver
Grain crops	Coconut Pineapple	Pulp	Milk/dairy products	Diamonds
Soy	Mango	Paper	All housed and certain ranging animal husbandry ²⁹	Zinc
Rice	Cocoa	Processed wood (e.g. MDF)		Potassium
Alfalfa	Palm oil			Rare earth minerals,
Cassava	Rubber			Oil
Sugar beet	Tea			Coal
Hay	Cotton			

Extractive industries are not within the scope of this study, and are therefore greyed out.

Any of these commodities could be relevant to assess in terms of deforestation. The assessments done as part of this study cover 12 FRCs and FRC-based products selected on the basis of traded volume, past and projected deforestation rates in the country/region of origin, and EU relevance (i.e. the EU share of global demand). In this regard, the main commodities are palm oil, soy, rubber, beef, maize, cocoa, and coffee. Furthermore, a number of wood-derived energy products (e.g. fuelwood and wood pellets) are important in relation to deforestation, but EU imports do not currently originate from areas defined as risk geographies. Trade characteristics and embedded deforestation figures for the twelve FRCs are shown below (Table 2-2). Figures do not include domestic consumption, which can be a significant part of global demand, especially for livestock products.

In order to assess the relative importance of various FRCs in driving deforestation, a possible approach is to link deforestation to consumption of these commodities, thus deriving an amount of 'embodied' deforestation for each of these.³⁰ To understand the EU's role in commodity-driven deforestation, the amount of FRCs exported, including their destination is shown below, along with a description of the relevance of FRCs in driving deforestation and the relative role of the EU. This analysis is based on the study by VITO (2013) and further supported by findings by Henders et al. (2015). This is also illustrated in Figure 2-2 using data from VITO (2013) alone.

²⁹ While grazing is not a problem per se and a very reasonable use of many land areas, grazing animals on deforested areas or on areas suitable for crop production is problematic. Therefore, only certain animal ranging activities are problematic from a deforestation perspective.

³⁰ In VITO (2013), embodied deforestation (linking deforestation to consumption) is defined as 'The deforestation embodied (as an externality) in a produced, traded, or consumed product, good, commodity or service. It is the deforestation associated with the production of a good, commodity or service.'

2.1.2 Deforestation attributed to certain causes

Based on data from VITO (2013), total gross deforestation in the period 1990-2008 was 239 Mha, or about 13.3 Mha yearly. 33% of this took place in Latin America (LA), 31% in Sub Saharan Africa (SSA), and 19% in South East Asia (SEA). In VITO 2013, the gross deforestation (as estimated from FRA-2010) is attributed to five main sectors: 'agricultural expansion' (sub-divided into 'pastures' and 'crop production'), 'logging' (prior to agricultural expansion), 'urban areas expansion', 'natural hazards' (especially wildfire) and 'unexplained'. Of the 239 Mha, ~45% is attributed to three causes: natural hazards (17%, or 40.8 Mha), infrastructure (4%, or 8.9 Mha) and unexplained (i.e. cannot be clearly linked to the conversion of forests for clear consumption purposes or other reported deforestation causes and remains termed as 'unexplained' 24%, or 58 Mha) (see also Figure 2-2). These are therefore not relevant to this report, as deforestation in these cases is not driven by demand for FRCs. This means that the remaining 55% is related to FRCs through crop production, logging, and livestock farming. A total of 132 Mha of deforestation (or about 7.3 Mha annually) is attributed to agriculture and forestry activities. Of these, only about 3.4% (or 2% of all deforestation), equivalent to 4.5 Mha, is a result of logging. Pastures claim 43.9% of the deforestation attributed to forestry and agriculture (or 24% of all deforestation), equal to 58.2 Mha (which is about 3.2 Mha annually on average). Finally, for crop production is the corresponding share is 52.3% (or 29% of all deforestation), 69.4 Mha in total over the period, or about 3.8 Mha annually on average (see also Figure 2-2). These overall figures are given in the grey-shaded rows in Table 2-2 below.

About 4.5 Mha of deforestation can be attributed to logging. Of the embodied deforestation due to logging, about 75% (3.4 Mha) remained in the country of production, while 25% (1.1 Mha) was exported. Of this, 55% went to East Asia/China, 18% to the EU, 12% to North America, and 15% to other regions. This means that the EU's embodied deforestation for timber is equal to 18% of 1.1 Mha, or about 198,000 ha (see also Figure 2-2).

Embodied deforestation attributed to clearing for pastures, which are used for purposes such as raising livestock, totals 58 Mha over the period, or about 3.2 Mha annually. LA has seen 28 Mha of forest cleared for this purpose, SSA 21 Mha, while the remaining 9 Mha is in other regions (SEA plays a minor role). Of the 58 Mha of pastures, 92% of the embedded deforestation from FRCs produced on these (beef meat, leather, etc.) remains in the country of production, while 8% is exported (LA exports 10% (a total of 2.8 Mha), while SSA exports only 4% (a total of 0.84 Mha)). All told, 4.7 Mha of embedded deforestation was in exports of pasture-based FRCs. EU imports of embedded deforestation from livestock is assessed by VITO (2013) to be 25% of exports, about 1.2 Mha (Figure 2-2).

The clearing of 69 Mha of forests, or about 3.8 Mha annually, can be attributed to agricultural expansion for crop production. Of this, about 19% is attributed to soy (13 Mha), 11% to maize (8 Mha), 8% to oil palm (6 Mha), 6% to rice (4 Mha), and 4% to sugar cane (3 Mha). Of this, about two-thirds (or 46.6 Mha) stays in the country of production, while one-third (or 22.4 Mha) is exported. 63% (or 14.1 Mha) was oil crops (soy and palm), 11% (or 2.5 Mha) was stimulants (coffee, cocoa), 8% (or 1.8 Mha) was cotton and tobacco, 6% (1.3 Mha) was sugar crops, 5% (1.1 Mha) was cereals, 4% was fruit and vegetables (0.9 Mha), and 3% (0.7 Mha) was roots and pulses. Of all the exports, 64% was exported by LA countries, 23% by SEA, and 12% by SSA. The main importers were the EU (33%), East Asia and China (21%), the Middle East, North Africa, and Central Asia (16%), North America (9%), and South Asia including India (8%) (top right corner of Figure 2-2).

Table 2-2 12 Forest risk commodities, embedded deforestation, main exporters and importers (including share where available), and the EU's importance as an importer (where available). All numbers based on VITO (2013)

Commodity	Global share and amount of embodied deforestation (1990-2008)	Main exporters	Main importers
Crop production		LA: 64% SEA: 23% SSA: 12%	EU: 33% China + EA: 21% Middle East, North Africa and Central Asia: 16% North America: 9% South Asia: 8%
Soy	5.4% (or 9.8% of FRC attributed deforestation) 13 Mha (19% of all deforestation from crop production)	Brazil, but with Paraguay and Argentina as important minor producers for soybeans (although the latter exports almost no beans to the EU). (Non-tropical exports are dominated by the US). Argentina and Brazil for soya cake.	China, EU. ³¹ EU's share is 39% in total (61% of exports from Brazil and 48% of exports from Argentina, totalling 4.45 Mha)
Palm oil	2.3% (or 4.2% of FRC attributed deforestation) 5.5 Mha (8 % of all deforestation from crop production)	Indonesia (57%), Malaysia (25%) are main exporters. Others include Nigeria (7%), Thailand (2%), and Ghana (2%).	China (1.03 Mha), EU (0.9 Mha), India (0.67 Mha), Pakistan (and intra-region trade in SEA) ³²
Cocoa	0.87% (or 1.55% of FRC attributed deforestation) 2.1 Mha (3% of all deforestation from crop production)	Côte d'Ivoire, Ghana, Nigeria and minor role for Cameroon and Indonesia (exact shares not available)	EU (27% ³³ , 0.6 Mha), US, Malaysia
Maize	3.2% (or 5.7% of FRC attributed deforestation) 7.6 Mha (11% of all deforestation from crop production)	7.5 Mha globally spread across more than 70 countries. Largest contributors are: Brazil (16%), Tanzania (10%), Zimbabwe (6%), Indonesia (5%), Mexico (5%), Paraguay (5%), and China (5%), India.	East Asia (incl. Japan and China), EU, Mexico. (exact shares not available)
Coffee	N/A	LA: Peru, Honduras, Nicaragua and Colombia, Costa Rica, Mexico, Brazil. SEA: Indonesia, Vietnam, Laos. SSA: Kenya, Uganda and Tanzania. (exact shares not available)	EU (27%, 0.3 Mha), US
Rubber (natural)	0.6% (or 1.05% of FRC attributed deforestation) 1.4 Mha (2% of all deforestation from crop production)	Indonesia (62%), Thailand (11%), Vietnam (5%), Brazil (5%), Nigeria (4%)	China, EU (16%), US
Pastures	24% (43.9% of FRC) 58 Mha	LA: 60% (mainly Brazil and Argentina) (10% is exported) SSA: 18% (4% is exported)	Mainly intra-region trade. Only 8% is exported.

³¹ EU imports only 20% of its soy from the US, and has large imports of soybeans and soybean cake, predominantly from Brazil and Argentina. This share of imports from the three major producers explain why EU consumption of soy is associated with a large fraction of deforestation embodied in soybean products. In comparison, about half of China's soybean related imports originated from the US, while imports by the rest of the world originated predominantly from the US.

³² Embedded deforestation for China and India are calculated based on export quantities.

³³ EU imports 27% of embodied deforestation for stimulants (cocoa and coffee).

Commodity	Global share and amount of embodied deforestation (1990-2008)	Main exporters	Main importers
		Other: 22%	EU share of exports: 25%
Beef/meat/leather	Pastures only: 24% (43.9% of FRC) 58 Mha Feed production: 1.8% (3.5% of FRC) Total: 47% of FRC 62.5 Mha	Brazil, Australia	Mainly intra-region trade. Only 8% is exported. Of the importers, EU, East and SE Asia, and US are most important.
Other animal feed products (pig and poultry feed)	8% of FRC 10.2 Mha	Brazil, Argentina	EU, China
Forestry			
Tropical Timber (non-coniferous)	2% (3.4% of FRC) 4.5 Mha	Malaysia is among the biggest exporters, but also Madagascar, Cameroon, Uruguay, Gabon, Myanmar and Papua New Guinea for sawlogs. Malaysia, Thailand, Indonesia and Brazil for worked wood.	China and East Asia (55%), EU (18%) ³⁴ , Other (incl. India) (15%), North America (12%).
Pulpwood	N/A	Vietnam, Australia and Chile	EU, Japan, China
Wood pellets	N/A	Minor imports from the tropical regions, as EU, US, Canada and Russia are main producers. However, projections suggest that among tropical countries and regions, Brazil and West Africa could become a significant producer of this commodity within the coming decades.	EU, South Korea
Other			
Biodiesel	N/A	Analysis of product and trade dynamics differ as the focus is on feedstock rather than end-product. The EU is the largest producer of biodiesel globally. Production is based on both intra-EU and extra-EU feedstocks. Biodiesel as such is not an FRC, but drives demand for FRCs, such as palm oil.	N/A
Bioethanol	N/A	Analysis of product and trade dynamics differ as the focus is on feedstock rather than end-product. Brazil is among the three largest producers.	N/A

Based on the data from VITO (2013), a graphical illustration of the share of embodied deforestation attributable to the five different sectors has been drawn up (Figure 2-2).

³⁴ The EU re-exports about one-sixth (17%) of this.

The overall distinction is between ‘classified embodied deforestation’ (logging, pastures and crop production), which covers 55%, and ‘unclassified and other embodied deforestation’ (infrastructure, natural hazards, and other), which covers 45%. This is illustrated by the size of the upper and lower parts of the figure. Further, the figure illustrates for each of the five main sectors (plus the ‘unclassified’), their share of embodied deforestation. Thus, crop production account for 29% globally, pastures account for 24%, natural hazards account for 17%, infrastructure account for 4%, and logging account for 2%, while 24% remains unaccounted for (unclassified).

The EU’s share of deforestation through demand for FRCs is relevant only for the classified deforestation, i.e. the upper part of the figure, which includes three sectors: shown in the top part of the figure, logging (orange), pasture (light green), and crop production (bright green). For each of these sectors, the figure shows the EU’s share of the embodied deforestation. This is shown in blue boxes.

As an example, for logging, 25% of the embodied deforestation is exported. This is equivalent to 1.1 Mha. Of this, the EU is the destination for 18% of the export, leading to embodied deforestation of about 0.2 Mha. Similarly, for pastures, 8% of the embodied deforestation is exported, corresponding to 4.7 Mha. The EU’s share of this export is 25%, or about 1.2 Mha. For crop production, 32.5% of the embodied deforestation is exported, equivalent to 22.4 Mha. The EU’s share of this export is 33%, thus corresponding to 7.4 Mha. All in all, this puts the EU’s embodied deforestation at about 8.8 Mha, the dominant share of which relates to crop production.

Total deforestation (1990-2008): 239 Mha

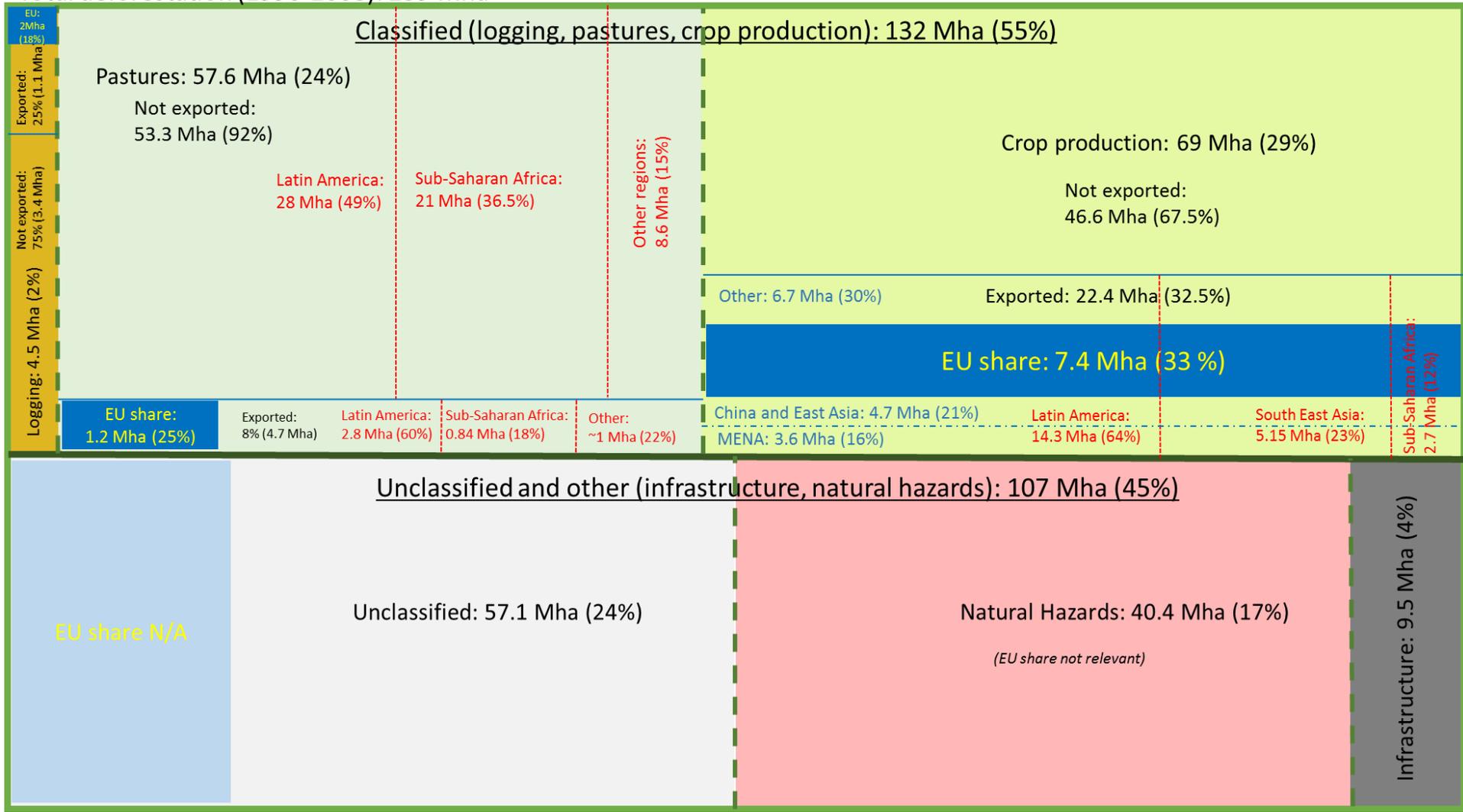


Figure 2-2 Overview of embodied deforestation across causes (logging, pastures, crop production, unclassified, other). EU embedded deforestation due to import of crops, timber, livestock, etc. shown in blue boxes (horizontal lines). Percentages traded shown in red lines (vertical). Source: Authors (using data from VITO (2013)).

All told, VITO (2013) estimates total traded embedded deforestation at 22.4 Mha over the period 1990-2008. The most important extra-region trade flows of embedded deforestation are EU imports from South America (4.87 Mha), East Asia (incl. China) imports from South America (1.99 Mha), North Africa, Western and Central Asia imports from South America (1.45 Mha), EU imports from South East Asia (1.44 Mha), East Asia (incl. China) imports from South East Asia (1.39 Mha), South Asia (incl. India) imports from South East Asia (1.14 Mha), and EU imports from Sub-Saharan Africa (1.04 Mha). All remaining trade flows, the largest of which is North America imports from South East Asia (0.65 Mha), are comparatively smaller. The two largest importers are the EU (7.5 Mha) and East Asia (incl. China) (3.9 Mha), while the largest exporters of embedded deforestation are South America (10.8 Mha) and South East Asia (5.9 Mha). However, it must be noted that the analysis conducted by VITO covers the period 1990-2008, and that China has seen large economic growth in the years since then, while the EU’s economic growth has been comparatively modest. In addition, the deforestation embodied in the EU’s consumption slightly decreased in 2000-2008 (0.507 Mha per year) compared to 1990-2000 (0.410 Mha per year).

A more recent study by Henders et al. (2015), which covers the period 2000-2011 finds that the role of EU and China is of comparable size when it comes to imports of embedded deforestation. Similar to the study by VITO (2013), the analysis of Henders et al. (2015) also finds the most important FRCs for embedded deforestation to be livestock (beef), soy, and palm oil. Figure 2-3 shows the trade flows for these commodities, a notable aspect being that livestock is also in this case found to be consumed mainly within the region of production, while soy and palm oil (and wood) is exported to other regions, the most important being China, the EU, with large intra-regional trade in LA (beef) and SEA (timber and palm oil).

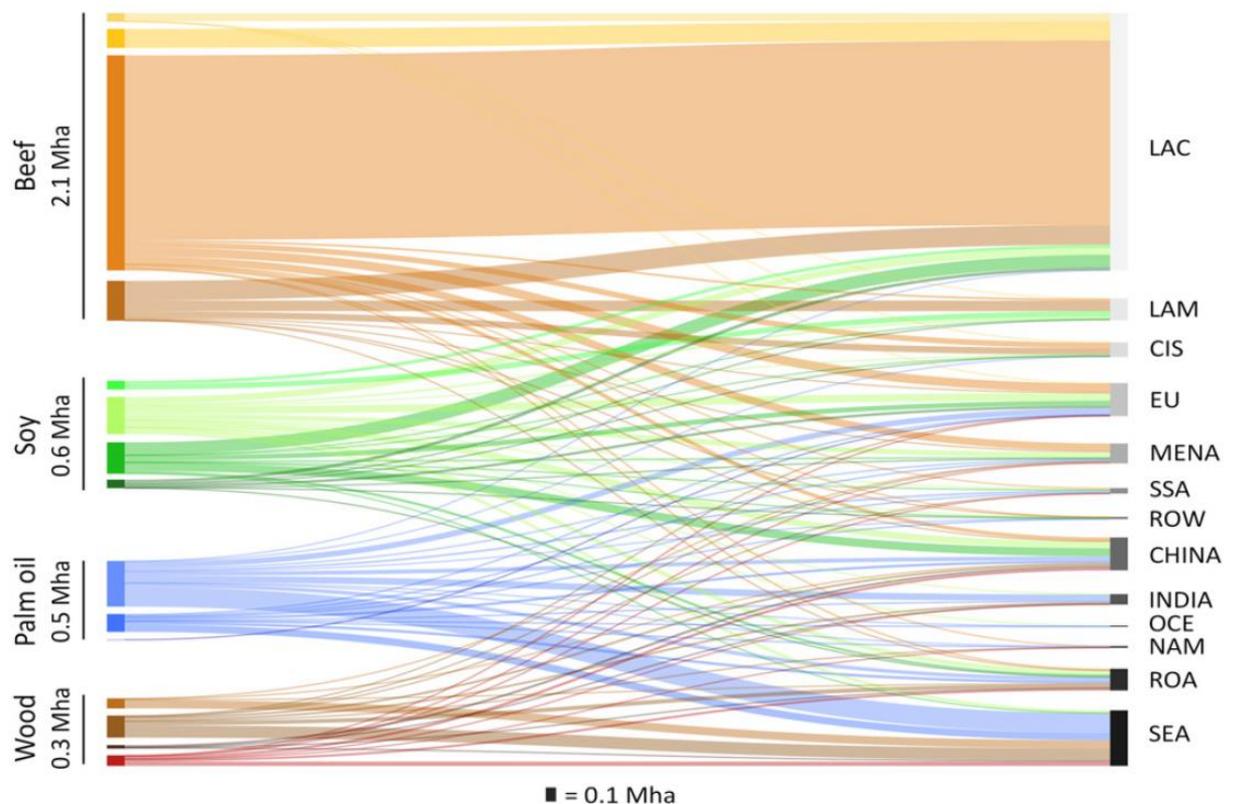


Figure 2-3. Major trade flows (larger than 1 kha) of embodied deforestation for four FRCs (livestock, soy, palm oil, and timber). Source: Henders et al. (2015, fig. 5, p. 9).

Figure 2-4 shows that the EU (EU27, i.e. excluding Croatia) embodied deforestation for crop products over the period 1990-2008 totalled 7.4 Mha. About 60% of this is associated with soybeans and derived products, which are responsible for 4.4 Mha in total. The second most important crop is palm oil and derived products, which contribute 0.9 Mha to total embedded deforestation by the EU. Cocoa and coffee take the third and fourth place with 0.9 Mha in total, while nuts (0.3 Mha) and rubber (0.2 Mha) follow. Including livestock and forestry brings this number to a net cumulative embedded deforestation for the EU in the period 1990-2008 to 8.7 Mha. Deforestation associated with imports of wood products over the period amounted to 0.2 Mha, while livestock contributed about 1.15 Mha.

EU27 7.4 Mha

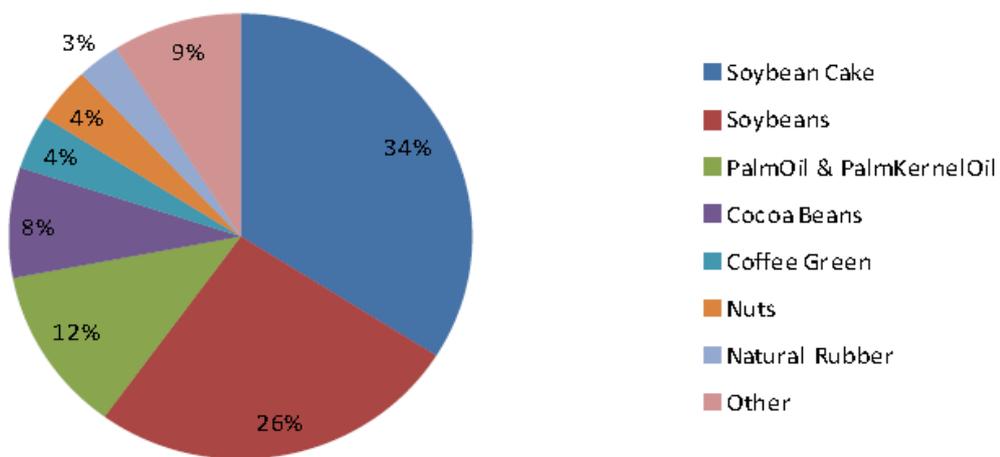
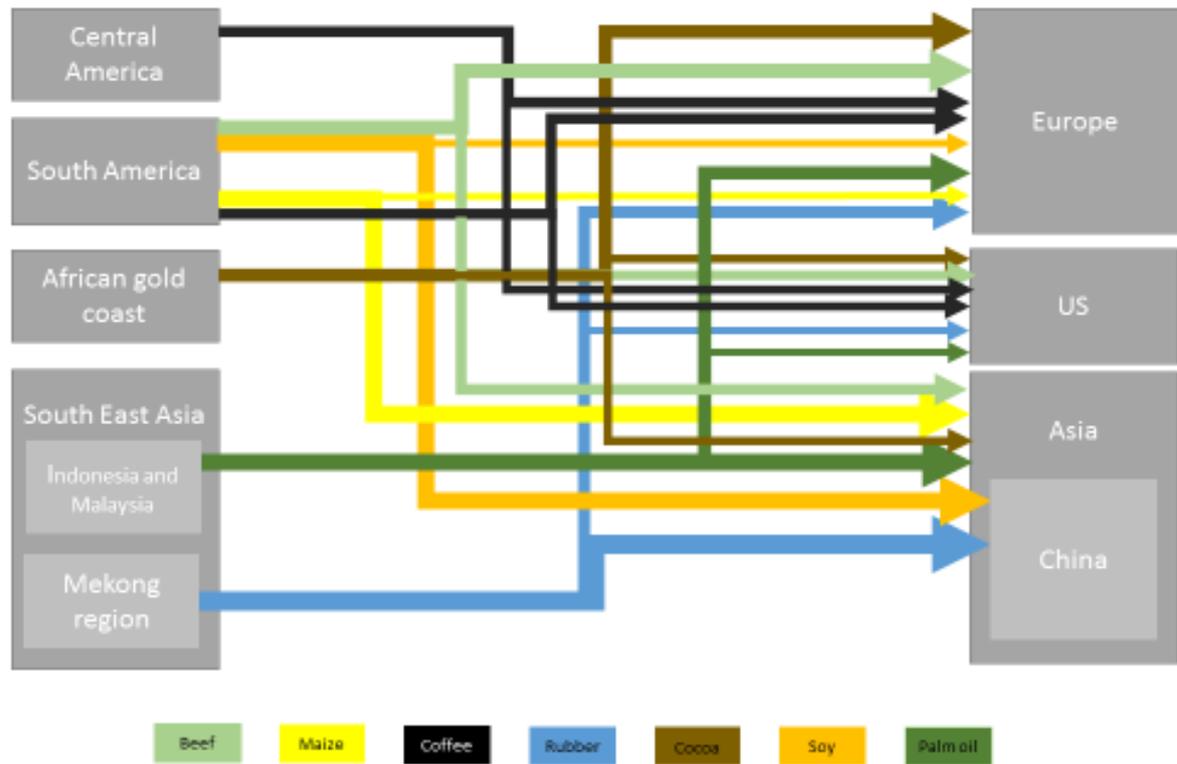


Figure 2-4. Embedded deforestation as a result of EU27 (not including Croatia) imports. The total embedded deforestation is 7.4 Mha over the period 1990-2008. Source: VITO (2013).

As the table suggests, there are similarities and differences between FRCs as concerns main exporters and traders. For example, coffee, cocoa and meat are predominantly imported by the EU and the US, but from very different sourcing geographies. South America dominates in producing soy, beef and maize, while Southeast Asia plays a large role for palm oil and rubber. The simplified flowchart below depicts geographical hotspots for the agricultural FRCs.



Size of arrow only indicative. Large = main. Small = not main importer

Figure 2-5 Simplified overview of flows of agricultural risk commodities between exporters and importers

In short, the link between causes, deforestation and degradation can be summarised as shown below:

Table 2-3 Simplified overview of the key causalities of deforestation and of degradation (own production)

	Deforestation	Degradation
Agricultural expansion ³⁵	Dominant	Only indirectly through subsistence and small-scale farming or shifting cultivation.
Forest products extraction	Yes, mainly linked to (commercial) timber extraction and subsequent land use change	Dominant
Infrastructure	Yes, <10%	Only indirectly, e.g. through expanding transportation networks (road, rail, etc.), thus making forest areas accessible to harvesting
Urban sprawl	Yes, <10%	Only indirectly, e.g. by harvest in forest by urban dwellers
Mining	Yes, <10%	Only indirectly, e.g. by release of pollutants
Natural causes (forest fires, climate change, pests & disease)	Only indirectly	Yes

2.2 The global problem and the EU perspective

The EU's objective as stated in the 2008 Communication on 'Addressing the challenges of deforestation' is to halt global forest cover loss by 2030 at the latest and to reduce gross tropical deforestation by at least 50% by 2020 compared to 2005-2010 levels (COM, 2008). The EU Forest Strategy³⁶ is intended to ensure a coordinated, coherent and holistic approach towards forests and the whole forest sector, in the EU and worldwide. Within its objective to strengthen the EU's effort to promote sustainable forest management, it aims at the reduction of deforestation at global level through promoting sustainable production and consumption of forest products. The EU FLEGT Action Plan is considered a key initiative contributing to the specific objectives of the EU Forest Strategy, and thus it is duly reflected in the EU Forest Strategy Multiannual Implementation Plan.³⁷ The EU and MS development cooperation and funding for REDD+ are key financial instruments to support sustainable forest management globally.

In addition, the EU has subscribed to various international commitments, such as:

- the Sustainable Development Goals (SDGs), where target 15.2 specifically relates to deforestation: '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';
- the Aichi Targets, which aim to 'at least halve and where feasible bring close to zero the rate of loss of natural habitats, including forests'; and
- the New York declaration on forests, the goal of which is to 'at least halve the rate of loss of natural forests globally by 2020 and strive to end natural forest loss by 2030'.

³⁵ The expansion of the agricultural area (extensification of agricultural production) into previously forested areas

³⁶ COM(2013)659 'A new EU Forest Strategy for forests and the forest-based sector'

³⁷ SWD(2015)164 final - Multi-annual Implementation Plan of the new EU Forest Strategy

- the Paris Agreement, which entered into force in 2016, also includes increased emphasis on the role of forest sinks, urging parties to conserve and enhance them, and setting the overall goal *'to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty.'*³⁸

Demand for commodities is an important driver of deforestation (Table 2-1), both for domestic consumption and for international markets. In this regard, the EU contributes to the deforestation problem through its international demand for commodities. The EU consumes products and raw materials which are produced through the use of land in third countries, especially tropical countries, and which are exported, transported, and imported into the EU. The EU is among the major global importers of a number of forest risk commodities (FRCs), i.e. beef (41% of global imports in 2014), maize (30%), cocoa (80%), and coffee (60%), palm oil (25%)³⁹, soy (15%), and rubber (25%). Other major consumers include China, India, US, and Japan. However, it is important to note that the demand side (including who the main importers are) differs from one commodity to another, which means any understanding of the problem must include a commodity-specific perspective. Further, investments in and financing of forest risk commodities and related sectors can also impact on deforestation. In this context, EU banks and financial institutions are significant investors in large-scale agricultural projects, including from companies that have been associated with land grabs and (illegal) deforestation.⁴⁰ However, it should be recalled that the EU commitment to work on deforestation and forest degradation is rooted in the priority given to address these issues at global level, and is not limited to issues related to the EU demand for FRC.

In summary, for the purposes of this feasibility study, the focus is on both deforestation and forest degradation in tropical and relevant subtropical geographies. Outside these regions, forests are for the most part stable or expanding.⁴¹ The study looks at both legal and illegal deforestation and degradation, but solely as caused by the expanding production and increasing consumption of (forest risk) commodities. It further focuses on commodities (in total 12 commodities), where the EU represents a relevant share of global consumption that provides for leverage in the market. Deforestation and degradation resulting from urban sprawl, mining and infrastructure development⁴² as well as from natural causes are not considered; as is shown in the background report (Part I), these causes are relatively minor compared to commodity-driven deforestation and forest degradation.

³⁸ Article 4, paragraph 1.

³⁹ See Part I report, Chapter 4.2.1

⁴⁰ FERN: <http://www.fern.org/sites/fern.org/files/Financing%20land%20grabs%20final.pdf> and UNEP: [http://www.naturalcapitalfinancealliance.org/documents/wqi/NCD%20-%20SOFT%20COMMODITIES%20RISK%20\(FULL\).pdf](http://www.naturalcapitalfinancealliance.org/documents/wqi/NCD%20-%20SOFT%20COMMODITIES%20RISK%20(FULL).pdf)

⁴¹ This being said, there are areas in non-tropical regions where forest degradation and/or deforestation is a risk. For example, the Southeastern US could experience forest degradation and/or deforestation due to an increase in wood pellets produced in the area. See Olesen et al. (2016) for more on the environmental and climate implications of EU import of biomass from the Southeastern US.

⁴² For more on the latter, please see the development of the Pilot Project 'Roadless forest': <http://www.roadlessforest.eu/>

Building on the above analysis, the problem to be addressed by possible EU initiatives can be refined and formulated as:

The problem is a continued loss of tropical and subtropical forests and forest ecosystem services. This is a result of both legal and illegal deforestation and forest degradation, though mostly for the permanent conversion of forest land into agriculture and pasture for the production of commodities, such as soy, beef and palm oil. The EU demands (imports and consumes) a range of commodities (and commodity-based) products, while a range of EU-based actors plays a role in investments in forest risk sectors and supply chains. This translates into an EU land footprint that contributes to global land pressure.

The EU is committed to the Paris Agreement and to the 2030 Agenda for Sustainable Development, particularly SDG 15, which requires countries to sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss. Efforts are needed at EU level to support the fulfilment of these commitments and step up the EU contribution to reduce global biodiversity loss as laid down in the 7th EAP. The EU can play a key role in addressing all these elements through mutually supportive and coordinated initiatives, which build on existing policies, and step up action to address gaps and build partnerships with producers and other consumer countries, as well as the private sector. In this context, addressing the EU land footprint is an important element to be considered.

3 THE UNDERLYING DRIVERS

The gradual global loss and potential subsequent recovery of forests has been described as following the 'forest transition',⁴³ which suggests that degradation and deforestation are first-stage consequences of population growth and industrialisation. However, it should be noted that while the forest transition may be a valid illustration of certain trajectories, it does not represent a universal scenario. Deforestation often occurs through the direct conversion of a natural forest to a highly productive commodity crop or tree plantation. The efforts of low-income countries in the tropics to ensure growth and higher standards of living are often associated with an increased need for land and resources, including in response to domestic and international demand for commodities. Demographic, economic and technological developments act in concert to increase the pressure on forests through demand for agricultural commodities, urban expansion and infrastructure development, and the extraction of timber. The loss of primary or natural forest is closely linked to this increasing demand for productive land, but is also a failure of policies to protect forests and other natural areas: many countries that produce forest risk commodities are characterised by poor forest and land-use governance. This in turn is often the result of entrenched problems such as weak institutional and legal frameworks, the limited capacities of administrations, the informal, unregulated, nature of parts of the sector, a lack of transparency, and corruption.

Poor land-use planning, insecure land tenure and a failure to recognise and protect the natural environment, as well as weak enforcement of rights, often leaves forests vulnerable to conversion. In short, neither the legal nor economic framework provide sufficient protection of forests, while demographics, technology, economy, political, and cultural changes in aggregate further increase the pressure on forest areas. These causes act on a number of levels: international (markets, commodity prices), national (population growth, domestic markets, national policies, governance) and local circumstances (subsistence, poverty).⁴⁴ Ultimately, demographic megatrends related to structural changes in populations, their size and distribution, and wealth and values influence the economy, and thus economic activity and decisions.⁴⁵

The impacts of these drivers are further accentuated by the existence of market failure, in the sense that the full value of the ecosystem services that forests provide are not fully taken into account in pricing mechanisms in the marketplace. The market value of timber is often the main income for the logger and is realised when an area is clear-cut and the lumber is sold on the market. However, the value of other ecosystem services provided by forest areas, such as water retention, carbon storage, biodiversity, or soil protection, are not included in the market value of the forest.

As such, deforestation and forest degradation are essentially caused by the behaviours of governments, consumers, suppliers, and investors, etc. These behaviours are again influenced by economic, technological and cultural factors, and by the policy and institutional framework. In regard to the latter, governance failures allow for the market failure to drive deforestation and forest degradation.

⁴³ Maher, 1992; Rudel et al., 2005; Meyfroidt et al., 2007; Meyfroidt et al., 2013.

⁴⁴ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65505/6316-drivers-deforestation-report.pdf

⁴⁵ However, an in-depth analysis of such megatrends or the development of policy options that affect these megatrends are considered to be outside of the scope of this study.

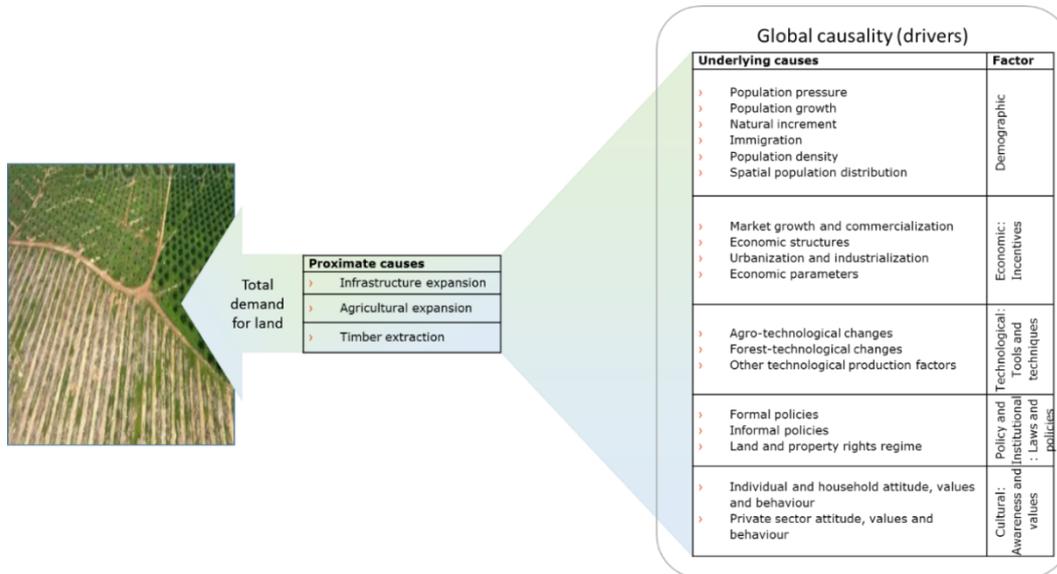


Figure 3-1 The underlying causes (demographic, economic, technological, political, institutional and cultural) act on the proximate causes (infrastructure, agriculture expansion and timber extraction) to determine the total demand for land (after Geist & Lambin, 2001).

The above figure illustrates the flow of market signals that arise from changes to any of the underlying causes (demographic, economic, technological, political, institutional and cultural) (right-hand box), which are transferred via demand for commodities to the actor causing deforestation through the proximate causes (agricultural expansion, infrastructure (including urban expansion, roads, mining) and the extraction of forest resources). The underlying causes are specific to each demand and supply-side geography, meaning that the effects on the proximate causes will not necessarily be the same from region to region.

A number of global underlying causes (e.g. population increase, the growth of the middle class, dietary changes) can, however, be identified. The aggregated pressure from the demand side (i.e. all consumers) thus drives the 'land actors' (i.e. everyone from subsistence farmers to commercial agricultural operations to multinational corporations establishing plantations) to clear land or start extracting resources from previously unmanaged forests: this is expressed as an increased need for land. It should be noted that the EU is by no means the only actor with a substantial land footprint (the US, Japan, China, and growth economies such as India, Brazil, and Russia are other notable actors). The supply country also needs land to service local demand and other regional or international markets. Therefore, the total need for land is the combination of all needs, and this defines the final pressure to deforest or degrade a given forest area.

The underlying causes are divided into five types: demographic, economic, technical, political/policy, and cultural causes. These underlying drivers act upon the proximate (direct) drivers, which lead to conversion of forest land for agricultural expansion, timber extraction, or infrastructure development (c.f. Geist & Lambin, 2001). The underlying causes specified in the original framework by Geist & Lambin (2001) are of a very general nature, highlighting and aggregating various changes at societal or global level that can give rise to a change in the proximate driver. EU action to target deforestation shall address underlying causes and the relevant forest risk commodities (henceforth 'FRC').⁴⁶

The link between the underlying causes and the commodities is established through the supply chain. Based on studies on deforestation and forest degradation in relation

⁴⁶ Relevant FRCs are identified in the Part I report

to demand for agricultural and forest products (esp. FRCs),⁴⁷ the general underlying causes given by Geist & Lambin (2001) are specified for each of the five areas in the context of tropical deforestation and forest degradation resulting from (EU and other) demand for forest risk commodities. In the figure below, underlying causes relevant to the supply and demand side are presented in the context of this study.

Table 3-1: Underlying causes relevant to the supply and demand side. Based on assessment conducted in Part I report.

Supply		Demand	
Underlying causes	Factor	Underlying causes	Factor
<ul style="list-style-type: none"> › Population expansion (local) › Internal migration to forest frontier areas 	Demographic	<ul style="list-style-type: none"> › Population expansion (global) (Alexandratos & Bruinsma, 2012) 	Demographic
<ul style="list-style-type: none"> › Poverty › Profitability of agricultural production › Low cost of forest areas (new land) › Job creation 	Economic	<ul style="list-style-type: none"> › Capitalization on sustainable supply chains › Growing global middle class 	Economic
<ul style="list-style-type: none"> › Low resource efficiency › Losses and wastage (FAO, 2013) › Low productivity of land › Technical capacity among producers › Use of inputs and seeds 	Technological	<ul style="list-style-type: none"> › EU dependence on imported food for agricultural sector productivity 	Technological
<ul style="list-style-type: none"> › Insecure tenure (Rautner et al., 2013) › Weak forest sector governance 	Political	<ul style="list-style-type: none"> › Lack of green public procurement (Brack, 2015) › No policies promoting sustainable consumption 	Political
<ul style="list-style-type: none"> › Knowledge of and respect for ecosystems and the environment 	Cultural	<ul style="list-style-type: none"> › Demand for certified and sustainably produced commodities › Changing dietary patterns (Alexandratos & Bruinsma, 2012) › Inefficient consumption of resources and wastage of food (consumer, retailer) (FAO, 2013) 	Cultural

3.1 Underlying causes on the supply side

On the supply side, i.e. where the actual production of the FRC take place, production responds to demand, in some cases causing deforestation. In accordance with the framework developed by Geist & Lambin (2001), the underlying causes that lead to deforestation are divided into five areas: Demographic, Economic, Technological, Political, and Cultural. Demographic factors include population expansion and internal migration to forest frontier areas, the latter making labour available and increasing pressure on land in these regions. Economic factors include a range of aspects, from poverty and the need for job creation, which put pressure on using land for the generation of economic activity, to aspects such as the low cost of new land, which makes conversion to agricultural production an option. Finally, the profitability of agricultural production impacts deforestation by providing incentives for putting new land under the plough. Technological factors are primarily linked to production capacity and resource efficiency. Crop losses, low productivity, and lack of technical capacity all reduce the market output of a given area, meaning that, all things being equal, larger areas will be needed to produce the same amount of goods. Political factors affect, inter alia, the legal framework governing the use of forest and agricultural land. Insecure tenure and weak forest sector governance makes it difficult to plan land use and prevent the conversion of areas from forest to agriculture. Finally, cultural factors can drive deforestation by shaping the relationship of the people with the land and its resources. Knowledge of, and respect for, the ecosystems being lost and the environmental impacts help prevent deforestation.

⁴⁷ The analysis here builds on studies concerning deforestation and forest degradation, notably in relation to agricultural and forest commodities. These studies are also employed for the analysis in the Part I report. The studies used include Alexandratos & Bruinsma (2012), Brack (2015), FAO (2011, 2013), Rautner et al. (2013), VITO (2013).

3.2 Underlying causes on the demand side

On the demand side, changes to the underlying causes are influencing consumption of forest risk commodities, including total demand for commodities, as well as the type of commodity demanded. On a global scale, demand for most food-product forest risk commodities has increased in recent years and is expected to continue to grow in the coming decades (c.f. FAO Alexandratos & Bruinsma, 2012). Global population growth increases the total amount demanded, while dietary changes (towards increased consumption of meat, fat, and sugar (Alexandratos & Bruinsma, 2012) and processed products) affect the type of goods demanded. As such a diet demands increased use of resources and land, dietary changes in this direction increase global demand for land. The agricultural system and supply chains established also affect demand for goods. For example, the presence of a significant amount of farm animals within the EU and limited land areas entail large imports of feed, while low transportation costs and higher labour costs within the EU enable production of this feed outside the EU.

3.3 Finance and investment as an underlying driver

According to Mulder (2017) almost 1,490 billion EUR is invested in soft commodity production (in the tropics) annually, while land use-related climate change finance amounts to some 5 billion EUR, or just a fraction of this. Banks and investors offer financial services to land owners and agricultural and forest sector companies, allowing these to expand production, which may be associated with the risk of deforestation or degradation. The financial products are often loans, underwritings and investments in bonds or shares, and the competition for offering these services is often global (Picken et al, 2017). Gregory (2016) found that almost 44 billion EUR in loans and 17.5 billion EUR in new shares and bonds issued were provided to high deforestation risk activities in South East Asia alone during the period 2010-2015,⁴⁸ often by multinational, mainly EU, US, China and Japan-based banks. EU banks provided more than 20% of the loans and more than 25% of the underwriting of bonds and shares.

Often the same company is involved with several investors and banks at the same time, and the individual investment is thus global. A company seeking new finance for clearing land or expanding a meat factory will be able to approach potential financiers and investors around the world, in a highly competitive market where low transaction costs and advantageous terms and conditions are an important negotiation point. As noted by Gregory (2016), there is a lack of transparency and a generally low appetite among those seeking finance for deforestation safeguards attached to financial services, which makes it difficult for sustainable or deforestation-free finance to compete. Mulder (2017) notes there is an urgent need for companies across the value chain to decouple production from forest impacts, including deforestation and forest degradation.

At the same time, several smallholder producers, as described for West Africa cocoa farmers by Climate Focus (2016), do not have access to global financial markets and have difficulty obtaining finance for improved equipment and changes to management practices. This situation prevents a shift away from practices that do not realise the theoretical production potential of the land, thereby potentially driving deforestation, when additional demand is to be met by agricultural expansion.

As outlined above, access to capital and the conditions tied to the provision of financial services are relevant across the whole supply chain and offered in a global market. This means finance and investment is not mainly linked to the supply or demand side, and in order to avoid an unfortunate association with either, the finance and investment flows are treated in a separate manner in the remainder of the report, that is to say, separate from supply and demand-side drivers. Therefore, these are treated as separate, crosscutting, underlying drivers.

⁴⁸ Unfortunately, comparable numbers for other risk geographies where not available.

The underlying causes identified and described above are aggregated into a number of supply side-specific and demand side-specific drivers as well as drivers focusing on the investment & finance side, as shown in the figure and text below.



Figure 3-2 Overview of identified key drivers

Explanation of the diagram: In the approach applied in this study, the demand side starts at the gate of the farm, forest or plantation producing the given commodity. The supply side includes the farm, forest or plantation but also the policy, legal and regulatory framework directly relevant for the management decisions of the producer, in practice also the rule of law. The demand side consists of all supply chain actors that give the producer incentives to manage land in a certain way, whereas the supply side only includes the actor responsible for decisions on land management and production techniques and equipment, and the regulations pertaining to him or her.

3.4 Supply-side drivers

Here, the supply side is understood as what happens at the location (farm, plantation, forest, country) where the production takes place. With this definition, insufficiencies or drivers that contribute to the problem relate to:

- **Low productivity (S1)** Low productivity (below the technical optimal production) at farm, plot or plantation level or in the processing chain means more land is needed to satisfy demand. This means the potential to increase production without expanding into new land exists (c.f. Affholder et al., 2013).
- **Low resource efficiency, resulting in waste and loss (S2)** Commodities are lost in production, storage or treatment (at the farm, plantation, or in the forest) due to insufficient knowledge, care, or equipment. FAO reports (2011 and 2013)⁴⁹ that 50-80% of all food waste happens before distribution
- **Insecure tenure (S3)** means that investments in land and produce from land is difficult to safeguard. In particular, rights to goods and services of land is difficult to compensate (e.g. in case of loss) or incentivise (e.g. to encourage certain use of land) if ownership is unclear or uncertain. Use and access rights for forests by indigenous and local communities are more difficult to safeguard when tenure rights are insecure or undefined, meaning that protection of forest areas owned by such communities becomes harder.
- **Weak governance and law enforcement (S4)**, lack of cross-sectoral coordination, and illegality/weak law enforcement. This includes unclear or inappropriate legal and policy frameworks, poor or absent land-use planning, land grabs and illegal deforestation, corruption, low capacity of public agencies, no rule of law/lack of law enforcement, and limited capacity to monitor.

⁴⁹ <http://www.fao.org/docrep/014/mb060e/mb060e00.pdf> and <http://www.fao.org/docrep/018/i3347e/i3347e.pdf>

3.5 Demand-side drivers

In the context of this feasibility assessment, on the demand side, the drivers of global and EU future impacts on deforestation are linked to:

- **Lack of public policies promoting commodities produced with less impact on deforestation (D1):** lack of multilateral framework/international standards; no policy in place to promote trade in legally and sustainably produced commodities and to act against illegal commodities (other than timber and biofuels);
- **Lack of incentives for private sector sourcing of FRCs produced with less impact on deforestation (D2):** lack of a level playing field; best practices not always recognised by the markets; efforts by progressive market players can be frustrated by difficulties and the high-cost of demonstrating compliance in producer countries (i.e. traceability/certification) and/or un conducive legal and policy frameworks
- **Lack of consumer awareness of FRC-related issues (D3)** in the sense that there is an unrealised potential in affecting the behaviour of consumers and companies provided that they are aware of the issues.
- **Consumption levels of FRCs (D4).** VITO (2013) finds that ‘the overconsumption of animal derived protein is particularly problematic (in 2007 the EU27 (the EU Member States at that time) average per capita protein intake was about 70% higher than the WHO recommended amount). High meat consumption has negative effects on the environment and on human health. As the production of meat requires a lot of land per unit of output, with cattle being more intensive than pig or poultry, meat consumption increases the demand for land and thus the pressure on forests.’ Further to this, VITO (2013) and Henders et al. (2015) both find livestock ranching on pastures on formerly forested land to be the main cause of deforestation.
- **High EU dependence on feed imports (D5).** The EU (and other developed countries) maintains a high agricultural production across all types of production systems; however, this relies to some extent on imported protein feed, e.g. soy cake from South America for pigs and cattle⁵⁰. The so-called ‘protein deficiency’ has decreased in recent years, but is still high: around 70% of the EU’s consumption of protein crops for feed were imported in 2011, mainly from Latin America. Several research initiatives that investigate EU protein dependency have already been initiated.⁵¹
- **Inefficiencies in food supply chains (D6)** means that losses in the later stages of the supply chain leads to additional land being necessary to satisfy demand. It is estimated that around one third of all food is lost at various stages of the supply chain (Gustavsson et al., 2011). Avoiding coffee being poured into the sink, beans being lost in the grinder, and batches being lost due to transport damage or wrong storage means that additional demand could be met without clearing more land. While land footprint associated with food waste in consumption has been explored by a few reports⁵² and research studies, the issue could be subject to more scrutiny to strengthen and enhance knowledge in this area. The AR5 of IPCC highlights this link in Chapter 11.⁵³

⁵⁰ <http://www.ocl-journal.org/articles/oclj/pdf/2014/04/oclj140021.pdf> and <https://gain.fas.usda.gov/Recent%20GAIN%20Publications/EU%20Protein%20Deficiency%20Brussels%20USEU%20EU-27%2011-08-30.pdf>

⁵¹ It should, however, be noted that under the CAP, i.e. greening, the possibility to cultivate nitrogen fixing crops as Ecological Focus Areas is one option to decrease the protein deficit. (see Reg (EU) 1307/2013, Art. 46.

⁵² e.g. <http://www.fao.org/docrep/018/i3347e/i3347e.pdf>

⁵³ https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter11.pdf

- **Policy-driven increase in demand for commodities (D7).** Policies can increase demand by forcing market actors to change behaviour, affecting prices and overall consumption (e.g. renewable energy policy promotes increased consumption of conventional biofuels, which could place more demand on productive land and indirectly foster deforestation and other land use change ILUC). Direct land use change is not allowed by the EU's biofuels sustainability criteria, but that may lead to EU demand to be largely shifted to or concentrated on existing cropland, leading to direct competition with food.

The demand-side drivers can be put into two overall groups: one group (D4, D5 and D6) which is concerned with the overall levels of consumption, and another group (D1, D2 and D3) which is concerned with discriminating between sustainably produced and unsustainably produced products.

3.6 Finance and investment drivers

Finance and investment play a crucial role in promoting sustainable agriculture, and the two key drivers are as follows:

- **Insufficient finance for investment in sustainable agriculture (F1)** can be an important barrier in producing countries preventing actors throughout the supply chain from taking necessary action.
- **Inadequate controls of flows of finance and investments from the EU (F2)** where investments and finance originating from the EU can have negative deforestation impacts, meaning that EU finance and investments can contribute indirectly to deforestation by funding activities that actually drive deforestation.

4 OBJECTIVES

This section formulates an overall objective and a set of specific objectives.

A range of existing and planned initiatives – at national, regional and international levels, and promoted by governments, the private sector and/or by NGOs – aim to address the specific drivers described in the previous chapter.

In light of the definition of the problem, the overall objective of a possible future EU action can be formulated as set out below:

The overall objective is to reduce tropical commodity-driven deforestation and forest degradation by developing a more coherent and comprehensive EU approach and stepping up EU action. The action should also contribute to the EU's efforts towards the implementation of the Paris Agreement and the Agenda 2030 for sustainable development, particularly SDG 15's target: ...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.

More specifically, any possible future EU action would address one or more of three specific objectives relating to the supply side, demand side, and investment and finance.

4.1 SO1: Supply-side actions

In order to produce increasing quantities of commodities for a growing global population, three fundamental options exist: increase production on the same land (intensify), bring new areas into production (extensify), and/or reduce losses within the production system. If production areas expand, these regions should strive to avoid expanding production onto forest areas, meaning that better protection of forest areas and stronger governance and land tenure is needed. This also includes providing economic and other incentives (political, technical, cultural) for keeping land forested (or for developing unforested land for agriculture). In order to intensify production, there is a need for know-how and technological means, including farm equipment, seeds, fertilizer, and other inputs, along with suitable harvest and storage facilities. This can increase resource efficiency and productivity, and increase the productivity of agricultural production. For examples of strategies and methodologies for increasing production sustainably and avoiding ILUC, see e.g. Ecofys (2016). Finally, reducing losses within the system requires better facilities to store, transport, treat or modify the commodities harvested. According to the FAO (2013),⁵⁴ in developing countries about one third of all food produced is lost before reaching markets.

Complementary action to facilitate the sustainable intensification of agricultural production could aim to strengthen the protection of forests in producer countries through the rule of law and good governance of land. Illegal deforestation represents a significant portion of deforestation in the tropics and is often driven by weak governance and law enforcement. Improved governance can be further promoted through EU cooperation with third countries, inter alia on policy and national legislation reform, support for national traceability/verification systems, capacity building, and cooperation among authorities and stakeholders. Key areas for support could include clarification of legal frameworks, land tenure and land use planning, mapping, transparency and independent monitoring, and law enforcement. Bilateral dialogue can seek to mobilise political commitment in third countries. Such supply-side actions are closely linked to the follow-up to the recent evaluation of the EU FLEGT Action Plan and should build on the lessons learned under FLEGT. REDD+ activities, both in the readiness phase and in

⁵⁴ FAO [United Nations Food and Agriculture Organization] (2013) Food wastage footprint: Impacts on natural resources. Summary Report. Rome, Italy: FAO

the results-based finance phase, may also contribute to improving governance, at national or sub-national level.

Another supply-side aspect relates to the values, beliefs, awareness and capacity of producers (farmers, forest owners, local food producers and factory owners) as concerns environmental services delivered by forests and the risks associated with their loss. Awareness of these issues is critical in ensuring support in any action. This includes producers' knowledge and technical know-how and even the equipment available to them. Working through information, development aid, and bilateral collaboration and research projects can help address and thus improve behaviour.

Therefore, the specific objective for the supply side is defined as:

- **SO1 Supply side:** Achieve broader uptake of sustainable or deforestation-free agricultural practices in producer countries, and promote better protection of forests in tropical countries.

4.2 SO2: Demand-side actions

Demand-side action would aim at promoting sustainable supply chains and reduce demand for unsustainable and illegal FRCs. Sustainable supply chains can be promoted e.g. through regulating market access (e.g. sustainability criteria; due diligence provisions), creating improved incentives for placing zero-deforestation products on the EU and global market (e.g. public procurement) and/or improved traceability, supply chain transparency and due diligence, while considering the need to avoid or minimise the diversion of unsustainable products, i.e. deforestation leakage. In addition, the EU could step up its international collaboration to tackle deforestation and forest degradation through bilateral, regional and multilateral dialogue with other major consumer markets. Any EU action in this area should avoid the unwanted effect of excluding smaller producers from these supply chains as there may be significant livelihood implications.

Another important demand-side issue relates to the building of consumer awareness and the promotion of behaviours supportive of the efforts to halt deforestation. The choice of products or brands at the grocery store, or that of the procurement officer at a food sector company is pivotal in sending signals up the supply chain. Raising awareness, changing values and beliefs and making it easier to identify sustainable or deforestation-free products can change the habits and hence the behaviour of consumers of commodities and commodity-based products (both B2B and B2C). Incentives such as labels, information materials and greater knowledge about supply chains (e.g. transparency) can help to release more of this potential. Harder measures, such as economic incentives (e.g. taxes and tariffs) can also change behaviours but may be difficult to implement. This may also include helping certain existing private sector initiatives to reduce the risk of exposure of supply chains to forest risk commodities and improve transparency. Efforts to reduce the total levels of consumption – such as through reducing food waste, improving resource efficiency and changing diets – are other ways of seeking to contribute to halting or reducing deforestation.

Therefore, the specific objective for the demand side is defined as:

SO2 Demand side: Achieve more sustainable supply chains, including reduced EU demand for FRCs associated with deforestation, and increased EU demand for sustainable and deforestation-free products

4.3 SO3: Investment and finance

Investment and finance actions would promote public and private investments and financial support that assist to reduce or halt deforestation and prevent investments that are harmful to the effort to reduce or halt deforestation. Halting of deforestation could be better promoted through mainstreaming across existing EU funds, and the

programming of relevant financial instruments e.g. through horizontal project approaches engaging both public and private stakeholders. Specific private sector-driven initiatives in the form of safeguards and due diligence criteria for investments and development finance that avoids deforestation may also be supported. Several existing and solid frameworks, guides and tools exist already. Insufficient finance in sustainable agriculture can be addressed through the establishment of mechanisms or targeted facilities that help to connect producers or jurisdictions with funding sources.

Inadequate controls of flows of finance and investments from the EU can be addressed through both softer measures (e.g. encouraging voluntary reporting) and through harder measures (e.g. a requirement for disclosure or even bans of investments in illegal or unsustainable FRC-related activities).

SO3 Investment and Finance: Achieve improved access to public and private investment and financial support, in particular for smallholders who can promote sustainable landscapes, and achieve enhanced transparency of investment in, and financing of, deforestation and forest degradation.

5 SELECTING THE INTERVENTIONS

This chapter first describes the basis and context for selecting possible interventions that could be part of an EU initiative on deforestation. Thereafter, the chapter describes in more detail how the interventions were identified and provides an overview of the selected interventions.

5.1 Approaches: legality, sustainability, zero deforestation

In seeking to reduce deforestation associated with the production of agricultural commodities, governments and companies in consumer countries (such as the EU Member States), often also working together with producer countries, have to date adopted one or more of three basic approaches:

- **Legality:** The products are produced in conformity with the legal requirements of the country of origin, and possibly also those set out in international agreements.
- **Sustainability:** The products are sustainably produced in their country of origin ('sustainability' can encompass a wide range of issues – see below).
- **Deforestation-free:** The products are not associated with deforestation in their country of origin; this approach often includes the adoption of targets for achieving zero deforestation or zero net deforestation in corporate supply chains.

These approaches fit within a broader movement towards the 'responsible management' of global supply chains, an attempt to ensure that corporate sourcing and national trade policy are aligned with the pursuit of global public goods, including environmental protection, labour and human rights standards and corporate transparency. As the European Commission's *Trade for All* strategy of 2015 puts it, 'Responsible management of global supply chains is essential to align trade policy with European values.'⁵⁵

These three approaches are described in more detail below; they provide a starting point for the discussion of potential interventions, which in principle could adopt any of these approaches. Furthermore, they are not mutually exclusive, and each overlaps with the others in various ways. Which approach is followed depends partly on the particular intervention being implemented; this is discussed further within the description of each intervention in Chapter 6.

5.1.1 Legality

A legality approach seeks to reduce the level of illegal behaviour in the production of the products in question, and to exclude from the markets products that are produced illegally. The illegality is generally defined in reference to the laws of the producer country, but may also include adherence to international agreements to which the country is a signatory. In the absence of legally binding international agreements, the EU Timber Regulation and the FLEGT voluntary partnership agreements (VPAs), for example, define legal timber with reference to the applicable legislation in the country of harvest. The EU's IUU Fishing Regulation defines legality in relation to compliance with international fisheries agreements as well as to the flag state's own conservation and management rules.⁵⁶

⁵⁵ *Trade for all Towards a more responsible trade and investment policy* (European Commission, 2015), p. 24.

⁵⁶ EU Regulation to end illegal, unreported and unregulated (IUU) fishing (EC 1005/2008), in force since 2010.

Starting with the G8 Action Programme on Forests of 1998–2001, which featured illegal logging as one of its five focus areas, the legality approach has been widely adopted in an attempt to reduce levels of illegal logging and trade in illegal timber. This includes in particular the EU's FLEGT Action Plan, though other countries, including the USA, Australia and more recently Japan and Korea, have also adopted measures to eliminate illegal timber from their markets). The FLEGT Action Plan includes a set of demand and supply-side measures built around seven action areas: a) development cooperation to build capacity and support for improvements in law enforcement and governance in timber-producing countries; b) the establishment of a FLEGT voluntary licensing scheme, implemented through the conclusion of bilateral VPAs between producer countries and the EU, designed to ensure that only legal products enter trade between the two, and to improve forest governance in the producer countries; c) the adoption of the EU Timber Regulation, which prohibits the placing on the EU market of timber which has been illegally harvested in the country of harvest, and obliges operators to exercise 'due diligence' to minimise the risk of handling illegal products; d) public procurement policies ensuring that only legal (and usually sustainable) timber products are bought by government purchasers; e) support for initiatives by the private sector to source legal and sustainable timber; f) better use of existing policies and legislation; and g) efforts to ensure that EU finance and investments do not contribute to illegal activities. This combination of mutually supportive measures in producer and consumer countries, improving law enforcement and governance in producer countries and excluding illegal products from consumer markets, has proved effective in many cases.

The main advantage of an approach focusing on the legality of production is that the definition of the problem rests in the hands of the producer country. It is the national legal framework, as drawn up in the country of origin that defines the illegality; it is not a question of standards drawn up outside the country being imposed on it – an accusation which is sometimes levelled at an approach based on sustainability standards.

The main disadvantage of the legality approach is the inverse: that the national laws in question may not be adequate to deliver the underlying objective of reducing the impact on forests. While a legality approach should reduce illegal activities, it may not be sufficient to address legal deforestation. If the law permits deforestation (or even possibly requires it; for example, palm oil companies are sometimes obliged to develop their concessions to the full even where they would prefer to avoid areas of high conservation value forest), simply relying on establishing legal production may not do enough to protect the forests. This is one of the arguments for a sustainability approach, encompassing a broader range of measures, in preference to a legality approach.

While this is a valid concern, a legality approach can often act as a stepping-stone to sustainability. Putting in place the mechanisms needed to track the movement of logs from the forest through to consumption or export – necessary for a legality approach – is a big step towards establishing full chain-of-custody tracking, which is itself necessary for a sustainability approach. Often a legality approach may itself lead to improvements in laws and regulations, with long-term improvements in forest management. The VPAs have also helped to improve transparency, opening up the forest sector and forest policy to scrutiny in particular from civil society, with potentially long-term positive impacts on standards of governance.⁵⁷

Legality approaches focused on trade and procurement have required a means of distinguishing between legal and illegal products, in order to ensure that illegal products do not enter trade or are not procured. In practice this has involved either setting up new systems – such as the timber legality assurance systems established under the

⁵⁷ See also An Bollen and Saskia Ozinga, *Improving Forest Governance: A Comparison of FLEGT VPAs and their Impact* (FERN, February 2013).

FLEGT VPAs, or legality verification schemes (such as those run by SGS, for example, or Bureau Veritas) – or making use of existing ones, mainly the international forest certification schemes of the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC) (see below).

As noted in Part I, illegal activities are also widely present in agriculture, including not only illegal deforestation but also the use of forced labour and child labour, burning of peatland forests to clear trees (often leading to major and long-lasting fires), the use of banned pesticides and the evasion of other environmental regulations. While in theory a legality approach could be deployed to deal with these kinds of illegalities, in practice there are significant barriers. Illegal forest conversion is often more difficult and complex to prove than many other forms of illegal behaviour; it is inevitably entangled with questions of land ownership and tenure which, in many countries, may be unclear or contested. Furthermore, while the timber logged from a forest which has been illegally cleared is very likely to be defined as illegal under the host country's laws, it seems less likely that the agricultural crops grown on the cleared land would themselves be classified as illegal – or if they were, how long after the original forest clearance any definition of 'illegal' would persist. This would require a detailed analysis of the relevant laws in the country of origin.

In addition, as discussed below, since private-sector commitments to eliminate deforestation from their supply chains are almost entirely focused on zero-deforestation and sustainability approaches, a legality approach would be of only limited assistance to them.

5.1.2 Sustainability

'Sustainability' is a broader concept than 'legality', encompassing the environmental, social and economic impacts and side-effects of the activity in question.⁵⁸ In the context of forests, it would generally be expected to include adherence to national (and possibly international) laws, but many other elements too. While various international forest agreements and institutions, such as the ITTO, the FAO and Forest Europe's Pan-European Forest Process on Criteria and Indicators for Sustainable Forest Management, have set out definitions of sustainable forest management, there is no universal definition of 'sustainability' for timber or for agricultural products associated with deforestation, and the principles, criteria and indicators that should be included in such a definition are often subject to wide debate.

Factors that could be taken into account in a definition of 'sustainability' include the following (this is not an exhaustive list):

- Legality, in relation to the laws and regulations of the country of production.
- Legality, in relation to compliance with international agreements such as the Sustainable Development Goals, the Paris Agreement on Climate Change or ILO Convention No. 169 on Indigenous and Tribal Peoples, among many others.
- Impacts, both direct and indirect, of the cultivation and harvesting of the commodities on forests within the concession or area of production, and in particular on high conservation value (HCV) and high carbon stock (HCS) areas (see box below).
- Other environmental impacts of the cultivation and harvesting of the commodities, including on biodiversity, waterways and other valuable ecosystems such as peatlands.
- Protection of the rights of workers in the supply chain.

⁵⁸ Several national timber procurement policies set out criteria for both legality and sustainability. As an example, the UK policy contains five criteria for legality, and 12 main and 19 sub-criteria for sustainability.

- Protection of the rights of forest communities and indigenous peoples, in particular with regard to rights of land tenure and ownership and the principle of free, prior, and informed consent.

High Conservation Value (HCV) and High Carbon Stock (HCS)

The protection of HCV and HCS forests are increasingly being incorporated in national and company commitments to avoid deforestation.

The concept of HCV was originally developed in 1999 for use in the FSC forest management certification scheme, but is now much more widely applied, to other areas as well as forests. HCV areas include significant concentrations of biodiversity, intact forest natural landscapes, rare or threatened ecosystems, basic ecosystem services in critical situations (such as protection of water catchments), resources fundamental for satisfying the basic necessities of local communities or indigenous peoples, and sites of cultural, archaeological or historical significance.

The HCS approach aims to identify and protect forests with high stocks of carbon, differentiating them from degraded land potentially suitable for establishing plantations and crops. In particular, the HCS approach stipulates that:

- Conversion to agriculture should be restricted to low-carbon scrubland and clear/open land;
- Primary forests, forests subject to moderate levels of logging and older secondary forests should be conserved;
- Young regenerating forest should be conserved;
- There must be rigorous assessment and conservation of all HCV forests;
- Robust processes are needed to ensure the free, prior and informed consent of local communities that recognises their rights and interests;
- Peatlands must be identified and conserved.

HCS and HCV are similar but distinct concepts. HCV is intended to maintain environmental and social values of particular importance. HCS is a strategy to for achieving zero deforestation by identifying and protecting viable and carbon-rich natural forest areas, areas of HCV and community lands of particular importance.

Source: Adapted from Proforest; <https://www.hcvnetwork.org>

A number of national sustainability schemes for individual commodities, such as the Indonesian Sustainable Palm Oil (ISPO) and the Malaysian Sustainable Palm Oil (MSPO) standards, and various definitions of sustainable timber in consumer countries' public procurement policies, do exist, and it is possible that further national or international standards for sustainability may develop if countries start to adopt policies focused on this objective. Most measures targeting the sustainability of commodities associated with deforestation have been implemented by companies rather than governments, and are often based on the sustainability criteria included in the various voluntary certification schemes, such as those of the FSC and PEFC for timber, RSPO for palm oil, UTZ Certified for cocoa, coffee and tea, the Sustainable Agriculture Network (certified by the Rainforest Alliance) for several commodities, and so on. The adequacy of the criteria included in these schemes to prevent deforestation has sometimes been criticised – for example, it has been argued that some of them fail to deal comprehensively with prior deforestation on the land on which the crop is grown. Several companies, accordingly, have incorporated criteria additional to those in the certification schemes; a number of companies sourcing palm oil, for example, have added to the basic RSPO standard requirements for no deforestation, no planting on peat or on high carbon stock areas and for the free, prior and informed consent of forest communities to any development (often summarised as No Deforestation, No Peat, No Exploitation (NDPE)).

Public policy measures aimed at promoting sustainability have tended to focus on donor-funded initiatives and public-private partnerships to support sustainable production on the ground in producer countries rather than on demand-side measures. With regard to consumer-country measures, several governments, mostly in EU Member States, specify sustainable and legal (rather than just legal) timber in their public pro-

curement policies, but this approach is only slowly emerging for agricultural commodities. In the area of public procurement, the UK and Sweden require palm oil purchased by government buyers to be sustainably produced, and Norway is pursuing a broader commitment to public sector purchasing of only zero-deforestation products. While various proposals have been put forward for measures such as differentiating import duties on the basis of sustainable production, and, as advocated in a recent report by the Environment Committee of the European Parliament, applying VPA-type agreements and an EUTR-type regulation to palm oil,⁵⁹ no such measures have yet been implemented. In 2009, the EU Renewable Energy Directive introduced in 2009 the world's first binding sustainability criteria for biofuels and bioliquids (though these do not address the impacts of indirect land use change caused by their production).

The sustainability approach is much more common in the private sector. A large number of companies have voluntarily committed to sourcing sustainable timber, palm oil and cocoa; equivalent commitments are less common for soy or beef. These policies often follow on from supply chain zero-deforestation commitments, which are considered below. In addition to individual corporate commitments, a number of national initiatives for sustainable palm oil have been adopted by alliances of companies within particular European countries, generally aiming to ensure that the entire national supply is sustainable by a given target date.⁶⁰

Compared to legality, the sustainability approach has a number of advantages. Given that it covers a wider range of issues, it should – if it proves effective – be more successful at minimising the impacts of timber extraction or agricultural expansion on forests. It avoids the problems of defining illegal agricultural commodities as discussed above. And it fits well with many corporate approaches.

It does suffer, however, from a number of challenges, including the need to define what exactly is meant by 'sustainability' in the context of any given intervention. The definition itself may prove difficult and costly to apply across an entire national or sub-national jurisdiction and by some producers, particularly smallholders and SMEs (though the process can also improve a company's performance in the long run). In contrast to the legality approach, producer countries are likely to perceive trade or purchasing decisions based on sustainability criteria as the imposition of unfair standards or 'green protectionism' directed at their own products; among other things, this has led to attempts by the Indonesian and Malaysian governments to develop their own certification schemes for palm oil instead of adopting the RSPO scheme.

Finally, the adequacy of certification schemes to guarantee sustainability is often disputed (which is why, as noted above, some companies have developed their own criteria), both because of the content of their principles and criteria and sometimes because of doubts about their ability to police their own procedures, and their coverage also varies extensively by commodity. Certification schemes can play a role in the development and implementation of many of the interventions discussed below in Chapter 6, but it should not be assumed that they would provide the only definition of 'sustainability' for the commodity in question. The EU Timber Regulation is a good example of a system which acknowledges the role certification schemes play in due diligence systems but does not treat them as an automatic 'green lane'.

5.1.3 Zero deforestation

The third approach – widely adopted in recent years – is through national or corporate commitments to 'zero deforestation'. In fact a variety of terms – zero deforestation,

⁵⁹ European Parliament Committee on the Environment, Public Health and Food Safety, *Report on palm oil and deforestation of rainforests* (2016/2222(INI)), 17 March 2017.

⁶⁰ See RSPO, *A Shared Vision – 100% Sustainable palm oil in Europe: A Snapshot of National Initiatives* (2015) and ZSL's Sustainable Palm Oil Transparency Toolkit website at <http://www.sustainablepalmoil.org/europe/>

zero gross deforestation, zero net deforestation and zero illegal deforestation – are used, sometimes interchangeably, although they are not the same.

Zero gross deforestation means an end to the conversion of all existing forestland, and therefore gives no weight to compensatory gains in forest cover made elsewhere. This term requires clarity over the definition of 'forest', and on the cut-off date after which no deforestation is to be allowed. A target of zero deforestation on a national scale can be viewed as impractical, ruling out developments which may be justifiable on environmental and social grounds. Whether it is suitable for a national or sub-national approach depends on the circumstances, such as the quantity and quality of existing forest cover in the jurisdiction in question.

Zero net deforestation means no change in the total forested area of the geographic unit in question; it therefore allows new forests to be planted to compensate for any deforestation. The definition of forests (and plantations) is critical; in particular, it must be clear what kinds of new forests are adequate to compensate for lost forest area. For example, the replacement of natural forest by plantations may imply a loss of biodiversity and carbon storage. Deforestation that occurred many years ago might or might not be permissible in the target in question. Criticisms of the zero net deforestation approach include the fact that companies with such a target could source commodities from converted forest land as long as there is some compensation taking place elsewhere – but it may be very difficult for companies and other organisations to know whether such compensation is really being created and maintained (on their own company areas or elsewhere in the jurisdiction in question).

Zero illegal deforestation means no deforestation that is not legally authorised or that violates the applicable legal framework. This approach – which is basically the same as the legality approach described above in Section 5.1.1 – needs to be clear not just about the definition of 'forest', but also about what constitutes illegal activity – an issue faced in the operational definitions of legality agreed under the FLEGT VPAs. While zero-illegal-deforestation approaches can provide a firm foundation for delivering responsible sourcing, and have been favoured by many governments in producer countries, the criticism can be made that it represents a step backwards from broader approaches that include criteria over and above the requirements of national laws. Also, zero-illegal-deforestation commitments allow companies to source commodities from legally converted forest land – i.e. they are still associated with deforestation. They could, however, allow for a stepwise approach towards more ambitious commitments, with a first step being to address weaknesses in governance in many commodity-producing countries.

It is of course the sovereign right of governments to determine how to manage their own land and natural resources. As noted in Part I, a number of governments have adopted commitments to some variety of zero deforestation, often in line with the 2014 New York Declaration on Forests or SDG 15, which includes the target of halting deforestation by 2020. Many of the Nationally Determined Contributions (NDCs) submitted under the Paris Agreement on climate change include targets for reducing deforestation; one analysis suggested that over half the NDCs establish one or more concrete goals in the forest sector, including targets for afforestation, reforestation and restoration, and commitments to sustainable forest management.⁶¹ A few countries have adopted explicit zero deforestation goals; Bolivia, for example, has set a target date of 2020 for achieving zero deforestation and Mexico, 2030. Brazil has made a commitment to eliminate illegal deforestation by 2030, as defined by its Forest Code and enshrined that in its NDC. Côte d'Ivoire has also committed to a zero illegal deforestation target.

⁶¹ Karen Petersen and Josefina Braña Varela, *INDC Analysis: An Overview Of The Forest Sector* (WWF, 2015). See also Rita Strohmaier et al, *The Agriculture Sectors in the Intended Nationally Determined Contributions: Analysis* (FAO, 2016).

A growing number of companies have also adopted commitments to eliminate deforestation from their supply chains, often following or accompanied by overarching goals or declarations such as those of the Consumer Goods Forum, Tropical Forest Alliance 2020, the 2014 New York Declaration on Forests and the 2015 Amsterdam Declaration. Most of these are commitments to zero gross deforestation in their product supply chains, though a few companies possess zero-net-deforestation targets, and others have committed to targets such as avoiding deforestation of 'valuable forests'. A number of studies and websites have tracked and compared the zero-deforestation commitments made by Consumer Goods Forum members and New York Declaration signatories,⁶² and some studies are beginning to appear which analyse their implementation.⁶³ These focus almost entirely on companies' performance; no studies appear to have been published looking at governments' implementation of their corresponding commitments.

These studies suggest that most companies that are implementing their commitments are doing so by limiting their sourcing to certified products. As one study concluded, 'supply-chain efforts are generally more advanced in commodities with widely recognised certification standards and integrated supply chains, which provide easy and accessible options toward sustainability. In line with our findings on commitments, progress toward increasing certified production and sourcing has been good for wood products and palm oil, but less so for soy and beef.'⁶⁴ As discussed above, some companies, including several producing and sourcing from high-risk areas, have articulated more ambitious commitments than limiting purchasing to certified products, setting out their own criteria, often based on those in certification schemes but adding additional elements on top.

Thus, at least for companies, zero-deforestation commitments can be complementary to sustainability approaches, though this depends on exactly how the commitments are defined and implemented. If the targets are to be achieved through sourcing certified sustainable products, they may in practice end up as effectively identical to the sustainability approach described above, with the same advantages and drawbacks.

In theory it is possible to conceive of a zero-deforestation or 'deforestation-free' standard (rather than a broader sustainability standard) on which trade and purchasing policies and decisions could be based; any product produced to this standard would not be associated with deforestation throughout its supply chain. This would, however, face practical challenges, including defining the area (country? region? forest?) and the time period over which deforestation had not occurred, defining what exactly is meant by 'deforestation' (zero gross deforestation? zero net deforestation?) and devising a means of verification of the claim. (Where the term 'zero deforestation' is used in the interventions discussed in Chapter 6, it should be remembered that all these issues would need to be defined.) In practice in many cases, it might prove easier to use the existing sustainability certification schemes.

5.2 Basis and context for selecting the interventions

This section provides an overview of existing actions to halt deforestation and forest degradation. The section first applies a global perspective and provides a synthesis of the key observations derived from a substantive mapping exercise: where in the supply chain do existing actions focus; on what products; and important lessons learned.

⁶² See Tom Bregman, Katie McCoy, Rafel Servent and Christina MacFarquhar, *Turning Collective Commitment into Action: Assessing progress by Consumer Goods Forum members towards achieving deforestation-free supply chains* (Global Canopy Programme and CDP, 2016), www.supply-change.org and forest500.org

⁶³ See Charlotte Streck, Franziska Haupt, and Stephanie Roe, *Progress on the New York Declaration on Forests: Eliminating Deforestation from the Production of Agricultural Commodities – Goal 2 Assessment Report* (Climate Focus, 2016) and Duncan Brack and Mark Gregory, *Company Promises: How businesses are meeting commitments to end deforestation* (Fern, 2017).

⁶⁴ Streck et al, *Progress on the New York Declaration on Forests*, p. 25.

Thereafter, key EU actions are identified and described focusing on their contribution to halt deforestation and forest degradation.

5.2.1 Findings on current action to halt deforestation and forest degradation

The three approaches described above represent trends in conceptual thinking on how best to tackle the challenge of deforestation and forest degradation. The use of the voluntary certification schemes is a common means of pursuing the legality and sustainability approaches. The latter (zero deforestation or zero net deforestation) has been addressed through moratoria, claims and commitments at national, jurisdictional, supply chain or company level, often using certification as a means to document achievements.⁶⁵

A screening of 186 existing global, regional, and EU initiatives targeting deforestation and forest degradation was prepared as part of this study.⁶⁶ This exercise identified that there are already a significant number of initiatives originating in the EU and dealing with the demand for FRCs. Similarly, many regional and international initiatives exist on the supply side as well. Less than 20 initiatives cover both traders and investors.

The screened initiatives include private sector, civil society and public sector initiatives, including regulation, and they cover commodity-specific as well as general initiatives.

Dissecting private sector initiatives further, indicates that a large number of supply-side initiatives are private and civil society initiatives, and that they are not FRC specific ('unspecified'). The fact that the largest group of initiatives of all is EU action on demand side, but that demand-side actions plays comparatively smaller role in the private sector, shows that regulation and public initiatives dominates on the demand side. The count does not detail the type of initiative and how effective it is e.g. in terms of uptake of certification schemes. Still, the count reveals that palm oil, timber, soy and beef/leather as subject to most specific initiatives, while cocoa, coffee, maize, and rubber were found to be subject to very few initiatives. Compared to the full count, trading⁶⁷ initiatives take up a higher share of all initiatives in the private sector, but also that investor initiatives remain few also at the private level.

⁶⁵http://www.isealalliance.org/sites/default/files/ISEAL_Standards%20Contributions_to_Landscape_Approaches_April16_Final.pdf

⁶⁶ See Part I report: National initiatives in non-EU countries not consistently covered due to language barriers and limitations in scope

⁶⁷ Trading or trade node initiatives are those that do not address the demand or supply side, but concerns how commodities are exchanged between the producer and the consumer.

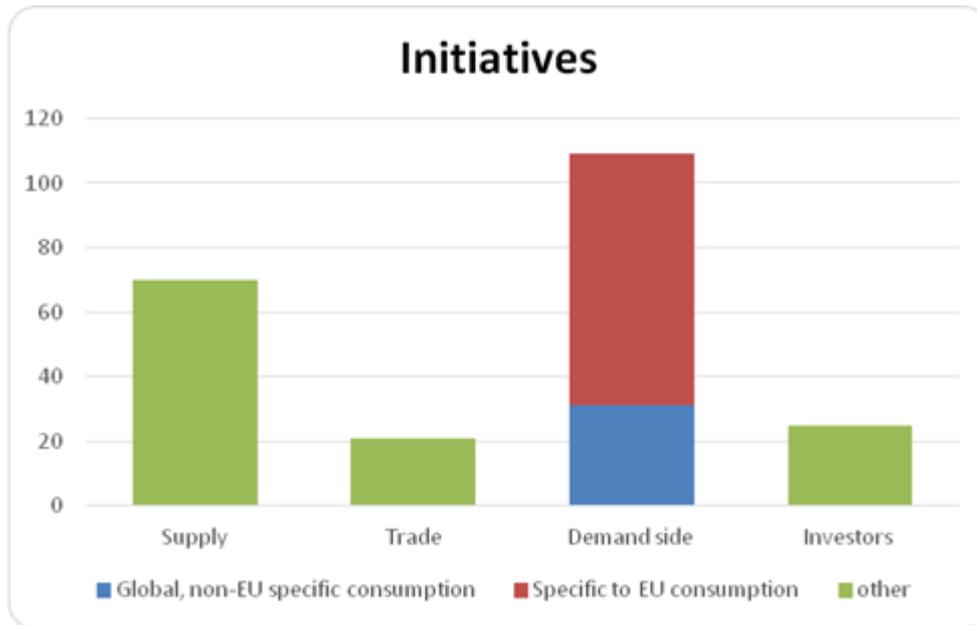


Figure 5-1: Overview of number of regional, international and EU initiatives tackling deforestation and forest degradation. While 186 initiatives were screened, some of these includes elements relevant for more than one supply chain node, hence total number in figure is more than 186.

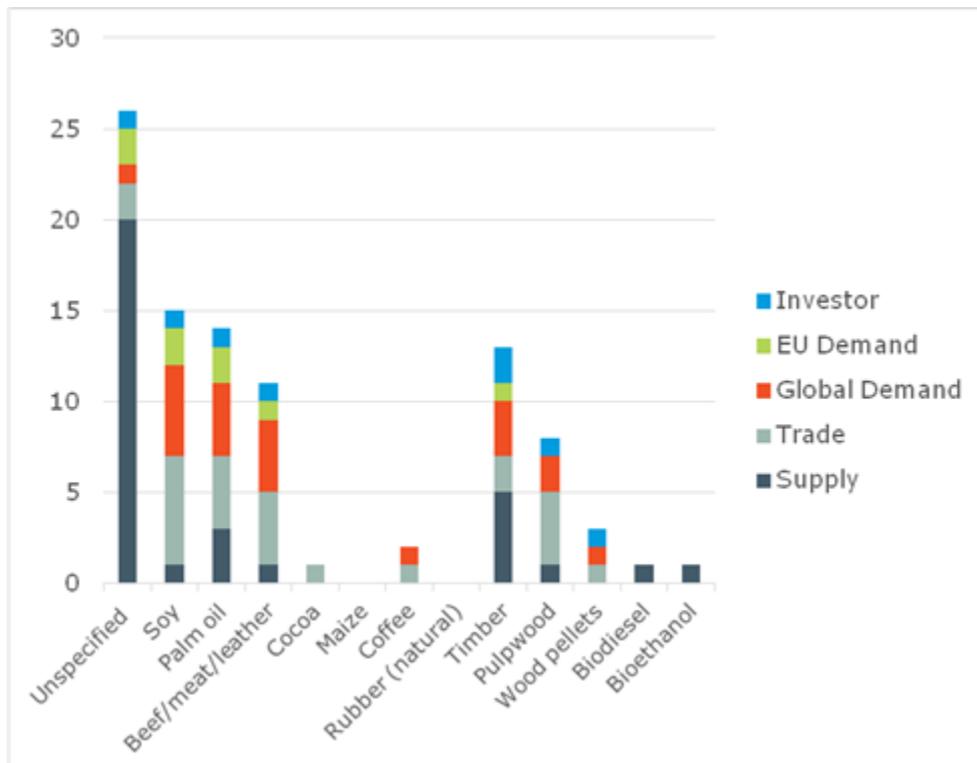


Figure 5-2: Overview of distribution of private sector initiatives across FRCs and supply chain nodes.

Certification

Looking further at types of initiatives, certification schemes make up quite few of the initiatives by number, in particular when looking into commodity-specific schemes. Across the FRCs there are large differences in terms of coverage (share of traded volume certified) and the number of certification schemes. In addition to the commodities included in this study, there are notable certification initiatives for cotton, sugar and

bananas. Forest and wood certification has been in existence for longer and is therefore much better established: the FSC and PEFC schemes dominate (not shown below).

Table 5-1 Overview of commodities and international certification schemes. Based on inputs from KPMG, 2013; Potts et al., 2014; Brack for Chatham House, 2015; and DeFries et al., 2017.

FRC	Certification schemes	Certified volume	Production scale characteristics
Palm Oil	RSPO, ISPO, SAN/RA, IFOAM organic.	15% (2012) 18% (2015 ⁽⁶⁸⁾)	Both smallholders and large plantations but mostly in SE Asia.
Soy	RTRS, ISCC and ProTerra, Fairtrade	3% (2013 ⁽⁶⁹⁾)	
Beef	Global Roundtable on Sustainable Beef (WWF), SAN/RA	Currently less than 10% as this is the GRFB target for 2020. Less than 1% in Brazil (2016)	Large farms in South America and Australia, US and the EU dominate.
Cocoa	Rainforest Alliance, UTZ, Fairtrade, IFOAM organic.	22% (2012)	Many smallholders in West Africa
Coffee	Nespresso AAA, 4C association, Fairtrade, Rainforest Alliance, UTZ, IFOAM organic.	40% (2012) and growing	Many Smallholders in Central America, Africa and select parts of Asia (e.g. Java)
Maize	No dedicated schemes found	-	Large farms in South America, and in the US. Smallholders in India.
Rubber	GOLS, ⁷⁰ SNR-I, ⁷¹ which does not require third party verification.	Very low uptake – no data found	Smallholders in SE Asia ⁷²

As the overview shows, there are four groupings of commodities in terms of certification availability and uptake. Cocoa and coffee share many product characteristics and are produced by smallholders in confined geographies. Certification is available through several schemes and uptake is comparatively high. Palm oil is growing in terms of certification levels (particularly through RSPO certification), but its supply chain is more complex, as it is often used as an ingredient of other products. Soy is in some ways similar to palm oil, Soybeans and soy cake are different products with different applications, and should be analysed as such.

Beef and rubber stand out, with only one or two schemes available and uptake is very low at this stage. The last group is maize, for which no dedicated scheme was found to exist. These observations and the grouping suggest specific rationales and reasons for intervening, which are important to recall when devising policy options.

⁶⁸ www.campbellcollaboration.org

⁶⁹ KPMG, 2013: *A roadmap to sustainable soy*

⁷⁰ Global Organic Latex Standard (since 2012)

⁷¹ Sustainable Natural Rubber Initiative, see <http://snr-i.org/index.php>

⁷² Kennedy et al., 2017, in *International Journal of Biodiversity Science, Ecosystem Services & Management*

Table 5-2 Observations on commodity specific interventions

FRCs	Intervention design considerations
Cocoa, coffee	<ul style="list-style-type: none"> • Dealing with smallholders in specific geographies, so assistance and local level engagement is important • Uptake of certification already (comparatively) high, so efforts could strengthen business case across the supply chain
Palm oil, soy	<ul style="list-style-type: none"> • Many large global companies involved, but also smallholder producers for palm oil • Standards are available and public and producers awareness high, so focus should be on encouraging greater uptake among large international traders and users, building on front runners actions
Beef and Rubber	<ul style="list-style-type: none"> • Confined production geographies (South America and SE Asia respectively) • Rely on very few schemes • Needs support to kick-start uptake and help develop existing schemes
Maize	<ul style="list-style-type: none"> • Certification approach might be years into the future as no schemes are available. However, few large producers mainly in South America makes country-specific approaches worthwhile

Comprehensive vs. FRC specific interventions

Several issues need to be borne in mind when considering interventions and their coverage in terms of FRCs. As indicated above, supply geography and producer characteristics may help to determine whether to consider support and assistance to producers or mandatory reporting and compliance requirements, the latter being mainly relevant for large commercial actors in order not to overwhelm smallholders. In that context, supply-side interventions could cover a number of FRCs that share characteristics in order to increase the potential cost-effectiveness. Supply-side interventions with a distinct geographical element, such as bilateral country partnerships, would be likely to benefit from covering all commodities produced in that country.

Demand-side interventions could be sector and/or product-specific. For example interventions targeted on food, rather than, for example, rubber. In any case, a demand-side intervention must cover only the FRCs that are considered important in order to ensure that administrative costs and complexities involved are justified by the assumed impact of the intervention.

Combining supply chain approaches with jurisdictional approaches

Supply chain interventions, such as commodity certification, are important in increasing the understanding of FRC supply chains and reducing the forest risk exposure of producers and actors. Increasingly, however, private sector actors and partners are realising that supply chain interventions are not sufficient to reduce and halt deforestation. Action is also required on local and national governance challenges (e.g. on land tenure, land-use planning, etc.), beyond specific supply chains, with the aim of raising the bar for all producers in given jurisdictions.

Jurisdictional-level and multi-stakeholder processes led by national, regional, district or local level governments can provide a space for stakeholders to discuss the many challenges in a constructive manner. Working beyond supply chains also offers a way to reduce the risk of leakage (i.e. shifting deforestation to other actors within the jurisdiction) and to make monitoring and verification cheaper and more efficient. Jurisdictional approaches also offer a chance of reducing the risk that responsible sourcing commitments may not be met by all producers in a jurisdiction, in particular by smallholder producers. Interventions would need to support integrated supply chain approaches with jurisdictional approaches and foster a combination of financial, fiscal, technical and trade incentives to trigger the required change at jurisdictional level.

The power of transparency

Over the last couple of years, there has been significant progress in the availability and use of satellite imagery to monitor deforestation and forest degradation, even in close to real-time. This kind of spatial information is also increasingly accessible to public and private actors, as well as civil society organisations, and at a reasonable cost. However, monitoring commodity trade flows and their environmental and social impacts continues to be a challenge. The routes commodities take and the actors involved are known for only a fraction of the global trade in commodities, such as for certified products. Information is not easily accessible, nor compiled in useful ways. Thus, the many public and private sector actors involved in trading, transforming or consuming such commodities are often not aware of the adverse effects and business risks associated with their activities.

There is an urgent need to better understand complex supply chain connections to stop deforestation associated with traded commodities, and to minimise and avoid the associated environmental and social risks. A clear understanding of where commodities originate, how they move around the globe and where they end up will help to identify strategic targets and entry points to achieve more sustainable global supply chains. A number of initiatives are now underway linking information on local drivers of deforestation with social, environmental and legal indicators as well as with financial and fiscal information, disclosing information about the actions of companies and governments in production areas and along supply chains. These information systems will increasingly prompt public and private actors to act more quickly to ensure their risk exposure reduces over time. Interventions would need to promote the availability of supply chain-related information and support assessment of related forest risk to accelerate action by stakeholders on both the demand and supply side as well as by investors in FRC.

5.2.2 Overview of current EU actions

Through a number of landmark initiatives over the past 15 years, the EU has taken a lead in reducing its global environmental footprint, and at the same time promoting sustainable growth, job creation and inclusion.

Current EU action includes both activities and policies addressing deforestation directly, and activities and policies primarily serving other purposes but with implications for global deforestation and forest degradation. The key policies are listed below, organised by policy area:

Table 5-3 Overview of EU action relevant for deforestation and forest degradation. For further background please visit Part I report. Some policies covered in the background report are not included here.

Policy area	Policies/ Actions	Note
Environment	EU FLEGT Action Plan, including EUTR and VPAs	Addresses illegal logging using trade instruments to strengthen forest governance and bring illegal forestry and land-use activities under the rule of law. Its main elements are the EU Timber Regulation (EUTR), laying out due diligence requirements for timber importers, and Voluntary Partnership Agreements (VPAs), using timber trade as a lever to improve forest governance in timber producing countries. The EU Action Plan promotes a legality approach, thus potentially having a direct impact on illegal deforestation, and an indirect impact on legal deforestation due to improved forest governance.
	Green Public Procurement ⁷³	Existing guidelines for public procurement on sustainability, legality etc. already addresses timber in several EU member states.
	Circular Economy Package	Addresses the food and material waste concerns linked to demand side driver D4. Policy and interventions considered in light of this can inevitably have a positive impact on EU demand and hence help reduce deforestation. ⁷⁴
	EU Forest Strategy	The strategy seeks to strengthen sustainable forest management, improve competitiveness, and create jobs in the forest (-based sector). The strategy acknowledges that the EU's own consumption has worldwide implications on forests and therefore dedicates one priority to global forest challenges. As a result, the EU shall be at the forefront in combating global deforestation and forest degradation, through the promotion of sustainable management practices, fighting desertification, and responding to climate change.
Climate and Energy	REDD+ support by EC and MS	REDD+ as an incentive mechanism precisely targets the drivers of deforestation and forest degradation, albeit starting from a GHG emission reduction point of view. It supports countries assessing the drivers of deforestation and identifies solutions to address them. It also aims at providing incentives to REDD+ countries that reduce emissions from deforestation below a pre-identified reference level. There is no defined EU policy on REDD+, but Member States and the European Commission fully support UNFCCC negotiations for the transparency and comparability of mitigation action, including in the land sector. Various Member States and the European Commission support projects in REDD+ countries as well as several multilateral funds and initiatives supporting REDD+, such as the FCPF Readiness and Carbon Funds or the Central African Forest Initiative.
	Renewable Energy Policy, including EU biofuel sustainability criteria, including the 2015 Indirect Land-Use Change (ILUC) amendments and the full body of COM reports for the last 10 years The revised Renewable Energy Directive, including strengthening sustainability criteria, also covering biomass and biogas in heat and power	The EU sustainability criteria for biofuels and bioliquids define the requirements to be met by biofuels and bioliquids in order to contribute to the EU2020 targets and to receive public support. Studies have demonstrated that biofuels made from food and feed crops (as opposed to residues or waste) increase the demand for land and indirectly drive land-use change (ILUC). EU sustainability criteria introduced for biofuels are designed to prevent direct LUC only. In order to prevent or reduce ILUC impacts, the EU introduced a 7% cap on the use of crop-based biofuels and promoted a shift to advanced biofuels, using woody materials and wastes and residues. This is important not least because of the size of investments and procurement contracts in the energy sector.
Trade	Free Trade Agreements, including rules for Sustainability Impact Assessments	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

⁷³ These are non-legislative documents and not a policy

⁷⁴ It should be noted that this observation has not led to identification for an intervention later in the report, as the Circular Economy package has been put forward

Policy area	Policies/ Actions	Note
		and ecosystems; the fight against illegal logging; the encouragement of trade in legally harvested forest products; cooperation at multilateral and regional level.
	Trade 4 all	Includes a call 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)
	Import/export duties	EU maintains import tariffs for several forest-based as well as forest risk commodities for some countries. ⁷⁵ These tariffs are updated on a regular basis and could serve as a basis for addressing deforestation concerns to some degree. Currently the EU does not use import or export duties directly or indirectly to address deforestation, but this could be an opportunity that should be considered.
	Aid for trade	Aid for Trade (AFT) is assistance provided to support partner countries' efforts to develop and expand their trade as leverage for growth and poverty reduction. This could include support for building new transport, energy or telecommunications infrastructure, investments in agriculture, fisheries and services, as well as assistance in managing any balance of payments shortfalls due to changes in the world trading environment. http://ec.europa.eu/trade/policy/countries-and-regions/development/aid-for-trade/
Development Cooperation and EU External Action	Existing and future development cooperation instruments including thematic and geographic programmes	Much of EU development cooperation covers themes such as agriculture, forests and environmental governance. It is already tackling deforestation and helping to build stronger forest governance through capacity building.
	Mainstreaming environment and climate change considerations	The Commission is committed to mainstreaming environment and climate change considerations in its development cooperation programmes and projects. A set of tools and measures has been set up to this effect and includes general guidelines on integrating the environment and climate change into EU international cooperation and development as well as Sector Guidance Notes. These focus on ways of addressing environmental and climate change considerations in development cooperation from programming to implementation, through a wide range of tools and approaches like environmental and climate screening, country environmental profiles, environmental impact assessments and strategic environmental assessments. ⁷⁶
Agriculture	Common Agricultural Policy rules (Pillar 1) and measures (Rural Development Programmes)	The CAP supports EU farmers producing various crops that can substitute FRCs.
Financial	Directive on disclosure of non-financial and diversity information	Current rules on disclosure do not require disclosure of information on impact of or risk of deforestation or forest degradation, but could serve as legal basis for such.
Consumer protection	Regulation on food information labelling	Regulation (EU) 1169/2011 on food information to consumers states that in the case of vegetable oils, the precise type/origin of oil has to be labelled in the list of ingredients. This means that in the case of palm oil or soybean oil, which are extracted from potential deforestation risk commodities, consumers are informed about the origin of the vegetable oil as the list of ingredient has to contain the terms ' palm oil' or ' soybean oil'.
Research	Research Framework Programme (H2020, future FP9) includes research headlines	Several headlines under the EU research programmes have a direct or indirect relevance. Research funding across several areas could support interventions through financing of research to build knowledge and develop solutions.

⁷⁵ See Official Journal of 28.10.2016 setting the tariffs for recent levels of duties.

⁷⁶ http://ec.europa.eu/europeaid/integrating-environment-and-climate-change-eu-international-cooperation-and-development-towards_en

Policy area	Policies/ Actions	Note
	on sustainable production	

The overview illustrates the many policies that already contain elements that are relevant for halting or reducing deforestation and forest degradation, or which may serve as a possible basis for future action. Three key policy areas already directly address deforestation, viz.: EU FLEGT Action Plan, REDD+ support (by MS and EC) and EU Development Cooperation.

5.2.3 EU FLEGT Action Plan

The EU FLEGT Action Plan is an innovative means of using trade instruments to strengthen forest governance and bring illegal forestry and land-use activities under the rule of law. Its two key elements are the EU Timber Regulation and bilateral trade treaties called Voluntary Partnership Agreements (VPAs) between the EU and timber-exporting countries.

Since 2013, the EU Timber Regulation has prohibited operators from placing illegal timber on the EU market and required them to use due diligence to ensure products are produced in accordance with the laws of the source country. On the supply side, VPAs support efforts by timber-exporting countries to combat illegal logging, ensure legal compliance at a national level and strengthen trade in legal timber with the EU.

VPAs are bilateral trade agreements between the EU and partner countries that clarify and apply the country's legal standards to the whole timber sector, and use trade as a lever to improve law enforcement and address forest governance challenges. They do this by opening up forest-sector decision-making to national stakeholders so that they can contribute to clarifying rights, laws and regulations; strengthening enforcement of forest, environment, social and trade regulations; and improving transparency, monitoring and accountability. VPAs prioritise consensus building so that national government, private sector and civil society representatives agree on how to promote legal forestry activities that support economic, social and environmental goals.

At the heart of each VPA is a timber legality assurance system, which verifies that timber products are produced, transported, transformed and sold in conformity with national laws and hence meet the demand-side requirements of the EU Timber Regulation.

The EU FLEGT Action Plan focuses on tackling illegal logging and related trade, and addressing it through improved governance has positive spill-over effects on forest management more broadly, including in terms of sustainability and reduced deforestation.

The recent FLEGT Action Plan evaluation highlighted the relevance of the EU policy but also identified the most relevant gaps and synergies. Issues of relevance for defining interventions include the following areas for observation: 1) Combination of VPA and non-VPA approaches to address diverging country needs and contexts; 2) the role of NGOs and the private sector; and 3) donor coordination. A short summary of the evaluation can be found in the box below.

The first observation is about the process of negotiating and implementing Voluntary Partnership Agreements (VPAs). Due to their complexity and export focus, they may not always be the most appropriate instrument to address illegal logging in a given timber exporting country. Therefore, addressing illegal logging and improving forest governance through other approaches should also be encouraged. The second observation concerns the benefits in VPA countries across sectors and stakeholders. While

NGOs and national authorities have benefited from the capacity-building efforts, private sector and sub-national institutions have received less attention. Hence, private sector involvement and local level action could be worth prioritising in the future. A third key observation is that coordination with other donors, importers and international organisations remains important.

Text Box 5-1 Main points from the FLEGT AP Evaluation

The key findings emerging from the evaluation are the following:

- 1 The EU FLEGT Action Plan continues to be fully relevant but needs to address new challenges, in particular with regard to deforestation and forest conversion.
- 2 The overall design is innovative, comprehensive and future-proof, but objectives and intervention logics need to be clarified. Main pillars and action areas should be retained, but FLEGT support to producing countries should be delivered in a more demand-driven and flexible manner, while bottlenecks affecting VPAs should be addressed and the private sector more involved.
- 3 The Action Plan has not been implemented in a sufficiently balanced manner; strategic direction and monitoring of FLEGT Action should be improved; management and outcome monitoring also need strengthening and require corresponding human and financial resources.
- 4 Communication has initially not been commensurate to the importance of the EU FLEGT Action Plan as an innovative and experimental policy initiative. More attention should be given to internal and external FLEGT communication at all levels.
- 5 While the Action Plan contributes to its specific objectives, effectiveness across action areas varies widely. Shifts in priorities and approaches within and between actions areas are required, notably with regard to VPA and EUTR implementation and private sector engagement.
- 6 While the direct FLEGT objective of decreased EU imports of illegal wood is being achieved, a shift in geographical focus to non-VPA countries and focus on international coalitions is required if global illegal logging and trade is to be addressed.
- 7 The EU FLEGT Action Plan is resulting in improved forest governance in all targeted countries, both VPA and non-VPA. However, fundamental governance challenges persist, which slow down progress and need more effective tackling.
- 8 FLEGT's contribution to the higher objective of Sustainable Forest Management is unclear and needs to be made more explicit. FLEGT has proven to have potential to make an important contribution to poverty reduction, but this requires more attention for domestic timber markets and support for the actors operating in them.
- 9 FLEGT is largely coherent with EU and international policies. While the principle of basing VPAs primarily on national legislation should be maintained, due attention should also be given to obligations deriving from international conventions.
- 10 The FLEGT Action Plan has clear EU added-value through its market leverage and increased political weight. However, effective implementation requires broader political and financial support and promotion across EU Member States, along with enhanced coordination.

https://ec.europa.eu/europeaid/sites/devco/files/executive-summary-swd-2016_276_f1_en.pdf

Though the EU FLEGT Action Plan may only have an indirect impact on addressing deforestation, the EU's experience with FLEGT VPAs could assist efforts to define the enabling environment stakeholders who need to be put in place to make zero-deforestation production and related trade a reality.

Lessons learnt include:⁷⁷

- VPA experiences show that market access and trade provide strong incentives for commodity producers to comply with demand-side requirements — including environmental, social and governance criteria — and can trigger forest and land-use governance reforms;
- VPAs have pioneered jurisdictional approaches in the forestry sector;
- Dialogue and cooperation among public and private stakeholders in commodity-producing countries is critical to foster mutual understanding, broad consensus and effective implementation of zero-deforestation commitments;
- It is necessary to define 'zero-deforestation' at the national or jurisdictional level and also to clarify legal and institutional frameworks, as they enable stakeholders to understand rights, responsibilities and obligations;
- Approaches that focus on compliance with existing legal frameworks at national or jurisdictional level, such as FLEGT VPAs or zero illegal deforestation approaches, respect the forest and land-use decisions of commodity-producing countries;
- Credible monitoring and reporting systems are needed, as transparency increases the accountability of public and private actors, limits opportunities for corruption, and helps markets understand supply chains and their impacts.

5.2.4 REDD+ support by EC and MS

REDD+⁷⁸ activities, with a comprehensive framework of rules already agreed in Warsaw in 2013, now form an integral part of the Paris Agreement. The development of the REDD+ framework under the UNFCCC has created a great deal of expectation and mobilised significant resources from climate finance (mostly from ODA/public funding) for the preparedness phase. However, its implementation remains in its early stages, and there are still question marks about the availability of future funding (beyond ODA), and concerns about sustainability and overall effectiveness. If fully and globally implemented, REDD+ would address a major market failure by putting a price on deforestation. Initiatives targeting private sector and public authorities around sustainable global supply chains, particularly through harnessing the power of market signals would be highly complementary to the REDD+ incentive. Unlike for the preparedness phase, there is still little experience about the implementation phase, i.e. about results-based finance for reduction of emissions from deforestation. As previously mentioned, there is also uncertainty regarding future funding, especially with a view to the need for scaled-up finance for REDD+. Policy coherence between REDD+ incentives and broader development finance, trade and investments also remain an issue.

Initiatives targeting the private sector and public authorities around global supply chains, particularly through harnessing the power of market signals, are valuable in their own right, and many such initiatives are under way. They have the potential to complement REDD+ incentives. Currently REDD+ very much rely on international and institutional financing of activities that prepare countries to participate in a market.

As part of existing EU action, the EC commits approximately EUR 25 million annually to REDD+ piloting projects, and several MS have their own programmes for supporting REDD+ in specific countries.⁷⁹ Observations relevant for future policymaking include improving coordination and synergies between MS and EC action. Also, we find that

⁷⁷ 2017, achieving zero-deforestation commitments. Lessons from FLEGT Voluntary Partnership Agreements. EU FLEGT and REDD Facilities, European Forest Institute.

⁷⁸ REDD+ stands for 5 type of activities: reducing emissions from deforestation, reducing emissions from forest degradation, enhancement of forest carbon stocks, conservation of carbon stocks and sustainable management of forests.

⁷⁹ See *Forest, Climate and People*, European Commission, DG CLIMA

exploring synergies between FLEGT and REDD+ could hold some promise, in particular with regard to institutional capacity building, land and forest MRV and land tenure.

5.2.5 *Development Cooperation and other EU external funding instruments*

Over half of the global spending on development aid originates from the EU and its Member States, making them collectively the world's largest aid donor. The EU's and other donors' development cooperation programmes (ODA) are increasingly becoming more closely aligned with the UN Sustainable Development Goals, including the goal of ending deforestation by 2020 (SDG 15.2). Already, several instruments and projects funded by Member States and the European Commission address relevant issues such as forest governance, sustainable agriculture and capacity building for environmental institutions.⁸⁰ Several programmes under the Development Cooperation Instrument, such as the Global Public Goods and Challenges Programme (GPGC), together with several geographic programmes, specifically include the land sector and environmental challenges. In addition to development cooperation, through the Partnership Instrument (PI), the EU cooperates with partners around the world to advance the Union's strategic interests and tackle global challenges, including environmental challenges.

While significant EU investment flows into the agriculture, forestry, domestic energy, environment and mining sectors of EU partner countries, there is currently limited understanding of the extent to which these investments contribute to reducing the drivers of deforestation and forest degradation or indeed prove harmful to the country's forest cover (through, for instance, unsustainable agricultural intensification). A study of public land-use investments in Côte d'Ivoire in 2015 identified the fact that 85% of tracked ODA support in the land-use sector (particularly agriculture) – including a significant share from the EU and its Member States – did not take into account deforestation risk and could potentially have led to forest conversion.⁸¹

Although the Commission is already committed to mainstreaming environmental and climate change considerations in its development cooperation programmes and projects, further consideration of specific impacts on forests and deforestation, including through mainstreaming the FLEGT and REDD+ initiatives into existing activities would be worthwhile. This would tailor EU development cooperation to help fight deforestation and forest degradation, while preparing partner countries to achieve FLEGT and REDD+ objectives. Improved mapping and tracking of EU land use-related investments would provide opportunities to enhance the effectiveness of existing spending, and identify new sources of funding to support national REDD+ and responsible commodity production objectives.

5.2.6 *Renewable Energy Policy*

On 30 November 2016, the Commission presented a proposal for a revised Renewable Energy Directive, which includes modifications to the sustainability criteria set out in article 17 of the 2009 RE-Directive. This included an EU incorporation obligation for biofuels, including advanced biofuels, a progressive reduction of the cap on crop-based biofuels from 7% in 2021 to 3.8% in 2030, and a commitment to reinforce EU sustainability criteria covering not only biofuels but also solid and gaseous biomass for heat and power for installations above a certain size. The Directive is currently being debated by the EU's co-legislator (the European Parliament and Council).

The current EU biofuel sustainability criteria include land criteria that relate mostly to exclusion of certain land types (like primary forests) and lands that have been subject to certain land-use changes (like land that has been deforested since 2008). The sustainability criteria also include requirements related to greenhouse gas emissions from

⁸⁰ The European Consensus on Development and the EU Global Strategy both mention forests and natural resources and iterate the importance of more MS-EU coordination on ODA.

⁸¹ Falconer, A. et. al. (2017) Landscape of REDD+ aligned finance in Côte d'Ivoire, http://www.euredd.efi.int/documents/15552/393169/170209_en.pdf/32efaf43-37d0-985c-8520-b0731b96db20

the direct supply chain (not including combustion emissions, indirect GHG emission or biogenic emission other than direct LUC). Compliance with the EU sustainability criteria is necessary in order to qualify for the national and EU renewable energy targets and to be eligible for financial support. It is therefore not a market access restriction, in that any biofuels or bioliquids (and the agricultural or forest biomass used to produce these) that do not meet these criteria can enter the internal market and find use. The revised Renewable Energy Directive modified the existing land criteria for agriculture biomass (disallowing the use of peatland, but making it easier to convert highly biodiverse grassland), introduced a new risk-based sustainability criteria for forest biomass, raised the GHG saving thresholds for biofuels and bioliquids and introduces new GHG saving thresholds for biomass and biogas for heat and power. In addition, it introduces a new CHP requirement for bioelectricity installations. A vast amount of research, multiple EU-financed studies and several Commission reports have looked at the subject of sustainability criteria for biofuels, bioliquids and solid biomass and biogas over the last ten years. Key issues covered have been the (direct and indirect) impacts of bioenergy feedstock production on land use, both in the EU and in 3rd countries, the GHG performance of bioenergy pathways, and risks of resource competition between bioenergy and material uses.

ILUC directive

In the light of the increasingly clear impacts of biofuel production on indirect land use change (where, for example, European rapeseed diverted from the food sector to biofuel production is replaced by increasing palm oil imports for food, thus driving oil palm cultivation and leading to forest conversion in SE Asia), in 2015 additional rules were adopted limiting the share of biofuels from food and feed crops (grown on agricultural land) that could be counted towards the 2020 renewable energy targets (ILUC directive 2015/1315). The ILUC directive also requires Member States to adopt indicative national targets for advanced biofuels, assigns double counting for certain raw materials and sets out multiplication factors for certain transport uses. These requirements (coupled with the GHG minimum reduction threshold for biofuels and bioliquids) may reduce the land footprint of EU bioenergy policy. The directive entered into force in late 2015 and the effects therefore remain to be assessed or evaluated.

The list below outlines three different conceptual policy options to address deforestation and degradation using the proposed RED II policy as a starting point:

- 1 Option 1 RED II. This includes a swift adoption of the RED II proposal, which strengthens the incentive to use only sustainable biomass for energy purposes post-2020, which increases the overall demand for sustainable biomass. The reduced cap for crop-based biofuels brings their share to pre-2008 levels, thus reducing ILUC impacts.
- 2 Option 2 RED II. Enhanced EU action to address deforestation associated with crop-based biofuels within the framework of the revised EU Renewable Energy directive – e.g. full phase-out of food crop-based biofuels by 2030?
- 3 Option 3 EU biomass sustainability criteria. Extend the EU bioenergy sustainability criteria (as they will be agreed) to uses other than energy with a new legislative proposal. This option would not be part of EU RE policy, but would build on and extend the principal approach of the RED II to manage sustainability and deforestation.

The conceptual interventions outlined above would essentially address different problems and face different challenges as concerns feasibility and effectiveness.

1. RED as driver of biomass demand

The targets for EU consumption of renewable energy included in the 2009 Renewable Energy Directive have contributed to a rapid increase in imports of feedstocks derived from FRCs – including, for example, palm oil and soybean oil for biodiesel and, on a much smaller scale, wood pellets for power and heat. Imports of palm oil have also increased to replace other vegetable oils – such as rapeseed oil – that have been diverted into the biofuels market. In that sense, the incentives put in place by the Directive act as an example of a driver of demand for crop-based biofuels, which may drive deforestation via indirect effects and due to leakage. Further perspective and background on the relative importance of these FRCs and energy use in general can be found in Chapter 2 and in the Part I report.

Support for Renewable Energy production is an integral part of the EU2020 strategy and the shift to a low-carbon economy, and the objective of the RED is to promote this shift through economic incentives. A fundamental change to this part of the policy would require analysis and evaluation beyond the scope of this study, as there could be significant implications associated with decoupling RE-policy from financial support. This study is not in a position to conduct such analysis and hence no intervention is developed that address the very nature of the EU Renewable Energy Policy.

2. Enhanced action within RED

It has been pointed out that the current sustainability criteria and proposed modifications do not address a range of core aspects of 'sustainability' e.g., social and economic criteria are missing, and the environmental criteria ignore key factors such as water, soils, air pollution, and pesticides. The lack of social and economic criteria could have implications for the ability of the criteria to safeguard against deforestation. Furthermore, the effectiveness of the criteria, designed to address direct LUC only, has been widely questioned, as mainly modelling-based studies have demonstrated that such criteria are unlikely to prevent LUC from happening but rather channel the new demand to pre-existing cropland, displacing production for other users to new areas. To answer some of these concerns, the ILUC directive was proposed and the directive adopted, and this is expected to reduce ILUC impacts of EU RE policy. The proposed modified criteria (in RED II) represents the outcome of a long preparation phase in which several options have been assessed for impacts,⁸² and the relevance and feasibility of option 2 should be considered in the context of this body of work. In any case the outcome of the ongoing negotiation on RED II will decide how and to what extent deforestation is addressed.

Extension of criteria to other uses

As concerns the last conceptual intervention, a number of studies has covered this, including VITO (2013) and FERN (2016). This is further developed in the subsequent chapter. It should be noted that the developed intervention assumes that the criteria that should be extended to other uses are those that will result from the legislative procedure on the 2016 proposal (not concluded at the time of drafting). The intervention does not address whether or not these criteria will be adequate or appropriate to help address deforestation.

In practical terms, a combination of the above conceptual approaches could increase effectiveness, but at this early stage of policy development they have been kept separate for the sake of clarity.

5.2.7 Notes on food waste

A similar situation applies to food waste, and any intervention to reduce waste of products (food or non-food) containing FRCs. In late 2015, the Commission adopted a Circular Economy package that among other includes an Action Plan. No FRC or Defor-

⁸² SWD(2016) 418 final, part 4: IMPACT ASSESSMENT Sustainability of Bioenergy

estation specific initiative is foreseen under the Action Plan, but targets of the revised legislative proposals tabled with the Action Plan may drive actions in Member States that will help halt or reduce deforestation and forest degradation indirectly. While fully recognizing the importance of reducing food waste for several reasons, however specific interventions on this has not been included in this report as the negotiations are ongoing.

5.3 Selected interventions

5.3.1 Principles and sources

To provide further operational guidance for the translation of the above findings into (ideas for) interventions and for assessing the potential relevance of intervention suggestions put forward by other sources, the study has paid attention to the a range of dimensions. Thus, alignment with international policy architecture and WTO rules are important in order to ensure political/legal feasibility and alignment. This means in practice, for example, that possible interventions should not discriminate against commodities produced in third countries. The EU has engaged extensively in bilateral and multilateral initiatives, and it is important to build on this effort and the momentum gained, including a focus on partnerships. While not disregarding 'hard legislation', it is also important to observe that hard interventions are much more likely to be politically difficult and take a long time to realise. A particular focus on SMEs is relevant from the perspective of the EU as well as that of producer countries. SMEs in EU are important job creators and interventions must not affect EU SMEs disproportionately much in terms of e.g. administrative costs. In producer countries, SMEs also play an important role, and furthermore, smallholders are confronted with particular challenges regarding their ability (in e.g. technical, skills and finance terms) to move towards more sustainable production. Smallholders also have significant difficulties to demonstrate that their production is sustainable, as high certification costs may be prohibitive. Synergies with the private sector are in general considered important, not least because there are already quite a few privately driven initiatives and because the positive contribution of the private sector plays an important role in delivering on the final objectives. Furthermore, the options (to be defined in Chapter 7) need to comply with the principles of proportionality and of subsidiarity, complement existing EU legislation, and provide clear EU added-value to justify the effort. However, these aspects have already been considered when identifying individual possibly relevant interventions. Finally, when establishing the list of possible interventions, we have aspired to present a variety of approaches and intervention logics.

Sources of inspiration and input

The assessment that supports the identification and scoping of interventions rests on three study elements, most of which is covered in detail in the background report (Part I). The first element relates to **Commodities** (analysis of historical production and trade data for 12 commodities, forecasts and simple projections of future production trends for 12 commodities). The second element is concerned with **Geographies** of deforestation and forest degradation (analysis of historic deforestation rates in three risk geographies (Asia, Africa and South America). forecasts and simple projections of future deforestation rates). The third and last element considers **Current and future action** (identification and screening of international, regional and EU initiatives acting on deforestation and forest degradation; analysis of FLEGT, REDD+ and other prominent EU policies for gaps and opportunities, literature review of reports and papers to identify policy options and measures to halt or reduce deforestation).

The full list of publications consulted to support the above analysis' can be found in the literature list accompanying the background report (Part I). As concerns the last item (Literature review) relevant publications have been consulted in order to specifically identify main pathways or concepts for action. Key literature for this specific analysis includes, but is not limited to the publications listed below.

Text Box 5-2: Main publications consulted for the identification of interventions

Vito et al. (2013): The impact of EU consumption on deforestation: Proposal of specific Community policy, legislative measures and other initiatives for further consideration by the Commission

Climate Focus et al. (2016): Fostering Climate Action through Trade-Related Policy Instruments

Chatham House (2015): Reducing Deforestation in Agricultural Commodity Supply Chains Using Public Procurement Policy

World Bank Group et al. (2017): Eliminating Deforestation from the Cocoa Supply Chain

IIED et al. (2013): Demand-side interventions to reduce deforestation and forest degradation

Chatham House & Forest Trends (2013): Ending Global Deforestation: Policy Options for Consumer Countries

Terea (2015): Evaluation of the EU FLEGT Action Plan

Particip et al. (2015): Thematic evaluation of the EU support to environment and climate change in third countries (2007-2013)

Fern (2015): Protecting Forests, Respecting Rights: Options for EU Action on Deforestation and Forest Degradation

Fern (2016): Developing EU measures to address forest-risk commodities – What can be learned from EU regulation of other sectors?

Fern (2017): Agriculture and deforestation: The EU Common Agricultural Policy, soy, and forest destruction

In the assessment of interventions included in Chapter 6 of this report a reference has been made to the specific publication where elements or inspiration has been adopted from any of the above sources.

5.3.2 Overview of interventions

Based on the analysis, we suggest the following specific themes for interventions on supply and demand side, and for investment and finance:

Supply side:

- Support sustainable /deforestation-free agriculture in tropical countries
- Promote better protection of tropical forests
- Work in partnership to increase the flow of sustainable forest risk commodities from tropical countries to the EU.

Demand side:

- Regulate EU market access to promote sustainable and deforestation-free products
- Encourage the consumption of sustainable and deforestation-free products through improved transparency and information and/or private sector initiatives
- Promote trade in legal and sustainable forest risk commodities through cross-cutting means
- Reduce EU demand for forest risk commodities.

Investment and finance:

- Increase availability of finance to smallholders
- Increase transparency in financing of high deforestation risk sectors.

The table below provides an overview of the interventions within the scope of this study that have been identified as possibly relevant contents of an EU initiative against deforestation. Other issues relevant for deforestation/forest degradation should nevertheless be addressed in a reflection on a possible EU initiative, including with regard to initiatives at the multilateral/regional level.

The contents of the specific intervention are discussed in the next chapter which also provides an assessment of each intervention: how it contributes to the objective, whether it is technically and politically feasible and its potential administrative effects and impact on SMEs.

Table 5-4 Overview of identified interventions

Specific thematic objective	Intervention	Drivers affected
SUPPLY-SIDE INTERVENTIONS		
Support sustainable/ deforestation-free agriculture in tropical countries	6.1.1 Best-practice support to small-holder producers in risk geographies via technical assistance	S1: Low productivity S2: Low resource efficiency
	6.1.2 Using jurisdictional REDD+ projects to promote sustainable and deforestation-free agricultural production	S1: Low productivity S2: Low resource efficiency
Promote better protection of tropical forests	6.1.3 Support jurisdictions to strengthen sustainable forest management and land use planning, governance, and law enforcement	S3: Insecure tenure S4: Weak governance and law enforcement
	6.1.4 Support jurisdictions to improve monitoring of deforestation and illegal activities	S4: Weak governance and law enforcement
Working in partnership to increase the flow of sustainable forest risk commodities from tropical countries to the EU	6.1.5 Bilateral partnership agreements on forest risk commodities	S3: Insecure tenure S4: Weak governance and law enforcement
DEMAND-SIDE INTERVENTIONS		
Regulate EU market access to promote sustainable and deforestation-free products	6.2.1 Due diligence regulation for forest risk commodities	D1: Lack of public policies promoting commodities produced with less impact on deforestation
	6.2.2 Public procurement policies for sustainably produced forest risk commodities	D1: Lack of public policies promoting commodities produced with less impact on deforestation
	6.2.3 Lower import duties for commodities complying with certain sustainable production and/or deforestation-free criteria	D1: Lack of public policies promoting commodities produced with less impact on deforestation
	6.2.4 Encouragement for similar actions by other countries	D1: Lack of public policies promoting commodities produced with less impact on deforestation
Encourage the consumption of sustainable and deforestation-free products through improved transparency and information and/or private sector initiatives	6.2.5 Support for a sustainable agricultural commodity trader platform	D2: Lack of incentives for private sector sourcing of FRCs produced with less impact on deforestation
	6.2.6 Encouragement for private sector initiatives on forest risk commodities	D2: Lack of incentives for private sector sourcing of FRCs produced with less impact on deforestation
	6.2.7 Strengthen and expand existing	D3: Lack of consumer awareness

Specific thematic objective	Intervention	Drivers affected
	transparency platforms through voluntary reporting and data compilation	of FRC-related issues
	6.2.8 Consumer information campaign in partnership with industries and NGOs	D3: Lack of consumer awareness of FRC-related issues
	6.2.9 Incubating new certification schemes via partnerships with industry and NGOs	D3: Lack of consumer awareness of FRC-related issues
Promote trade in legal and sustainable forest risk commodities through cross-cutting means	6.2.10 Promotion of trade in legal and sustainable forest risk commodities through trade and investment agreements	S1: Low productivity S2: Low resource efficiency S3: Insecure tenure S4: Weak governance and law enforcement D1: Lack of public policies promoting commodities produced with less impact on deforestation
Reduce EU demand for forest risk commodities	6.2.11 Encouragement for lower consumption of forest risk commodities in food	D4: Consumption levels of FRCs D6: Inefficiencies in food supply chains
	6.2.12 Extending sustainability criteria for bioenergy feedstocks to uses other than energy	D4: Consumption levels of FRCs
	6.2.13 Rural Development (CAP) Focus Area dedicated to actions that reduce the protein deficit of the EU livestock sector	D5: High EU dependence on feed imports
FINANCE AND INVESTMENT		
Increase availability of finance to smallholders	6.3.1 Financing mechanism for sustainable agriculture	F1 Insufficient finance for investment in sustainable agriculture
Increase transparency in financing of high deforestation risk sectors	6.3.2 Mandatory disclosure of information on deforestation proofing of financial investments linked to production or processing of FRCs	F2 Inadequate controls on flows of finance and investment from EU

6 ASSESSING THE INTERVENTIONS

This chapter describes each of the potential interventions we have identified, grouped under supply-side actions, demand-side actions and actions on investment and finance.

Each intervention is described through a brief narrative that explains what the intervention consists of, which objective it contributes to and how it is delivered, i.e. through which driver the intervention works; it should be noted that many interventions can affect more than one specific driver. The effectiveness and the feasibility of the intervention is also discussed,⁸³ followed by a table of the following elements:

- *The objectives and the drivers addressed*, repeating the specific titles of the objective and the drivers in question (cf. Chapters 3 and 4).
- *The functional logic of the intervention*, summarising how the intervention works.
- *The intervention points*, setting out who would be immediately affected by the intervention in question.
- *The feasibility assessment*, discussing: a) the contribution to the objective, b) the political feasibility of the intervention, c) the technical complexity of the intervention, and d) the administrative costs it would involve and whether there are specific concerns with regards to the possible impact on SMEs.
- Lastly, the final row of each table provides some intervention-specific considerations regarding the possible specific framing of the intervention in question.

The contents of the narrative and of the table are intended to supplement each other. Thus, the table is not just a summary of the description of the intervention, although some repetition is necessary in order to ensure that the tables are self-contained.

6.1 Supply-side actions

6.1.1 Best-practice support to smallholder producers in risk geographies via technical assistance

What it is

Best-practice support aims to promote certain behaviour changes in the recipient through local knowledge-building via training and education, which leads to better decision-making and practices. The expected change of practices and management resulting from the training could include applying different or new production techniques, use of new technologies, breeds and tools, resource use optimisation, supporting market access or helping to develop business plans, improving access to finance, including microfinance, and assistance with initiating the process of certification. The proposed focus of this intervention is on smallholder producers who, while playing a significant role in the production of FRCs, face significant challenges in terms of lack of capacity, knowledge and ability to absorb risks.

Supply-side action to promote productivity (S1) and address occasional low resource efficiency (S2)

This intervention is designed to help increase production on existing lands, thereby preventing or reducing agricultural expansion into forest land. The intervention could be global and FRC-centric or local and cover all FRCs relevant in that landscape. The

⁸³ Effectiveness is about the ability of the intervention to deliver on the objective, and feasibility concerns how realistic the intervention is and what costs it would imply.

intervention is perceived to be most relevant for FRCs mainly produced by smallholders supplying global supply chains and facing increasing demand, such as palm oil, cocoa and coffee.⁸⁴ For the latter in particular, climate change adaptation via resilience building would be important. This intervention lends itself to recommendations made by Climate Focus⁷⁷ to address the lack of technical advice and sub-optimal practices among smallholder cocoa farmers, and to initiatives by Cargill, Mondelez and Nestlé that educate smallholder farmers selling in to a number of supply chains.

Training as part of technical assistance is already offered under various agricultural, forestry or environmental management themes of MS and EC development cooperation, and this intervention is not foreseen as being in addition to these. Depending on national programmes, the needs of particular smallholder farmers, the presence and engagement of large corporate players, and the programmes of other donors, this intervention should be designed, mainstreamed and implemented into existing agricultural training initiatives, such as agricultural extension and finance and business support. One way of implementing the intervention would be to make sure all agricultural training programmes or even projects offered include pre-implementation screening for deforestation risk in the country, region or sector. Existing programmes do not seem to do so consistently and in some risk geographies the scale of available funding might be insufficient. This is based on screening the last five years of EU development cooperation action (agriculture, forest and environmental protection) as available on the DG DEVCO website. One example of an existing, relevant development programme is the UK's Investments in Forests and Sustainable Land Use programme.

This intervention is one possible way to implement Policy Proposal #30 of VITO (2014) and to some extent #31. The intervention could be operationally linked to intervention 6.3.1 on smallholder finance support so that it would be programmed and administered by the same organisational unit and actions could be coordinated. It should also be noted that there are existing programmes and projects funded by the EU (or other donors) that partially or wholly address the issue of the sustainable intensification of production, and an overview of these should be produced before defining the intervention in detail. A parallel study by COWI, Oeko Institute and CIFOR finds that a total of more than 6 billion EUR was spent by EU institutions and MS on agriculture and forestry in developing countries⁸⁵ for the period 2009-2015, setting the context for this intervention.

Considerations

The **effectiveness** of this intervention in halting deforestation and forest degradation depends on:

- 1 The number of smallholders reached and the quality of the training, business support and follow-up, access to follow-up advice after the initial training and support and a number of other implementation issues. These in turn are related to the funding allocated and disbursed, and thereby the design and programming. Further, the range of competing training programmes offered in a given geography may either crowd out or impact enrolment for this specific training. Concrete training programmes could further prepare farmers or communities for certification. This best practice support may be delivered in cooperation with relevant stakeholders, such as the TFA2020 Forum, the Sustainable Trade Initiative (IDH) and thereby acknowledge and build on existing achievements.
- 2 Complementary strategies to mitigate the risk of a 'rebound effect', when improvements in the productivity of farming lead to additional deforestation through increased investment. This risk is particularly present with the local production of globally traded commodities. Parallel investments in land-use

⁸⁴ See e.g. Climate Focus, 2016: Eliminating deforestation from the Cocoa Supply Chain. *For the World Bank Group*.

⁸⁵ Not published yet, contract 34.0203/2016/740430/ETU/CLIMA.C3. Based on OECD DAC data.

planning, forest protection zoning and contracts for the provision of environmental services need to accompany this intervention.

- 3 The design and focus of the intervention. A landscape-based approach where all smallholders, irrespective of the FRC or FRCs they produce are included will be more effective in addressing the deforestation risk in a particular area. On the other hand, an FRC regional or even global training programme might better fit the needs and priorities of large corporations and also allow for a more specialised and targeted content of the programme.

Table 6-1: Feasibility of the intervention – **Best-practice support to smallholder producers in risk geographies via technical assistance**

Objectives	SO1: Supply-side. Theme: Support sustainable /deforestation-free agriculture in tropical countries	
Drivers	S1: 'Low productivity and profitability' S2: 'Low resource efficiency'	
Functional logic	The best-practice support provides expert advice, access to experience sharing and financial support on locally adapted best practice in order to improve the behaviours and productivity of smallholder producers.	
Intervention points	This intervention is targeted at smallholders producing relevant FRCs in risk geographies, using EU development cooperation funding to offer training on best practices.	
Feasibility assessment	Contribution to objective	The ability of the intervention to contribute to promoting sustainable supply chains is closely linked to its uptake and design. To strike a reasonable balance between FRC coverage and effectiveness in addressing the individual FRC producers sufficiently, the intervention has been designed to cover palm oil, cocoa and coffee, which share similar smallholder producer characteristics. Covering more FRCs, while assuming limited available funding, would risk diluting the content or extent of individual training. But, at the same time a targeted geographical approach, covering all relevant FRCs in a given jurisdiction or community, is also an option. In any case, the contribution would be limited to either a few geographies or a few FRCs.
	Political acceptance	The strategic fit of the intervention vis-à-vis the principles for preferred interventions is linked to it being based on existing initiatives and to building the capacity of producers. The intervention has a strong development dimension, contributing to improving livelihoods, and provides potential win-win solutions. Rather, by relying on mainstreaming of deforestation and forest degradation concerns into development cooperation, the political capital to be invested by decision-makers would be low, which again caters for political acceptance.
	Technical complexity	The training offered would rely on practices common in other regions and/or used by more professionalised producers. Hence, the main technical element is related to managing and conducting the training in villages – probably in remote locations and ensuring project designs and implementation that allow for follow-up and ongoing access to support for a period of time. By designing the intervention to cover a limited number of FRCs and perhaps a limited number of geographies, the technical complexity is perceived to be addressed.
	Administrative costs and SMEs	The main administrative costs are on the side of the EC and EU Member States in setting up and managing the programmes, both during the programming phase and during the implementation, where the EU delegations would play a central role. Costs can be reduced through mainstreaming into relevant programmes. No impact on SMEs is expected, since the intervention targets smallholders.

The rationale behind this intervention and its design is the low use of up-to-date best practices in current producer geographies. This working hypothesis relies on a few reports, but actual assessments of the level of technical expertise and land/crop/environment/resource management practices for each of the FRCs in each of the risk geographies would ideally be undertaken before the design of the training programmes and the selection of FRCs/geographies. A further element that could be considered and analysed in order to better target training is deforestation pressures and interdependence/leakage between the production of FRCs in a given geography. If cocoa producers abandon land due to old, low-yielding plants, they may relocate to other land and consider producer crops with better yield. This intervention is not clearly associated with either of the approaches, but may support all of them.

6.1.2 *Using jurisdictional REDD+ projects to promote sustainable and deforestation-free agricultural production*

What it is

Through this intervention the EU aims to build on existing or new REDD+ programmes and projects to promote private sector sustainable and deforestation-free agriculture and supply chains. The intervention represents an approach and strategic focus as much as a concrete intervention, and is complementary with the other interventions discussed in this study. The core of the approach is for the EU to directly or indirectly engage in jurisdictional REDD+ projects in key risk geographies, ensuring that they provide a framework that facilitates private actors to build and rely on these projects when working with their suppliers on sustainable and deforestation-free agricultural production. The EU should also ensure that REDD+ projects provide the space for bilateral dialogues between forest risk commodity consuming and producing country governments to define and support the infrastructure and reforms required to incentivise and stimulate private sector action on deforestation.

Supply-side action to promote productivity (S1) and address occasional low resource efficiency (S2)

As REDD+ has evolved over time, its concept has broadened beyond merely delivering carbon benefits, with many actors developing and implementing a wide range of initiatives to address deforestation and forest degradation. In fact, the vast majority of REDD+ project so far are not generating emission reductions, but are mainly focused on building stakeholder capacities, MRV systems, increased understanding of drivers, national strategies, land-use planning, clarification of tenure, etc. (called '*REDDiness*'). The so-called phase three, of performance-based payments for emission reductions, is still some distance in the future. These are all valuable activities in developing the conditions for sustainable and deforestation-free commodity production and promoting private sector investments.

Linking REDD+ and sustainable and deforestation-free supply chain approaches increase the impact and effectiveness of both initiatives. The latter often do not have the leverage, however, to engage with stakeholders, authorities and livelihoods alone or to stimulate the necessary land-use governance reforms (including legal reform, land-use planning, clarification of tenure, etc.). Hence the need for complementary policy process, such as REDD+, to engage stakeholders in long-term processes around common deforestation objectives. Also, REDD+ cannot succeed without the mobilisation of private sector efforts and investment. Policy coherence between REDD+ incentives and broader development finance, trade and investment policies are important to ensure that they complement and mutually reinforce each other in achieving deforestation objectives.

If the EU could help launch and support jurisdictional REDD+ projects, these would offer an additional opportunity for the private sector to engage in measures to reduce deforestation and forest degradation, and their associated emissions, in addition to engagement through the carbon market. These initiatives directly address agricultural expansion through supply chain interventions and investments and through establishing the enabling environment necessary to guarantee responsible commodity sourcing and production (e.g. land-use planning, impact monitoring, public-private partnerships and so on). As such, these initiatives are contributing to the implementation of national REDD+ programmes and NDCs.

A jurisdictional approach makes it less challenging to bring together local, national and international stakeholders to address complex issues in relation to land use governance, incentives, monitoring etc. It may also offer a way to reduce the risk of leakage (i.e. shifting deforestation to other actors within the jurisdiction) and to make the use of certification systems cheaper, more efficient and more inclusive of small producers. Jurisdictional approaches also offer buyers a practical means of reducing the risk that

their responsible sourcing commitments are not met by all producers in a landscape. For instance, REDD+ can provide incentives and support to all smallholders in a jurisdiction to respect socio-environmental requirements. Also, jurisdictional REDD+ performance can be used as an indicator in jurisdictional sustainable development performance monitoring systems linked to commodity supply chains. However, jurisdictional approaches tend to be complex, as they engage many stakeholders, and may not be able to address issues, such as tenure reform, that are usually dealt with at the highest political level. Jurisdictional approaches therefore need to be aligned with national processes and objectives.

The European Commission and several Member States are currently committing significant financial support to REDD+ projects (see further in section 5.2.2, and Part I Section 6.3), but REDD+ is still just one out of many priorities in many countries, and it is seldom financially viable or technically feasible for the EU to launch jurisdictional REDD+ projects alone within national development cooperation programmes. Therefore, this intervention is foreseen as an approach through which the EU engages with other donors, and perhaps channels funding via multilateral donors, to set up a few significant jurisdictional projects in a select number of key risk geographies. Such an approach would in practical terms include solutions to a number of considerations:

- REDD+ is essentially a performance-based mechanism, aiming at incentivising countries to reduce land-use related emissions. Assessing and incentivising REDD+ country performance should be based on realistic, concrete and achievable milestones and indicators, including activities to develop sustainable and deforestation-free agriculture and supply chains. Milestones should be carefully agreed between REDD+ countries and donors and relate to transformational reforms required to achieve climate mitigation outcomes.
- The REDD+ processes potentially provide the space for the European Commission and Member States to engage in policy dialogue with forest risk commodity producing countries to encourage and support action by companies and unlock necessary but difficult issues (e.g. setting sustainability criteria) to facilitate government action on and private sector investments in sustainable and deforestation-free supply chains.
- Further exploring synergies between FLEGT and REDD+, in particular as concerns institutional capacity-building, legal clarity on land allocation, tenure and use rights, land and forest MRV, participatory land-use planning and trade and market incentives.

Considerations

This intervention should be **feasible**; it is a question of ensuring coordination between different sets of initiatives that share overlapping and, potentially, mutually reinforcing roles: the international REDD+ programmes run by the World Bank and UN-REDD, and national REDD+ programmes, all supported by Commission and Member State assistance (see Section 5.2.2 and Part I Section 6.3) and the many private-sector initiatives to eliminate deforestation from their supply chains (see Part I Section 6.4).

The **effectiveness** of this intervention depends on the extent to which this coordination is successful, whether interested and capable partners are identified, and the activities of REDD+ programmes reinforce rather than undermine other interventions such as those discussed elsewhere in this paper.

Table 6-2. Feasibility of the intervention – **Using jurisdictional REDD+ projects to promote sustainable and deforestation-free agricultural production**

Objectives	SO1: Supply side. Theme: Support sustainable /deforestation-free agriculture in tropical countries	
Drivers	S4: 'Weak land sector and environmental governance and institutions'	
Functional logic	By offering a public backed framework project that covers an entire FRC production region, the intervention alleviates some of the risks and uncertainties that often hold back private investors from investments in REDD+ project or from working with sustainability and deforestation at producer level. The jurisdictional projects should be implemented in key risk geographies as partnerships between the EU or EU funded actors, and relevant authorities and private sector actors. Such projects would help determine baselines, stakeholders, set up fora and coordinate institutions and donors. This in turn would allow private actors to focus on what they are best at, namely optimising production and reducing environmental footprints.	
Intervention points	The intervention targets corporate actors in certain risk geographies, where a number of FRCs are produced by a variety of producers. It intervenes on the perceived risk that private actors consider before deciding whether to engage in REDD+ projects or supply chain sustainability.	
Feasibility assessment	Contribution to objective	The intervention facilitates private sector involvement and helps address land and environmental governance.
	Political acceptance	Efforts to coordinate international and national REDD+ programmes and private-sector supply chain initiatives are not likely to be opposed in principle, but the differing priorities, strategies and timeframes of private, multilateral, and public actors may make it complex in practice. Large-scale jurisdictional REDD+ projects could have a showcase value if implemented well, and the close cooperation with private sector is always popular. The main challenge from a political point of view is that the funding for the projects may require less funding for other priorities, and that the EU perhaps would need to let other actors implement the projects.
	Technical complexity	Low, mainly focused on ensuring complementary design of initiatives and timely communication of information; action needed jointly by the Commission and Member States, and could be coordinated in a Working Group by the EC.
	Administrative costs and SMEs	Low. No particular impact on SMEs, but potentially positive impacts for larger, global EU companies in general.
Applies to all FRCs, and to all approaches – legality, sustainability and zero-deforestation.		

6.1.3 *Support jurisdictions to strengthen sustainable forest management and land use planning, governance, and law enforcement*

What it is

Under this proposed intervention, the EU is to provide support and engage in dialogue with partner jurisdictions (both national and sub-national governments) with the aim of supporting and providing technical assistance, ideally via coordinated EU and Member State Development Cooperation. The intervention could be designed and delivered under a coherent programme or instrument which could also combine REDD+ support and FLEGT cooperation. The support should help in creating national stakeholder dialogues to promote sustainable forest management and clarify and strengthen national legislation on land use, including land tenure issues, while improving land use planning and avoiding illegal deforestation. It would also support the establishment of national traceability and/or verification systems, and capacity-building for better law enforcement. Dialogue between the EU and the producer countries concerned should be used in parallel to mobilise political commitment in third countries.

Supply-side action to strengthen protection of forests in producer countries through rule of law and strengthened governance and law enforcement (S4)

Under this proposed intervention, the EU engages in dialogue with partner jurisdictions with the aim of supporting and providing technical assistance, ideally via coordinated EU and Member State Development Cooperation, to establish an enabling environment for responsible commodity production, including improvements in land use and forest planning, governance and law enforcement.

This bilateral dialogue ensures that national priorities and objectives, including commitments framed in partner countries' NDCs, are duly taken into account, and support is adapted to local and national contexts. The bilateral dialogue also increases the likelihood that political commitment in third countries is mobilised and sustained, and allows national stakeholders to provide input and ensure broader ownership of the approaches and activities agreed upon by both parties. The intervention would be designed and delivered under a coherent programme or instrument, which could also combine any REDD+ support and FLEGT cooperation, and learn from similar experiences in multi-stakeholder consultation and dialogue processes, in particular in the negotiation of the FLEGT voluntary partnership agreements (VPAs).

Supporting the establishment of the enabling environment includes technical assistance to improve land use governance and law enforcement, including support for:

- Strengthening sustainable forest management legislation in producer countries;
- Clear and effective legal frameworks and enforcement, in particular around land allocation and conversion;
- Secure tenure rights and equitable access to land, in line with the FAO Voluntary Guidelines on the Responsible Governance of Tenure;
- Clear definitions and clarification of global standards in the context of local socio-political circumstances;
- Policy and strategy on low-carbon and zero deforestation development;
- Inclusive and effective stakeholder participation to promote the strengthening of policy and national legislation;
- Capacity-building of stakeholders, including prosecutors and law enforcement agencies;
- Government coordination across sectors and levels, ensuring that all relevant policies and public investment, for example on industrial development and trade, take account of deforestation objectives;

- Participatory land-use planning (mapping, legal frameworks, implementation, capacity-building, etc.), including demarcation and management of protected forest areas;
- Clear and fair incentive frameworks for actors to change behaviour;
- Reform of tax and subsidy systems.

This process could also provide a means of scrutinising flows of EU development aid to the country in question, ensuring that no development cooperation activities contribute inadvertently to deforestation and forest degradation – complementing the existing general development aid guidelines on climate change and environment.

This intervention complements interventions 6.1.1 and 6.1.5, and would gain impetus if combined with 6.1.4. The intervention would be highly complementary and supportive of EU efforts under the EU FLEGT Action Plan and REDD+.

Further, the intervention serves the same purpose as Policy Proposal #4 of VITO (2014), but is also informed by the FLEGT evaluation and observations on the recent development of REDD+.

Considerations

The **effectiveness** of the intervention rests partly on the capacity of the partner country to use this support from EU and Member State ODA to establish an enabling environment for responsible commodity production. Many low and middle-income developing countries may lack the necessary institutions and regulatory frameworks, and developing these is bound to take some time. Putting these systems in place before the country expands production of FRCs, however, will make it less challenging to tackle problems of deforestation later. The establishment of appropriate incentives for local stakeholders to engage in the national process, and for the partner country to engage in bilateral dialogue with the EU, are also important; many of the proposed demand-side interventions described in Section 6.2 would be highly complementary.

The intervention will be most **feasible** if can be integrated into existing development cooperation frameworks, and targeted at supporting institutions and systems relevant to FLEGT and REDD+ initiatives. Building local capacity to implement the measures listed above, and sustaining the political will to achieve these aims, will be essential to success.

Table 6-3 Feasibility of the intervention – **Support jurisdictions to strengthen sustainable forest management and land use planning, governance, and law enforcement**

Objectives	SO1: Supply side. Theme: Promote better protection of tropical forests	
Drivers	S4: 'Weak land sector and environmental governance and institutions'	
Functional logic	National and sub-national dialogue on policy and legal reforms plays a central role in better forest governance and land-use planning, including establishing clear and effective legal frameworks and enforcement, in particular around land allocation and forest conversion, secure tenure rights and equitable access to land.	
Intervention points	It will strengthen sustainable forest management and land use legislation, improve the forest governance and law enforcement capacity of local institutions, enabling them to support sustainable forest management practices and better detect and tackle deforestation, and create inclusive and effective stakeholder participation to strengthen policy and national legislation.	
Feasibility assessment	Contribution to objective	The intervention targets the underlying land governance and law enforcement challenges faced by many producer countries by supporting the establishment of multi-stakeholder platforms for policy dialogue and improvements in law reform, governance and law enforcement.
	Political acceptance	Existing political commitments in the New York Declaration on Forests, in the EU (e.g. FLEGT) and various Member States (e.g. Amsterdam Declaration) will receive additional support through this intervention; b) A high level of interest in support in recipient countries, particularly among jurisdictions with ambitious aims for forest protection, is likely to exist.
	Technical complexity	The tools and techniques to be offered are already available and in use in many countries. The main technical complexity of this intervention is likely to be its management and cooperation with local institutions in the partner country. Development cooperation institutions should be familiar with such challenges.
	Administrative costs and SMEs	The costs usually necessary to prepare and manage ODA programmes would be expected. No particular impact on SMEs or EU companies in general.
Applies to all FRCs, and to all approaches – legality, sustainability and zero-deforestation.		

6.1.4 *Support jurisdictions to improve monitoring of deforestation and illegal activities*

What it is

Under this proposed intervention, the EU is to provide targeted assistance to national and/or sub-national authorities (depending on national and local circumstances) to improve information and data collection on causes and aspects of deforestation, mapping and registers, transparency and independent monitoring of the implementation of policies and commitments, and also of illegal activities and illegal conversion of forest land. This intervention is complementary, in particular, to interventions 6.1.3 and 6.1.5., and builds on the experience gained in supporting partner producer countries in monitoring illegal logging under the FLEGT Action Plan.

Supply-side action to strengthen protection of forests in producer countries through strengthened governance and law enforcement (S4)

Over the last couple of years, there has been significant progress in the availability and use of satellite imagery to monitor deforestation and forest degradation, now available in close to real time. This kind of spatial information is increasingly accessible to public and private actors, as well as civil society organisations, and at a reasonable cost. Significant experience has also been gained in monitoring illegal logging and timber product supply chains in producer countries in the context of the voluntary partnership agreements (VPAs) negotiated between the EU and timber-producing countries. Each VPA includes a system of independent audit designed to ensure the validity of the timber legality assurance scheme operating within the partner country. Various independent forest monitoring schemes also exist in some timber-producing countries, usually operated by local civil society with support from external donors.

However, monitoring the production of and trade in agricultural commodities and their environmental and social impacts continues to be a challenge. The routes the commodities take and the actors involved in the supply chains are known for only a fraction of the global trade in commodities, such as for certified products. Information is not easily accessible nor is it compiled in useful ways. Thus, the many public and private sector actors involved in trading, transforming or consuming such commodities are often not aware of the adverse effects and business risks associated with their activities.

As observed elsewhere in this report and in its accompanying Part I, quantitative information on deforestation drivers is still lacking on many topics (FAO, 2016). Several commodities are still to be scientifically assessed in detail for their associated deforestation footprint, including cocoa, coffee, rubber, wood pellets and various grain crops.

There is an urgent need to better understand complex supply chain connections to reduce and eliminate the deforestation associated with traded commodities, and to minimise and avoid the associated environmental and social risks. A clear understanding of where commodities originate, how they move around the globe and where they end up will help to identify strategic targets and entry points to achieve more sustainable global supply chains. A number of initiatives are now under way linking information on local drivers of deforestation with social, environmental and legal indicators as well as with financial and fiscal information, disclosing information about companies' and governments' action in production areas and along supply chains. These information systems will increasingly prompt public and private actors to act more quickly to ensure that their exposure to risk reduces over time.

In addition, while several initiatives, often run by NGOs and involving local communities, exist to monitor illegal activities in the forest, including illegal deforestation, par-

ticularly illegal conversion of forest land, these are frequently under-resourced and would benefit from greater support.

This intervention accordingly aims at delivering a coherent package of monitoring of commodity trade flows and associated deforestation, establishing traceability systems and monitoring illegal activities in the forest, including technical assistance for:

- The use of satellite imagery for forest monitoring, building on the achievements of the European Space Agency's Copernicus programme and other work conducted by EU research institutions;
- Mapping of forest risk trade and supply chains;
- Developing traceability systems for FRCs;
- Improving transparency in relation to commodity production;
- Improving public reporting and effective communication;
- Supporting independent monitoring approaches.

These activities could also be used to address equity issues related to REDD+ by focusing on supporting the least developed countries in setting up the basic baseline data and MRV systems that are required for successful mobilisation of climate finance.

Considerations

This intervention is **feasible**; experience exists already with all these forms of data collection and monitoring, and they can be expanded if sufficient resources – financial, technical and human – are assigned to them.

The intervention should also prove **effective** in promoting the availability of supply chain-related information: transparency increases the accountability of public and private actors, limits opportunities for corruption, and helps markets understand supply chains and their impacts. Monitoring of illegal activities has been shown to be effective in several forest-rich countries, as long as the institutions, capacity and political will exist to take action based on the information provided.

Table 6-4. Feasibility of the intervention – **Support jurisdictions to improve monitoring of deforestation and illegal activities**

Objectives	SO1: Supply side. Theme: Promote better protection of tropical forests	
Drivers	S4: 'Weak land sector and environmental governance and institutions'	
Functional logic	Better data, mapping and monitoring will allow for better governance and law enforcement in jurisdictions. Supporting traceability and verification systems and transparency can improve market access and facilitate zero-deforestation commitments. Monitoring of illegal activities increases the effectiveness of law enforcement activities and acts as a deterrent. It can also provide incentives to companies to improve transparency in their supply chains.	
Intervention points	Data collection and processing organisations, governments and law enforcement agencies in producer countries, NGOs and civil society, and supply chain companies and investors.	
Feasibility assessment	Contribution to objective	Better information on commodities and deforestation and monitoring of illegal activities contributes to the effectiveness of almost all supply-side and demand-side interventions discussed elsewhere.
	Political acceptance	Likely to be high, as complementary to many other initiatives, and in line with international commitments such as the New York Declaration on Forests. Political will to act on funding of forest monitors may not always be present.
	Technical complexity	Widespread experience already exists with all these activities, and technical capabilities, e.g. satellite monitoring, are steadily improving. Lack of resources and capacity are likely to be a greater barrier, and the use of satellite images as proof of illegal behaviour is not yet an established practice.
	Administrative costs and SMEs	Costs associated with need to develop and deploy technical and human capacity. No particular impact on SMEs or EU companies in general.
Applies to all FRCs, and to all approaches – legality, sustainability and zero-deforestation.		

6.1.5 Bilateral partnership agreements on forest risk commodities

What it is

The EU and FRC producer countries agree bilateral partnership agreements covering one or more FRCs, modelled on the FLEGT Voluntary Partnership Agreements (VPAs). The EU provides assistance to the partner country to improve the sustainability of agricultural production, minimise impacts on forests and improve forest and land use planning, governance and law enforcement. Only the commodities covered by the agreement and identified as sustainably produced would be licensed for export to the EU from the partner country. If a due diligence regulation is agreed for FRCs (see 6.2.1), products licensed under the partnership agreement would automatically qualify for placing on the EU market.

Supply-side action primarily aiming to improve governance and law enforcement (S4) but with potentially wider impacts

FLEGT VPAs have been agreed so far with six timber-producing countries, and several others are at different stages of negotiation or in the process of ratification. On 15 November 2016, one of the VPA partner countries, Indonesia, started to issue licenses for the export of timber products guaranteed by the country's legality assurance scheme to have been legally produced. While the VPAs only require exports to the EU to be so licensed, all the partner countries have so far committed to apply this legality assurance systems to all their exports regardless of destination, thus enhancing the effectiveness of the scheme.

The process of negotiation and implementation of the VPAs has generally been a positive one, increasing the transparency of the forest sector, improving governance and law enforcement and triggering a process of legal and regulatory reform.⁸⁶ It has, however, also been a long and time-consuming one, requiring significant human and financial resources both for the EU and the partner country. Implementation has also proved more difficult than anticipated, particularly in establishing robust legality assurance schemes. Some issues, such as rights of land tenure and access, and conversion of forests, have not always been adequately dealt with under some of the VPAs.⁸⁷

There would be advantages to establishing similar agreements to ensure the sustainability of FRCs exported from the partner country. This would create strong incentives to improve the sustainability of agricultural production, minimise the impact on forests (aiming at zero deforestation), reform or strengthen legislation on land tenure and access, improve land use and forest planning and governance and law enforcement and avoid illegal forest conversion (a major cause of deforestation world-wide, as noted in Chapter 5) and other illegalities in production, such as the use of forced labour or banned pesticides. If the process works well, the same kind of improvements in transparency, governance and law enforcement as have accompanied the implementation of the VPAs would also result, with potential long-term positive impacts.

To support implementation of the agreement, capacity-building assistance should be made available from the EU to assist with establishing the legality (or sustainability) assurance scheme (including through the other supply-side interventions discussed above). The EU would need to legislate to require evidence of the licence at the border (as in the FLEGT Regulation agreed in 2005) and to be able to exclude products not so licensed. The national commodity platforms established under UNDP's Green Commod-

⁸⁶ See also in An Bollen and Saskia Ozinga, *Improving Forest Governance: A Comparison of FLEGT VPAs and their Impact* (Fern, February 2013).

⁸⁷ See Dahne Hewitt, *Identifying Illegality in Timber from Forest Conversion A Review of Legality Definitions* (Forest Trends, December 2013)

ities Programme, which create a multi-stakeholder dialogue process within individual commodity supply chains, provide a possible foundation on which to build.⁸⁸

Rather than establishing a new agreement for each commodity, it would make more sense for multi-commodity agreements to be reached, attempting to establish sustainability standards for the entire agricultural sector (see below). Many of the problematic issues in these sectors revolve around decisions, and conflicts, over land use, and it would make sense for these to be discussed in a single forum. In addition, although the VPAs are bilateral agreements, if regional agreements on FRCs could be agreed, these would have some advantages, allowing the discussion of an agreement on common standards and instruments affecting agricultural production in neighbouring countries with, often, similar ecosystems and means of production.

While the VPAs aim to exclude illegal timber from trade, for the reasons discussed above in Section 5.1, it would make more sense for these FRC agreements to be based on a sustainability standard, thus reinforcing the many national and corporate commitments to sustainable, or zero-deforestation, production already in existence (see discussion in Section 5.1.2). While such a sustainability assurance scheme established under the agreement would include requirements for legality, it would go beyond that to establish additional economic, social and environmental performance criteria, possibly borrowing and learning from the criteria included in the voluntary certification schemes.

Considerations

Would such agreements be **feasible**? As the VPAs have shown, it has proved difficult and resource-intensive to develop legality assurance schemes for timber. After more than a decade of implementation of the FLEGT Action Plan, and several years after VPAs have entered into force, only Indonesia has started to fully implement a FLEGT licensing scheme. The complexities of developing legality or, even more, sustainability, assurance schemes for a range of FRCs may prove overwhelming. Relevant international or national schemes could nevertheless be used as starting point, and many companies are now implementing similar systems to eliminate deforestation from their supply chains. In most cases a wider range of stakeholders, and more important economic interests, would be involved than with the VPAs, making the process more complex.

In addition, it is not clear how many producer countries would be interested in negotiating such agreements. It seems unlikely that they would be of interest to the major soy and beef-exporting countries of South America, and the largest palm oil exporters – Indonesia and Malaysia – have already expressed concerns over existing zero-deforestation and sustainability initiatives for palm oil. On the other hand, negotiating the agreement would place the producer country on an equal footing with the EU in agreeing standards of production, rather than having external standards imposed on them. FRC partnership agreements may prove more feasible in smaller countries heavily dependent on a single crop with a timber VPA already in place or being negotiated.

If such agreements could be agreed and implemented – which, judging from the experience of the VPAs, could be a long process – they could, however, be **effective**. As noted above, the process of negotiating the VPAs has had positive effects on transparency and governance, with potentially long-term impacts on the entire sector. Country-wide legality or sustainability assurance schemes could powerfully reinforce corporate efforts to establish deforestation-free supply chains. If the EU were to adopt a due diligence regulation for FRCs (see Section 6.2.1), limiting access to the EU market, this regulation and FRC partnership agreements would mutually support each other. The adoption of such a regulation would create a powerful incentive to join such

⁸⁸ See <http://www.undp.org/content/qcp/en/home/operations/national-commodities-platform.html>

an agreement, but even in its absence, these agreements should be worthwhile, establishing a systematic approach to reducing commodity-driven deforestation in the producer country, with assistance from the EU.

Table 6-5: Feasibility of the intervention – **Bilateral partnership agreements on forest risk commodities**

Objectives	SO1 on Supply Side. Theme: Working in partnership to increase the flow of sustainable forest risk commodities from tropical countries to the EU	
Drivers	S4: Weak governance and law enforcement in producer country (but if based on sustainability standards, also relevant to all other supply-side drivers (S1: low productivity and profitability, S2: low resource efficiency, S3: ensure tenure, and S4)	
Functional logic	Bilateral partnership agreements for FRCs between producer countries and the EU (modelled on the VPAs for timber) establish legality or sustainability assurance schemes for FRCs, excluding FRCs not produced in compliance with legality, sustainability or deforestation-free criteria from export to the EU (and potentially all other destinations); the EU makes capacity-building assistance available to the producer countries to establish the system. Consideration should also be given to the value of the agreements without a licensing scheme, given the slow progress experienced in establishing the FLEGT scheme.	
Intervention points	New bilateral agreements to be negotiated between producer countries and the EU.	
Feasibility assessment	Contribution to objective	Robust legality, sustainability or deforestation-free assurance scheme should exclude FRCs not grown and harvested in compliance with the criteria, helping to improve the implementation of existing national and corporate zero-deforestation commitments. The process of negotiating and implementing the agreement would also improve transparency and governance, with long-term positive impacts.
	Political acceptance	New legislation would be required and adequate human and financial resources would have to be made available to support its implementation (as shown by the experience with FLEGT VPAs). VPAs already exist as models, but it is not clear to what extent FRC producer countries would be interested in negotiating agreements for FRCs. A wider range of stakeholders, including the private sector, both in the EU and in the producer countries, would need to be supportive.
	Technical complexity	Establishing the legality assurance schemes under the VPAs has proved difficult, resource-intensive and time-consuming, but the experience would be valuable for equivalent schemes for FRCs. Sustainability assurance schemes could learn from the voluntary certification schemes. Nevertheless, some elements – e.g. establishing legality of forest conversion process in the past – are always likely to be difficult.
	Administrative costs and SMEs	The costs of establishing FLEGT VPA timber legality assurance schemes provide an indication; these could be offset by improved collection of tax revenue from more legal production. Likely costs to exporting businesses in producer countries, including smallholders and SMEs, from the need to verify products under the assurance scheme. Easier access to EU market (for example through 'green lane' access through due diligence regulation) could be important in establishing incentive to participate in an agreement (see 6.2.1).

Agreements could be based on either legality or sustainability standards. Establishing a legality standard likely to be less complex, but sustainability standards would reinforce and borrow from existing national and corporate commitments to sustainable, or zero-deforestation, production and voluntary certification schemes, and would be in line with EU's international commitments, e.g. to the Sustainable Development Goals.

Agreements could cover single or several FRCs. In principle, covering all FRCs (including timber) which may be in competition for the same land for cultivation would have advantages, but would also be more complex. May make more sense to focus only on those FRCs with highest volume of production, or exports, in partner country.

6.2 Demand-side actions

6.2.1 Due diligence regulation for forest risk commodities

What it is

Legislation is introduced to require all FRCs placed on the EU market to be produced in accordance with certain sustainable production and/or deforestation-free criteria. This legislation could be modelled on the EU Timber Regulation and/or other relevant EU legislation such as the IUU fishing regulation.

Demand-side action addressing the lack of public policies promoting commodities produced with less impact on deforestation (D1) and the lack of incentives for private sector sourcing of FRCs produced with less impact on deforestation (D2)

The EU Timber Regulation (EUTR) prohibits the placing of illegally harvested timber and timber products on the EU market and requires operators who first place such products on the market to implement a system of due diligence in order to minimise the risk of them doing so. Operators trading in such products after they have been first placed on the market are required to keep records of who they buy from and sell to.

The EUTR applies to most timber products from all sources, whether imported or harvested within the EU. Legality is defined in relation to the applicable legislation in the country of harvest, and covers rights to harvest timber, payments for harvest rights and timber, laws relating to timber harvesting (including environmental and forest legislation), third parties' legal rights concerning use and tenure that are affected by harvesting, and trade and customs regulations. Any timber products accompanied by a permit issued under the Convention on International Trade in Endangered Species (CITES) or a FLEGT licence issued by a VPA partner country are considered to have been legally harvested: they provide a 'green lane' for access to the EU market.

The IUU Fishing Regulation establishes a catch certification scheme under which only marine fishery products validated as legal by the competent flag state can be imported to or exported from the EU. The regulation also enables the European Commission to enter into dialogue with non-EU countries that are not combating IUU fishing effectively; if these countries fail to put in place required reforms in a timely manner, then sanctions – including a bans on imports to the EU of the country's fisheries products – may be imposed.

Both regulations aim to restrict access to the EU market to products produced illegally. In principle, a similar approach could be applied to FRCs, either on a commodity-by-commodity basis or for several commodities. As with the EUTR, this could be based on compliance with the laws in the country of origin, particularly in relation to land rights, land use and forest conversion, given the high degree of illegal conversion of forests to agriculture in some countries. The main problem with this approach, however, as discussed in Section 5.1.1, is that while timber logged from a forest that has been illegally cleared is very likely to be defined as illegal under the host country's laws, it seems less likely that the agricultural crops grown on the cleared land would themselves be classified as illegal – or if they would be, how long after the original forest clearance any definition of 'illegal' would persist. This would require a detailed analysis of the relevant laws in the country of origin.

In addition to this issue, there are strong arguments for basing the new regulation on a much broader range of sustainability or deforestation-free criteria, including those related to legality (both in relation to national laws and international agreements), but also on criteria relating to direct and indirect impacts on forests and other ecosystems, the treatment of workers and the rights of forest communities and indigenous peoples, particularly in regard to land tenure and access (see further in Section 5.1.2). This ap-

proach is not only consistent with the EU's commitments, such as the Sustainable Development Goals' target of ending deforestation by 2020, but is also aligned with the aims and activities of many companies implementing their own voluntary zero-deforestation commitments. Against this background, a measure aimed only at guaranteeing the legality of FRCs on the EU market could be seen as backward step.

Establishing this broader sustainability or deforestation-free basis is likely to be a more complex and difficult undertaking than establishing a definition of legality, as in the EUTR or IUU Fishing Regulation. However, there are many existing sets of criteria on which to build, including those of the various certification schemes, the sustainability criteria in the Renewable Energy Directive (while recognising that these regulate access to financial support rather than market access) and timber procurement policies requiring sustainable products, in place in several Member States. Although it would not be legally necessary to reach agreement on these criteria with the producer countries likely to be affected, it would obviously be desirable; the partnership agreements discussed in intervention 6.1.5 provide a possible forum.

Both elements present in the EUTR – the prohibition on the placing of illegal products on the market and the requirement for operators to have in place due diligence systems – could be included. As an alternative to an immediate prohibition, the new regulation could possibly borrow the rather softer approach of the IUU Fishing Regulation, engaging in dialogue with countries repeatedly failing to produce commodities complying with the criteria, and perhaps providing additional technical assistance to them.

Due diligence systems established under the regulation could, like the EUTR, incorporate a risk-based approach. If an operator's risk assessment identified a high rate of deforestation, a lack of clarity over issues such as land tenure or use rights, or the use of forced labour or banned pesticides, to cite a few examples, this would suggest a greater than negligible risk of failure to comply with the criteria, requiring the operator to gather more information on the source of the products, or seek lower-risk sources of supply. This in turn would provide incentives for producer countries to invest in sustainable and deforestation-free practices and undertake any necessary processes of law reform to clarify and enforce land rights, labour laws and any other relevant legislation.

If the option of partnership agreements for FRCs goes ahead (see 6.1.5), products licensed under these agreements could be assumed automatically to be compliant with the regulation; thus each of these two interventions would reinforce one another. In the absence of such licenses, certification systems could play a role in the due diligence system, as they do in the EUTR; the extent to which they would satisfy the criteria would need to be considered for each system. A phased implementation of the regulation could be considered, depending, for example, on the extent of licensing, certification and traceability systems present for each commodity.

As an alternative to the VPA licensing system model, the 'carding' approach of the EU IUU Fishing Regulation could be considered. Under this system, the European Commission enters into dialogue with non-EU countries that are not combating IUU fishing effectively. If there is evidence of significant flaws within the country's system to combat IUU fishing or a lack of cooperation, the Commission may decide to officially warn – 'yellow card' – that country. If reforms are not carried out, or not carried out in a timely manner, a 'red card' may be issued, resulting in a ban on imports to the EU of fish products caught by vessels flying the flag of the red-carded country. Both yellow and red cards can be lifted when there is clear evidence that the situation that warranted the carding has been rectified. A system such as this could perhaps be adapted for FRCs.

For consistency with WTO and EU trade rules, the regulation would need to apply to commodities whether they are produced inside the EU or imported from outside. Many of the FRCs referred to in this paper – including palm oil, cocoa, coffee and tea – are not produced in the EU, but others – particularly beef, but also soy – are. Due diligence systems would need to cover EU products as well as imports – an outcome likely to cause concern amongst EU agricultural producers. However, compliance with the rules of Pillar I of the Common Agricultural Policy (which is rigorously checked on 1% of all EU farms each year) could possibly be considered to meet some of the criteria; this would need further consideration.

It can also be argued that if the regulation were to apply to palm oil and soybean oil it would need to apply to other 'like products' (in WTO terminology) such as rapeseed oil or sunflower oil (both produced in the EU); all these vegetable oils can, to some extent, substitute for each other in some, though not all, applications, including biofuel and foodstuff production, taking into account the different chemical, nutritional, and functional properties of the different kinds of oil. Another complicating factor is the fact that some FRCs – particularly palm oil – are likely to be imported as ingredients, for example in processed foods or hygiene products, rather than as raw materials. Although the same issue affects timber supply chains to a certain extent, it does make implementing traceability systems more difficult.

The intervention has drawn inspiration from VITO (2014) Policy proposals 9 and 24, and from FERN's report *Developing EU measures to address forest risk commodities: What can be learned from EU regulation of other sectors?* (2016).

Considerations

The adoption and implementation of the EUTR and the IUU Fishing Regulation have shown that a measure based on legality could be technically **feasible**. Introducing a broader regulation for FRCs, resting on a wider set of sustainability or deforestation-free criteria, would, however, face formidable challenges. These include the much wider range and quantity of products the regulation would apply to, the wider range of criteria covered, the need to know the details of deforestation in the exporting country, the larger number of producers and the likelihood of resistance from both producer countries exporting to the EU and domestic producers.

If such a regulation were to be developed, it could be **effective** when fully in place and enforced; both the EUTR and the IUU Fishing Regulation already appear to have had positive impacts on operators and on producer countries. As noted, such a regulation is designed to reinforce the efforts of many companies to exclude deforestation from their supply chains and to level the playing field. Its effectiveness could be increased if it was accompanied by partnership agreements for FRCs, (see 6.1.5).

Table 6-6: Feasibility of the intervention – **Due diligence regulation for forest risk commodities**

Objectives	SO2 Demand side. Theme: Regulate EU market access to promote sustainable and deforestation-free products	
Drivers	D1: Lack of public policies promoting sustainably or legally produced commodities; and D2: Lack of incentives for private sector sourcing of legal / sustainable FRCs.	
Functional logic	Legislation modelled on the EU Timber Regulation and/or the IUU Fishing Regulation, but based on a broader range of sustainability and deforestation-free criteria applied to FRCs creates a prohibition on FRCs not produced in compliance with the criteria being placed on the EU market, and requires operators who first place FRCs on the EU market to have in place systems of due diligence to minimise the chance of them handling FRCs not complying with the criteria.	
Intervention points	Companies first placing FRCs on the EU market, whether from imports or domestic production; the measures they take to comply with the regulation provide for producers to ensure that they are producing FRCs in compliance with the criteria	
Feasibility assessment	Contribution to objective	Directly targeted at FRCs produced illegally, unsustainably or in ways which contribute to deforestation. This creates incentives for operators to avoid high-risk sources and for producer countries to improve their standards of sustainable agriculture, protection of forests, governance and law enforcement. It would be mutually reinforcing with partnership agreements for FRCs (6.1.3).
	Political acceptance	Not likely to be high; opposition could be expected both from many producer countries exporting FRCs to EU and from operators sourcing domestically produced FRCs also required to put in place systems of due diligence. Likely need to apply regulation to all vegetable oils (as 'like products', in compliance with WTO rules), complicates measure and political acceptance further.
	Technical complexity	Reaching agreement on sustainability and deforestation-free criteria not likely to be straightforward (see discussion in Section 5.1.2), though models exist in certification schemes, some timber procurement policies and the approaches of many companies implementing zero-deforestation commitments. May be a need to phase in implementation depending on certification, traceability and other systems in place which operators can rely on to fulfil their due diligence obligation. Tracing FRCs present in small quantities as ingredients of other products (e.g. palm oil in processed food) likely to be complex.
	Administrative costs and SMEs	Compliance costs would be incurred both by governments (competent authorities) and operators first placing FRCs on the EU market and would depend on the nature of the requirements. Some smallholders could face additional costs.

As discussed above, the new regulation could be applied on the basis of either a legality approach or a sustainability/zero-deforestation approach. The legality approach suffers from a lack of clarity over whether FRCs produced on illegally converted forestland would themselves qualify as illegally produced. The sustainability/zero-deforestation approach is in line with the EU's international commitments, and also with the efforts many companies are making to eliminate deforestation from their supply chains, but would face political and technical challenges, as discussed above.

6.2.2 Public procurement policies for sustainably produced forest risk commodities

What it is

EU Member States include requirements or encouragement for sustainably produced FRCs in their public procurement policies, and the EU includes similar elements in the voluntary Green Public Procurement (GPP) criteria. This widens the market for these products and sends a signal to private sector purchasers, encouraging them to adopt the same aims.

Demand-side action providing a public policy to promote commodities produced with less impact on deforestation (D1)

The potential of public procurement as a policy instrument is well understood. The EU's voluntary GPP criteria already include the requirement for timber and timber products purchased by government to be legal, and encouragement for them to be also sustainable. Within the legal framework established at the EU level through the EU's public procurement directives, Member States operate their own national procurement policies, and many of them have in place timber procurement policies, sometimes requiring timber products such as paper, furniture and timber for construction to be sustainably as well as legally sourced.

In the context of this study, the use of public procurement policy is relevant for sectors such as food and catering, cleaning products and services and textiles, as well as product groups involving timber products (e.g. paper products, furniture). The public sector is a major purchaser of food and catering services, for example for schools, nurseries, hospitals, care homes, canteens, prisons and the military. Incorporating encouragement or requirements for sustainably produced FRCs in these purchases therefore has the potential to promote the uptake of food products not associated with deforestation.

Many public authorities already possess a procurement policy for food; requirements or encouragement for organic, or Fairtrade products, for example, are common. In principle, criteria relating to the impact of FRCs on deforestation could also be incorporated; in general, no primary legislation is needed. Both the UK and Sweden currently include in their public procurement policies for food and catering services sustainability criteria for palm oil (and the UK for palm kernel oil and derivatives), which can be satisfied by RSPO-certified products; the UK's requirements are mandatory for central government agencies, while Sweden's are voluntary.⁸⁹ Sweden's criteria for meat includes, in their 'advanced' criteria, criteria relating to the responsible production of soy for animal feed and, in their 'spearhead' criteria, a complete ban on the use of soy for animal feed. In 2016 the Norwegian Parliament expressed support for a public procurement policy which did not contribute to deforestation in the tropics; the government is currently assessing how this aim could be met.

Some kind of identification mechanism is necessary to enable government buyers to be able easily to specify the products they wish to purchase. For this reason, the use of procurement policy will be more effective where voluntary sustainability certification systems are relatively widespread, including palm oil, cocoa, coffee and tea, and will be less effective or practical for others where certification has not yet been taken up to a significant degree, such as soy or beef. (Certification systems, however, vary in the way in which they deal with deforestation; some, including organic and Fairtrade, included generic environmental criteria rather than specific criteria on forests. For the four commodities listed above, certification systems do exist with specific criteria relating to deforestation.) Basing procurement policy on legality criteria would in practice probably have the same outcome, providing encouragement to buyers to source

⁸⁹ The Netherlands has a policy of 100% sustainable procurement, though the specific criteria used do not relate to deforestation.

certified commodities, since there is no readily available alternative system by which legally (as opposed to sustainably) produced FRCs could be identified.

Under the current EU legal framework, EU directives on public procurement set out minimum rules on issues such as transparency and non-discrimination; public authorities in Member States choose which products and services are covered, and which criteria are applied. The European Commission can encourage Member States to incorporate criteria relating to forest risk commodities, spread examples of best practice and provide a forum for debate and discussion – as it has done since timber procurement was included in the FLEGT Action Plan. The Commission can also include FRCs in the voluntary EU-wide GPP criteria where appropriate. It is currently consulting on the inclusion of encouragement for the purchasing of environmentally responsible palm oil and other vegetable fats, such as soybean oil, in the latest revision of the criteria for food and catering services; there is also recognition of the role of deforestation-criteria in the criteria relating to 'fair and ethically traded products'.

Palm oil is also used as an ingredient in many cleaning and hygiene products, so the same approach can be used here; the GPP criteria for cleaning products and services are under revision. Given the larger volume of food purchasing and the wider range of FRCs included in food, however, it is suggested that food and catering procurement should be a higher priority.

Considerations

Incorporating criteria for sustainably produced FRCs should be **feasible**. Many public authorities already possess procurement policies for legal and sustainable timber, and for food, though with the exception of the UK and Sweden for palm oil, and Sweden for meat, no Member State has criteria explicitly related to deforestation. As noted, the Commission is currently consulting on the inclusion of encouragement for the purchasing of sustainable vegetable oil in the GPP criteria for food and catering services. Reaching agreement on the definition of 'sustainable', however, is not always straightforward; for example, it proved impossible for harmonised detailed criteria for 'sustainable forest management' to be agreed in the latest GPP criteria for furniture or for office building design, construction and management. Another factor to be taken into consideration is that for certain commodities adequate means of verification may not be easily available for the use of public procurers.

It can also be **effective**. Government can be a significant source of demand; estimates of public expenditure on food vary between 10 and 30% of the national market.⁹⁰ The European Commission's 2008 document on green procurement, *Public Procurement for a Better Environment*, identified food and catering services as the second most important of ten priority sectors (EC, 2008).⁹¹ And the experience from timber procurement policies show that once government suppliers take actions to meet their clients' criteria for legal and sustainable timber, they often extend them to their other customers' supplies too, thus magnifying their impact.

In many EU Member States, purchasing of food and catering services is mostly carried out by local or regional authorities, which are not generally subject to central government green public procurement policies (through they are still subject to the overarching EU procurement rules). Central government can, however, encourage their uptake through, for example, providing model contracts, training and awareness-raising.

In cases in which private-sector initiatives are under way to achieve 100% sustainable imports (see 6.2.6), procurement policy may be unnecessary. In other cases, the adoption of a new procurement policy could serve as the spur to such a private-sector initiative. The UK procurement policy for palm oil was adopted as part of a commit-

⁹⁰ Brack, D. (2015), *Reducing Deforestation in Agricultural Commodity Supply Chains: Using Public Procurement Policy* (Chatham House)

⁹¹ European Commission (2008), *Public Procurement for a Better Environment*, p. 8.

ment to source sustainable palm oil made jointly with 14 trade associations and NGOs. Analyses suggest that the target of 100% sourcing of credibly certified sustainable palm oil by the end of 2015 (an increase from about 50% in 2012) was largely met.⁹²

⁹² Department for Environment, Food and Rural Affairs, *UK statement on sustainable palm oil: final progress report* (February 2017); https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/590473/palm-oil-final-report.pdf

Table 6-7: Feasibility of the intervention – **Public procurement policies for sustainably produced forest risk commodities**

Objectives	SO2 Demand side. Theme: Regulate EU market access to promote sustainable and deforestation-free products	
Drivers	D1: Lack of public policies promoting sustainably or legally produced commodities	
Functional logic	The inclusion of requirements or encouragement for sustainably produced FRCs in Member State public procurement policies and in the EU's GPP criteria widens the market for such products and can send a signal to private sector purchasers to adopt the same aims.	
Intervention points	Targeted at EU Member State public procurement policies and the EU GPP criteria; those responsible for procurement in public agencies then apply the new criteria; likely knock-on effects also on suppliers, who may increase their supplies of sustainable products for all their customers.	
Feasibility assessment	Contribution to objective	Depends on (a) scale of public purchasing (probably higher in regional and local authorities than at central level); (b) the extent to which sustainably produced commodities can be identified – which in turn depends on the penetration of certification schemes in the market. The experience from timber procurement policies shows that government is generally a large enough consumer to affect the market, and can also have a knock-on effect on private-sector purchasers.
	Political acceptance	Public procurement policy 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.
	Technical complexity	EU procurement rules forbid simply specifying that a product must meet the standards of a particular label or certification scheme (though in certain circumstances it is possible to refer to labels or schemes in the procurement policy), so specific and objective criteria for 'sustainability' would have to be developed independently. Defining what exactly is considered as 'sustainable' and which mean of proof and verification systems can be accepted would require some technical work. Experience from timber procurement policies in Member States shows how this can be done, and the voluntary certification schemes provide models.
	Administrative costs and SMEs	Administrative costs would be low where public procurement policies incorporating similar criteria already exist. Encouragement, rather than requirements, for sustainably produced commodities is a possible initial step when procurement policies are less developed or where certified commodities are less available (penetration levels vary between Member States). Impact on SMEs only where they are suppliers to government; any additional costs would be able to be passed on to buyers.

While procurement criteria for legally produced commodities could in theory be written, in practice the only readily available means of identifying commodities not associated with deforestation is to use the existing voluntary certification schemes for sustainable production. It therefore makes sense to devise criteria for sustainably sourced forest risk commodities. The most suitable commodities, at least to start with, are those where certification scheme coverage is relatively widespread, including palm oil, cocoa, coffee and tea. This approach could also be extended to cleaning products and services, but given the larger volume of food purchasing and the wider range of FRCs included in food, food and catering services should be a higher priority.

6.2.3 Lower import duties for commodities complying with certain sustainable production and/or deforestation-free criteria

What it is

This intervention involves the EU applying lower import duties to FRCs complying with certain sustainable production and/or deforestation-free criteria. This could lower the price of those FRCs relative to the same commodities not complying with the criteria, which could in turn influence purchasing choices in the market.

This intervention has drawn inspiration from VITO (2014) policy proposal 23 ('Increase the import tariffs of commodities that are associated with deforestation'), although that report's proposed increase in import tariffs for products not identified as sustainable is considered to be infeasible; almost all EU import duty rates are 'bound' under the WTO agreements – i.e. committed and difficult to increase. Hence lowering duties for sustainable products is suggested instead.

Demand-side action providing a public policy to promote commodities produced with less impact on deforestation (D1)

Customs duties applying to commodities imported into the EU vary with the commodity and the country of export. For example, the EU's import duty on palm oil for use in food is 3.8%, and for non-food applications zero; on soybeans and soybean meal the import duty is zero. Duties for timber and timber products vary from zero to 12%. For most commodities, import duties on processed products are higher than those on raw products. Refined palm oil, for example, faces duties of 5.1% for non-food applications (with some exceptions) and up to 12.8% for other uses; soybean oil for food uses faces duties of 6.4–9.6%.

In common with all developed countries, the EU also offers preferential access to products of developing countries, which is permitted under an exception to normal WTO rules. Under the EU's latest Generalised System of Preferences (GSP) for poorer countries, the tariff on crude palm oil, for example, is zero for any use. Some major producers of FRCs, including Malaysia, Brazil and Argentina, do not qualify for these GSP terms, owing to their upper-middle-income status, and some countries which do qualify (such as Indonesia) do not benefit from the lower tariff rate for all their exports. Further tariff preferences are available for the least developed countries and for countries classified as vulnerable (i.e. suffering from a lack of economic diversification and insufficient integration within the international trading system) which also adhere to a list of 27 international conventions on human and labour rights, environmental standards and good governance. Countries with free trade agreements with the EU may also enjoy lower, possibly zero, import duties.

The principles of differentiating between traded products based on their means of production is a controversial one, and it is possible that a challenge on the basis of WTO compatibility could be threatened. The outcomes of several WTO dispute cases, however, have suggested how trade requirements based on environmental criteria can be applied. It should also be noted that the EU's inclusion in its 1998 GSP of environmental (and labour) clauses for duty reductions of about 25% on timber products for countries meeting ITTO sustainability standards was never challenged. (No country ever applied for these special incentives, however, probably due to the low rate of duties already applying to timber and wood products, and the bureaucracy involved.)

The option of lower import duties for sustainable timber was considered in the early years of the debate around illegal logging, but was never pursued. In recent years a number of calls have been made for the EU to abolish import duties on sustainable palm oil, in order to give it a price advantage in the market over palm oil not so identified.

Considerations

The **effectiveness** of this measure depends on the extent to which lower import duties for commodities complying with the criteria contribute significantly to lower prices and then to a shift in demand. As noted above, this will depend in turn on the current level of import duties, which varies with the product and its origin. It will also depend on any costs incurred in the country of production in meeting the criteria, and of demonstrating proof of compliance with the criteria, and the extent to which these are passed on to the final consumer. In 2011 and 2012, the Dutch Product Board for Margarine, Fats and Oils argued that a zero tariff on RSPO-certified palm oil would more than offset the 0.3–0.5% higher price it estimated for certified products.⁹³ Finally, the effectiveness of the measure will also depend on any existing measures in the country of import which already affect the market for sustainable FRCs; for example, where industry alliances are aiming to source 100% sustainable palm oil (see 6.2.6), lowering import duties may have little effect on market share.

The **feasibility** of this measure depends mainly on the process of establishing the criteria for sustainability, or zero deforestation, and of determining the proof necessary for the country of export to demonstrate compliance in a way which is effective but does not impose excessive costs. In that regard it should be noted that WTO rules do not allow the criteria to be set simply in reference to an individual label or certification scheme (e.g. RSPO), but would require the establishment of objective criteria, preferably agreed with the exporting countries affected. It would also probably be necessary, under WTO rules, to apply the same or similar treatment to imports of any 'like products' – for example, if lower import duties were applied to sustainably produced palm oil it could be argued that they should also apply to other vegetable oils such as soybean oil, rapeseed oil or sunflower oil; all these vegetable oils can substitute for each other in some, though not all, uses.

The feasibility of the measure also depends on the extent to which the prices faced by the final consumer would actually be lower; as noted, the low import duties already existing on most commodities mean there may be little scope for prices to fall significantly, particularly if the additional cost of certification and related controls exceed to the impact of the reduction in import duty.

⁹³ 'EU Import Duty on Sustainable Palm Oil May be Lifted by 2013 – Industry Executive', Dow Jones Newswires, 26 October 2012.

Table 6-8: Feasibility of the intervention – **Lower import duties for commodities complying with certain sustainable production and/or deforestation-free criteria**

Objectives	SO2 Demand side. Theme: Regulate EU market access to promote sustainable and deforestation-free products	
Drivers	D2: Lack of incentives for private sector sourcing of legal/sustainable FRCs	
Functional logic	Lowered import duties for commodities complying with certain sustainable production or deforestation-free criteria could make them more competitive on the EU market compared to commodities not so complying. Hence, the lower import duties could increase demand in the EU for commodities complying with the criteria and thereby generate an incentive for producers to produce these products	
Intervention points	Exporting countries and EU importers and consumers. The lowered import duty would benefit operators selling or buying commodities complying with certain sustainable production or deforestation-free criteria to the EU	
Feasibility assessment	Contribution to objective	The contribution depends on the level of reduction of the import duty, which varies with the commodity and the country of export, and of any costs of compliance, both of the criteria themselves (for the producer) and of the means of demonstrating proof of compliance with the criteria at the border (for the importer or exporter). It also depends on the price elasticity of demand and the policy context in the country of import.
	Political acceptance	Introducing a differentiated import duty structure is likely to be politically controversial, and could be subject to challenge under WTO rules – though the outcomes of previous trade disputes have demonstrated how discrimination between products on the basis of their means of production can be WTO-compliant.
	Technical complexity	Agreeing a definition of ‘sustainability’ is likely to be complex. Scope of the products to which the criteria would be applied needs to take into account potentially ‘like products’. Differentiation of complying commodities by customs officials might be challenging giving identical appearance – in case of reliance of certification, risk of fraud.
	Administrative costs and SMEs	There may be a risk that the import duty reduction mainly favours large producers who can more easily mobilise finance and skills to adjust to the new regime, whereas smaller producers may find this more difficult. There might be a need for compensation for third countries affected by the measure under WTO law – implying costs. It is a voluntary system, and non-certified products can still be exported to the EU however not benefitting from the lower duty. Still, the competitive power of certain third country producers may be affected.

In principle, differentiated import duties could be based either on a principle of legality or of sustainability (or zero-deforestation), but a sustainability basis would fit much better with existing private-sector initiatives, certification schemes and other potential interventions (such as procurement policy). The discussion in Section 5.1 about the extent to which FRCs could be considered to be legal or illegal is also relevant. The intervention could cover one, more or all of the FRCs, but indirect effects relating to like products (palm oil vs. other vegetable oils) should be considered before deciding on scope.

6.2.4 Encouragement for similar actions by other countries

What it is

Under this intervention, the EU encourages dialogue and international cooperation with other major producer and consumer countries of FRCs 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, including in particular support for public-private partnerships, partnership agreements on FRCs, possible due diligence regulations, public procurement policies, encouragement for business initiatives, and transparency platforms. This could include raising the profile of the issue in bilateral, regional and multilateral fora and bilateral cooperation and funding studies and new fora for discussion.

Demand-side action addressing the lack of public policies promoting commodities produced with less impact on deforestation (D1) and the lack of incentives for private sector sourcing of FRCs produced with less impact on deforestation (D2)

As noted elsewhere, one of the challenges to effective action on deforestation is a lack of widespread awareness and agreement on common definitions. The EU could, accordingly, exert its convening power to unite global stakeholders from both producer and consumer countries to increase awareness, profile, understanding and convergence on zero-deforestation and sustainability definitions and standards, building on developing approaches (e.g. HCV and HCS), safeguards (e.g. in relation to climate, biodiversity, tenure etc.) and ongoing efforts by commodity-producing jurisdictions. Similar discussions took place under the series of Forest Law Enforcement and Governance (FLEG) ministerial conferences in East Asia, Africa and Europe and North Asia in 2001–2005, convened by the World Bank.

The aim would be to create a guiding framework for public and private interventions on responsible commodity production and supply chains, initiated through either regulatory or voluntary initiatives. Clarity and, as far as possible, agreement on definitions and standards, for example for 'zero-deforestation' or 'sustainability', would help create market certainty and bring clarity and guidance for investments in responsible commodity production and supply chains. It could also provide a framework for balancing the concept of global zero deforestation with local socio-political issues, and allow government and local stakeholders to clarify what 'responsible' and 'deforestation-free' agriculture means in their jurisdictions. Interpreting global standards in the context of local socio-political circumstances is a key opportunity for national stakeholders to engage, and work out the criteria for legal, deforestation-free commodity production in their jurisdictions through a participatory process.

Implementation of all of the interventions discussed in this report would benefit from such a process. The supply-side interventions discussed above in Section 6.1 would clearly benefit from additional involvement and support from other development cooperation partners. Considering the demand-side interventions outlined in Section 6.2, it should be remembered that the EU is only one of several major sources of demand for FRCs. For example, it is one of the top three global consumers for palm oil, along with India and China; one of the top two for soybeans and derivative products, but well behind China; and it is the largest global importer of cocoa, tea and coffee, with the US in second place for all three. The other demand-side interventions described in this report will, clearly, be more effective if other consumer countries adopt them or similar measures. In 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.

Similar to the strategies put in place under the FLEGT Action Plan to minimise such a risk, the EU should pursue international cooperation and dialogue on FRCs, including information exchange, with other major consumer countries. This could include sup-

port for existing public-private partnerships, such as the Tropical Forest Alliance 2020. Only a few consumer-country governments are currently partners of the TFA2020, however, so there is a case for establishing wider forums, perhaps building on the Amsterdam Declarations group of countries (Denmark, France, Germany, Italy, Netherlands, Norway and the UK) established in 2015 to lend public sector support to the implementation of existing private and public sector commitments to achieve fully sustainable and deforestation-free agro-commodity supply chains in Europe by 2020. The EU could also raise the topic in international meetings such as, e.g. G7, G20, OECD, or FAO.

The 2014 New York Declaration on Forests attracted several government signatories, including some consumer countries outside the EU (Canada, Japan, Korea, Norway, US), and its implementation could be followed up, perhaps on its fifth anniversary in 2019, one year ahead of its target of cutting natural forest loss in half by 2020. The EU could take the initiative through supporting a systematic analysis of its signatories' record of implementation (including companies as well as governments) and reconvene the signatories to discuss progress.

The topic could also be raised in existing bilateral dialogues, such as those between the EU and China on environment, development, trade and agriculture.

Should the proposed initiative for partnership agreements on FRCs (6.1.5) go ahead, this would provide a clear focus for discussion and collaboration. Even without this, more general discussion would be helpful in raising the urgency of the need to deal with illegal and unsustainable production of FRCs.

Considerations

These kinds of measures are clearly **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 FRCs, they would also be **effective**. Clearly, this may take some time; but by themselves, they require fewer resources than many of the other interventions discussed here.

Table 6-9: Feasibility of the intervention – **Encouragement for similar actions by other countries**

Objectives	SO2 Demand side. Theme: Regulate EU market access to promote sustainable and deforestation-free products	
Drivers	D1: Lack of public policies promoting sustainably or legally produced commodities; D2: Lack of incentives for private sector sourcing of legal/sustainable FRCs	
Functional logic	The EU encourages dialogue and international cooperation with other major producer and consumer countries of FRCs 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, including in particular partnership agreements on FRCs, a possible due diligence regulation, public procurement policies, encouragement for business initiatives, and transparency platforms. This helps to reduce leakage and increases the global impact of interventions.	
Intervention points	EU input into existing forums such as G7, G20, FAO, TFA2020 and various EU–China and other bilateral forums; EU efforts to establish new forums, perhaps focused on the implementation of the New York Declaration on Forests.	
Feasibility assessment	Contribution to objective	Depends on the extent to which other countries are prepared to enter into dialogue and in particular whether other consumer countries are encouraged to adopt similar measures; likely to be a long process, but raising awareness and showcasing positive impacts of EU policies can have an effect.
	Political acceptance	The political acceptance would depend on the willingness to engage with a range of other countries on this particular topic. However, these kind 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.
	Technical complexity	None of these measures is technically complex; the main question is where they could value to activities already under way.
	Administrative costs and SMEs	Some financial costs to EU budgets and Member States. No impact on SMEs.

These measures should cover all potential interventions, both supply-side and demand-side and whether aimed at legality, sustainability or zero-deforestation goals, and could cover all FRCs. However, for specific dialogues with specific countries or group of countries, particular FRCs would be more relevant.

6.2.5 Support for a sustainable agricultural commodity trader platform

What it is

A commodity platform is here understood as an internet-based exchange where sellers, traders and buyers of certified sustainable FRCs can meet, exchange information, place orders and conclude purchases. This will increase the liquidity of the market and traceability of the products, and promote transparency. Most importantly, it could help sellers achieve a fair and realistic price premium for certified sustainable products.

Demand-side action to provide incentives for private sector to source FRCs produced with less impact on deforestation (D2)

One major challenge for certified producers of legal and sustainable FRCs is that short-term changes and variations in supply and demand, due to e.g. price speculation, the effects of harvest seasons, weather and other external factors they cannot control, may force them to sell certified products as non-certified at a lower price.⁹⁴ In 2012, for example, only between 22% and 53% of the certified cocoa sold was sold as certified.⁹⁵ The rest was sold as conventional cocoa, at a lower market price, thereby making it difficult for producers to recoup the costs associated with production, certification and eventual investments. For 2010, KPMG estimated between 10% and 38% of certified production was 'leaked' to conventional markets.⁹⁶ Recent statistics by UTZ for its own certification conveys the same message⁹⁷ and the situation is the same for certified palm oil. At the same time, a recent CDP survey of buyers of FRCs found that only between 60% and 85% have identified adequate future sources of certified sustainable raw materials; a supply gap is likely to emerge and may widen in the future.⁹⁸

One conclusion that could be drawn from these observations and studies is that sellers and buyers are insufficiently connected. Measures to rectify this and ensure that buyers and sellers are better connected would increase the liquidity and transparency of the market. Commodity exchanges are used in other domains to promote price setting, and this idea is here used as starting point for supporting the establishment of a transparency platform. As the numbers suggest, the platform could focus on cocoa, coffee and potentially other commodities with high shares of certification such as palm oil. There are similar initiatives in place for timber, which should be assessed in terms of effectiveness and lessons to be learned.

The EU cannot solve this challenge by itself and in any case does not have the mandate to run an exchange for agricultural commodities, so this intervention consists of a pilot programme to develop such a platform for FRCs. Simultaneously, a partnership with interested commercial partners and NGOs could be set up to manage the exchange after the pilot programme has produced a first version of the software. Potential partners include the Consumer Goods Forum or Sustainable Trade Initiative (IDH), and the initiative could be linked to or even merged with the transparency platform intervention (6.2.7), so that data could be harvested and exchanged for mutual benefit. The exchange should also be considered as delivering other benefits for participating demand-side companies, such as greater procurement opportunities and improved security of supply.

While there are numerous initiatives (see inventory developed under the study contract, initiatives #166-174) addressing the lack of transparency and limited data on

⁹⁴ See e.g. Defries et al., *Env. Research Letters* 12, 2017 and Climate Focus *Eliminating Deforestation in the cocoa supply chain*, 2016.

⁹⁵ <http://www.confectionerynews.com/Commodities/Certified-cocoa-not-always-sold-as-certified>

⁹⁶ KPMG and ICCO, 2012: Study on the costs, advantages and disadvantages of cocoa certification

⁹⁷ <https://www.utz.org/wp-content/uploads/2016/04/Statistics-Report-Coffee-2015.pdf>

⁹⁸ <https://news.mongabay.com/2017/02/will-there-really-be-enough-sustainable-palm-oil-for-the-whole-market>

global flows of FRCs, there are none that connect sellers and buyers. In fact, the Dutch Ministry of Foreign Affairs has published a guide for sellers of certified cocoa looking for a European Buyer,⁹⁹ directly supporting the view that sellers and buyers are in need of better connections. That said, several commodity exchanges do exist, in particular for agricultural commodities, and some of these are specific to a given commodity, e.g. the Nairobi Coffee Exchange,¹⁰⁰ and the Chittagong Tea Auction. None of the screened exchanges have been found to have separate floors or exchanges for certified commodities.

Considerations

The **effectiveness** of the intervention relies on the commitment of demand-side companies and the accessibility of the exchange for producers, in particular smallholders and producers in remote regions with low digital connectivity. The more producers and buyers that link up, the more liquid the market, lowering the risk of producers being unable to find a buyer for sustainable FRCs. Ideally, if all producers and buyers use the platform, the above-mentioned leakage of certified crops into conventional markets would be minimised, as long as supply and demand more or less balance.

A critical risk for the effectiveness of the platform is the level of participation by sellers, in particular smallholders with limited market access. To enhance market access by smallholders, action outside the scope of this intervention is needed, for example through the Best Practice Support intervention (6.1.1). For geographies where market access is limited the effectiveness of the trader platform will also be limited; and, of course, it would not be able to prevent periodic shortages of demand or supply due to e.g. catastrophic weather.

The **feasibility** of the intervention is related to the incentives for the demand side to participate in the exchange. The exchange may lead to higher price-paid all together which can actually come to constitute a disincentive. Companies that have committed to certain levels of sustainable or certified supply may, however, find the trader platform relevant, as it can help them close supply gaps and thus meet their target.

Minimum levels of participation and traded volumes would be necessary for the platform to be feasible; a persistent shortage of producers using the platform would render it less valuable for demand-side companies.

⁹⁹ <https://www.cbi.eu/market-information/cocoa/certified-cocoa/>

¹⁰⁰ <http://nairobicoffeeexchange.co.ke/>

Table 6-10: Feasibility of the intervention – **Support for a sustainable Agricultural commodity trader platform**

Objectives	SO2 Demand side. Theme: Encourage the consumption of sustainable and deforestation-free products through improved transparency and information	
Drivers	D2: Lack of incentives for private sector sourcing of legal/sustainable FRCs	
Functional logic	By bringing producers and users of certified FRCs closer together, the size of the market for certified FRCs is essentially increased. This can make certification more attractive, thereby enrolling more producers into production principles that help halt or reduce deforestation and forest degradation.	
Intervention points	The exchange is intended to intervene on price setting and subsequently producer bargaining power and liquidity of markets for FRCs.	
Feasibility assessment	Contribution to objective	The exchange could promote sustainable supply chains and deforestation proofed investments by making sustainable supply chains more profitable (supply side) and less risky (supply and demand sides). The magnitude and certainty of the contribution will depend on the uptake and use of the exchange platform at both ends. The EU intervention consists of a support for the platform, and can only help realise the described contribution in full, if the sector and stakeholders are willing to engage in the foreseen PPP, and host and contribute financially themselves.
	Political acceptance	This platform covering agricultural FRCs would complement several of the other interventions in the report, as well as the sustainability requirements for biofuels of the EU Renewable Energy Directive. This means a strong strategic fit, as it delivers in accordance with international law, includes private partnerships and builds on private sector initiatives, and is directly supportive for SMEs/smallholders. No regulation or new legal basis would be needed, which often requires political capital invested by decision-makers.
	Technical complexity	Designing the platform can rely on existing tools and software, just as managing and potentially expanding the platform can be done by a few experts.
	Administrative costs and SMEs	Preparing and managing the call and the research programme to set up the software for the platform is associated with administrative costs for the Commission. Once the platform is operational, it is possible that participating companies (buyers) would face reduced costs for due diligence and reduced global presence necessary for procuring the same amount of certified FRCs.

Coverage of FRCs can be modified, however there is no technical reason for not covering all FRCs. After launching the platform the supply and demand by those joining will determine what FRCs markets that can most benefit from the platform. At first, the focus should be on cocoa, coffee and palm oil.

It is not foreseen that the platform needs to be limited to a certain supply or demand geography, although it would be more obvious for EU demand actors. Apart from the mentioned synergies with the Transparency platform intervention, the platform could get traction from a launch campaign possibly integrated into the consumer campaign intervention. The intervention supports the sustainability approach.

6.2.6 Encouragement for private sector initiatives on forest risk commodities

What it is

Under this intervention the EU provides encouragement and support for private-sector initiatives to source legal and sustainable FRCs, encouraging more companies to undertake and implement commitments. This includes establishing or supporting forums in which to exchange information and discuss further progress, and financing analyses of measures taken by companies so far and the challenges they are experiencing in meeting their commitments.

Demand-side action addressing the lack of incentives for private sector sourcing of FRCs produced with less impact on deforestation (D2)

In many ways, the private sector has been more active in addressing the problems of illegality and unsustainability in the production of FRCs than have governments. This includes commitments to zero-deforestation supply chains made by many companies in line with the targets adopted by the Consumer Goods Forum, the 2014 New York Declaration on Forests and the 2015 Amsterdam Commitment.¹⁰¹ Many companies are increasing their sourcing of products certified under the various sustainability certification schemes, devising their own criteria where those of the schemes are held to be inadequate and investing directly in producers' ability to meet legality, sustainability and zero-deforestation standards.

To date, alliances of companies have formed in several EU Member States aiming to increase sourcing of sustainable palm oil, often setting a target date by which they aim to achieve 100% sustainable palm oil.¹⁰² Several companies have joined the Tropical Forest Alliance 2020, a global partnership of governments, companies and other organisations, with the aim of reducing the tropical deforestation associated with the sourcing of commodities such as palm oil, soy, beef, and paper and pulp.

This combination of actions is already beginning to have a significant impact on some supply chains – most notably that of palm oil – and has the potential to affect a substantial proportion both of the EU consumer market and of production in producer countries, including by smallholders. The FLEGT Action Plan, in 2003, included commitments to draw lessons from private sector activities and to promote further initiatives; the same approach could be adopted for initiatives on FRCs. Most of the other interventions analysed in this paper would increase the incentives to the private sector to implement and accelerate their activities, and their design and implementation should involve the active participation of private sector representatives (alongside those from civil society).

In addition, the European Commission could provide a forum for stakeholders from the public and private sectors and civil society (including participants from producer countries) to come together to discuss these issues and learn from existing initiatives, and/or provide financial support to forums provided by organisations such as the Consumer Goods Forum of Tropical Forest Alliance 2020. It could encourage the establishment of more national commodity alliances, like those on palm oil mentioned above, and consider supporting the formation of EU-wide alliances. It could support activities by existing EU business federations to promote the value of producing and sourcing legally and sustainably produced FRCs amongst their members and their

¹⁰¹ For summaries of companies' commitments and actions, see <http://www.supply-change.org>; <http://forest500.org>; McCarthy, B. et al, 2016: *Supply Change: Tracking Corporate Commitments to Deforestation-free Supply Chains*, 2016. Forest Trends; Streck, C., Haupt, F. and Roe, S., 2016: *Progress on the New York Declaration on Forests: Eliminating Deforestation from the Production of Agricultural Commodities – Goal 2 Assessment Report*. Climate Focus; Brack, D. and Gregory, M. 2017: *Company promises How businesses are meeting commitments to end deforestation*. Fern.

¹⁰² As of 2017, such alliances existed in Belgium, Denmark, France, Germany, Italy, Netherlands, Sweden and the UK (and also Norway).

suppliers in producer countries. It could finance studies of the measures taken by companies so far in implementing their various zero-deforestation commitments and identify the challenges they are facing and the steps governments could take to help them overcome these challenges. More broadly, it could encourage EU companies to comply with the various codes for responsible business agreed in different international fora, such as the UN Global Compact or the OECD Guidelines for Multinational Enterprises, and guidelines specific to sustainable agriculture, including the Principles for Responsible Agricultural Investment, the UN Principles for Responsible Investment in Farmland, the Committee on World Food Security Principles for Responsible Investment in Agriculture and Food Systems, the OECD-FAO guidelines on Responsible Agricultural Supply Chains and the FAO Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests. Finally, it could encourage Member State governments to carry out the same kind of activities amongst their own national business sectors.

Considerations

These kinds of measures are clearly **feasible**; they build on activities already under way and increase their **effectiveness** by providing encouragement, promotion and reinforcement. Clearly there is a limit to how much EU and Member State actions can achieve by themselves, but equally they require fewer resources than many of the other interventions discussed here; and the potential for corporate initiatives to improve supply chains for FRCs is high.

Table 6-11: Feasibility of the intervention – **Encouragement for private sector initiatives on forest risk commodities**

Objectives	SO2 Demand side. Theme: Support private-sector initiatives	
Drivers	D2: Lack of incentives for private sector sourcing of legal/sustainable FRCs	
Functional logic	Encouragement and support for private-sector initiatives to source legal and sustainable FRCs encourages more companies to undertake them and establishes and supports forums in which to exchange information and discuss further progress. More companies are thus encouraged to eliminate deforestation from their supply chains.	
Intervention points	European Commission organises stakeholder forums, provides financial support to organisations such as the Consumer Goods Forum and Tropical Forest Alliance 2020 and encourages companies and business organisations to undertake and implement commitments to legal, sustainable and zero-deforestation supply chains.	
Feasibility assessment	Contribution to objective	Many initiatives by the private sector in sourcing legally and sustainably produced FRCs are already under way. The EU can provide encouragement and support, thus increasing their impact. Participation by the private sector (alongside civil society) in the design and implementation of other interventions should improve their effectiveness.
	Political acceptance	The value of partnership and collaboration between the public and private sectors and civil society in addressing the problem of illegal and unsustainable production of FRCs is widely recognised.
	Technical complexity	None of these measures is technically complex; the main question is where they could add value to activities already under way.
	Administrative costs and SMEs	Some limited financial costs to EU budgets from supporting initiatives. No impact on SMEs.
These measures are aimed at supporting all relevant private-sector initiatives already under way, whether aimed at legality, sustainability or zero-deforestation goals, and whatever FRCs are included.		

6.2.7 Strengthen and expand existing transparency platforms through voluntary reporting and data compilation

What it is

Open access transparency platforms use a range of publicly accessible, publicly purchasable or submitted data to provide overviews of FRC supply chains in one accessible spot. The platforms compile and present vast amounts of data in data viewer tools for specific users. A transparency platform can serve as an information base to stimulate and inform consumers and industry in their purchasing decisions and generate knowledge of use to NGOs, investors and policy-makers in both consumer and producer countries.

Demand-side action to enhance awareness of industry and consumers of FRC-related issues (D3)

In recent years, a number of platforms tracking trade in FRCs have been created, but most of them have limited coverage in terms of either FRCs, exporters, traders or importers. A prominent initiative on global tracking of transactions in FRCs is TRASE (Transparency for Sustainable Economics) which started out focusing on soy and beef and is now expanding to other commodities. Another example is the CDP's (formerly the Carbon Disclosure Project) disclosure initiative on companies' exposure to FRCs in their supply chains.¹⁰³ The main barrier to expanding the scope and coverage of initiatives such as these remains the availability of good quality data and the capacity to process and prepare overviews and decision-support applications from raw data.

EU action in support of such transparency platforms could consist of an intervention comprised of two separate elements: an EU budget allocation to compile and prepare EU data for hand over to existing platforms, and encouragement to industry associations dealing in FRCs to compile and feed their own data to platforms coupled with minimum disclosure requirements to importers of FRCs (building on the CDP experience and parallel proposals for disclosure requirements in the finance sector). The budget allocations should cover an administrative arrangement or similar project with EEA, JRC and/or Eurostat to identify, gather and prepare packages of free, non-confidential data fed by the reporting companies and gathered from Member State authorities using information on bills of lading, tax records, customs declarations and similar sources. Data should at least include information on origin, producer, trader, importer, as well as volume and if possible the prices paid by traders and users.

Bringing in the manpower, expertise and experience of data managing EU institutions, without setting up a new, complementary tool will help overcome capacity barriers and avoid duplication. In combinations, the two elements should produce data outputs that could be fed into relevant existing platforms regularly. Platform support and research could be co-financed by the EU and Member States, and could further involve grants to the organisations managing the existing platforms. The intervention should involve industry organisations such as, but not limited to the World Cocoa Foundation, ENSA,¹⁰⁴ ITTO, CIFOR, CGIAR and other relevant research networks.

Considerations

The **effectiveness** of this intervention is linked to the use of the platform and the availability and relevance of data. Whether or not market actors or policy makers utilise the platforms to improve decision-making is outside the scope of the intervention as is designed, and as such the effectiveness should be expected to increase over time as coverage and data improve. The scope and content of the reporting will have implications for the usefulness of the data and hence the speed at which the coverage of platforms can increase.

¹⁰³ www.cdp.net/en/forests

¹⁰⁴ European natural soy and plant based foods manufacturers association

The **feasibility** of the intervention depends on the ambition for the size of the budget allocation, and the accessibility of the data that the administrative arrangement should gather. The former is linked to political prioritisation and competing budget allocations in a time of foreseen budget cuts due to the UK leaving the EU. The latter will depend on the FRCs in question and cooperation with data owners, e.g. Member State customs authorities and companies voluntarily reporting data.

Table 6-12: Feasibility of the intervention – **Strengthen and expand existing transparency platforms through reporting and data compilation**

Objectives	SO2 Demand side. Theme: Encourage the consumption of sustainable and deforestation-free products through improved transparency and information	
Drivers	D3: Lack of consumer awareness of FRC-related issues	
Functional logic	Reporting, compiling, preparing and feeding data to existing platforms (subject to suitable data protection provision) is expected to speed up increase in coverage and quality of existing platforms, thereby promoting their usefulness and use.	
Intervention points	The combination of reporting and sharing information intervenes on decision making by demand-side companies, policymakers and perhaps consumers.	
Feasibility assessment	Contribution to objective	The platforms in themselves contribute to the objective, however depending on the uptake. Supporting the platforms further development is just one of several means that can increase the uptake, next to e.g. the user interface, dissemination and marketing, and continued funding of the organisations hosting the platforms. These means are not part of the EU intervention, which limits the direct contribution of this. The intervention supports the preferred principles on softer measures, partnerships, and in terms building on existing initiatives, preferably complementing private sector initiatives.
	Political acceptance	Mandatory reporting of data into the platform would be likely to meet some resistance from importers, due to associated administrative burden; in particular by companies to whom the concerned activities are not 'core business' or supply chains already certified sustainable. Such resistance could materialise politically through industry organisation, hence their involvement is crucial. Anonymous data provision could improve acceptance if there are issues on business confidentiality. Voluntary reporting has been chosen to align with principles for interventions and to handle exactly this issue (and to reduce administrative costs) but may impact data usefulness and quality. Despite the above, improving transparency and facilitating behaviour change, while leaving the decision to make supply chains at the discretion of companies is in line with the principles for preferred interventions.
	Technical complexity	Most data exists already, but is not shared and compiled for a number of reasons. The work to be undertaken under the administrative arrangement to compile data would be time consuming and technically demanding, because many different data formats, types and sources would have to be integrated, quality-checked and made comparable. The platform teams would be important partners to consult with to organise work and agree on output specifications. As the reporting of a data is not mandatory, monitoring compliance and passing regulation is not relevant, which reduce the complexity.
	Administrative costs and SMEs	If the reporting were mandatory, costs of monitoring compliance would add to the administrative costs and could impose disproportionate burdens on SMEs. Since the reporting is voluntary, administrative costs are limited to setting up and managing the administrative arrangements.

The intervention has been scoped to cover all 12 FRCs covered in this work. It is likely that prioritising individual FRCs or clusters of similar FRCs could allow for faster improvement of the data viewers for these. Prioritising could mean FRC-dedicated work packages under the administrative arrangement and FRC specific encouragements in partnership with relevant industry groups and NGOs. The intervention is relevant for all three approaches.

6.2.8 Consumer information campaign in partnership with industries and NGOs

What it is

This intervention entails a campaign that aims to disseminate information to build awareness about deforestation among consumers and EU-based producers using FRCs as inputs. This will help to educate consumers about the link between FRC consumption and deforestation, potentially resulting in a change of consumption culture, increasing the demand for deforestation-free products and reducing food waste.

Demand-side action to build consumer awareness on FRC-related issues (D3)

Any campaign must define a limited number of clear messages that it will pass on to the target audience. This intervention should aim to increase awareness among consumers of the direct link between the consumption of certain types of products and the risk of deforestation. It would convey the message that even small changes in purchasing behaviour to favour certified products can help reduce deforestation and forest degradation, using case studies.

The role of the EU can range from merely supportive to a more active or leading role. To ensure support from industries and avoid competing messages, a collaborative, co-financed campaign involving partners should be preferred. The campaign could be designed to cover a select number of FRCs and include FRC or product category specific videos, posters, blogs, teaching materials for schools and high schools, and flyers. Distribution channels could be EU offices and delegations, conferences, supermarkets, public libraries, schools and similar locations, as well as viral distribution via social media.

This campaign intervention lends credit to policy proposals #10 and #11 of VITO (2014). There have been several campaigns by private companies,

Considerations

There are many information campaigns and much information aimed at influencing consumers, so individual campaigns can risk having a low level of **effectiveness**. The campaign partners need to agree on a number of clear, reliable yet effective and catchy messages. Increased effectiveness may be promoted by e.g. ensuring synergies with other existing and foreseen interventions (including those outlined in this report), including through timed launch of the campaign. Effectiveness will depend on successful outreach as well as the credibility of the messages. It is expected that government/EU support and broad stakeholder involvement can help ensure this. There is a risk that information will only reach those who are already 'deforestation conscious', and that there may be barriers to reaching certain groups of consumers. Also, the underlying intervention should run for a long time to ensure a strong mainstreaming of more sustainable behaviour into the European food culture.

The **feasibility** of the intervention as it is foreseen will depend on the buy-in and engagement of the partners, and whether the NGOs, industry and EU can agree in practice. The campaign should be managed by a professional, external partner but with involvement of all partners, possibly in a steering group.

Table 6-13: Feasibility of the intervention – **Consumer information campaign in partnership with industries and NGOs**

Objectives	SO2 Demand side. Theme: Encourage the consumption of sustainable and deforestation-free products through improved transparency and information	
Drivers	D3: Lack of consumer awareness of FRC-related issues	
Functional logic	Campaigns that use facts, knowledge and appealing visuals and case narratives to promote change in consumer shopping habits by building awareness and appealing to their sense of responsibility and values.	
Intervention points	Designed to intervene on EU demand to reduce or change demand to become more sustainable. Change agent would be private consumers.	
Feasibility assessment	Contribution to objective	The intervention can contribute to objective 5 by increasing consumer demand for sustainable products (D3) and preventing inefficient use of resources such as food, hygiene products, etc. (D6). It may also address dietary shifts (D4) if such messages are included in the campaigns. The contribution will inevitably depend on the budget as well: to cover all MS28 (and official languages), several FRCs, engage closely with stakeholders and run the campaign for long time (i.e. a year or more) will be no small challenge, but would also ensure the largest contribution.
	Political acceptance	The intervention would fit the principles for preferred interventions indirectly as concerns partnerships and engaging with private sector. While the perceived effectiveness would rank low among the interventions proposed, the low cost and voluntary nature would make it attractive not least to complement others interventions and prepare ground for later, less soft action.
	Technical complexity	No legislative effort required, however it can be cumbersome and difficult to prepare information-rich campaigns advocating principles and behaviours that are accepted and meaningful to all affected stakeholders.
	Administrative costs and SMEs	No obligations are imposed on stakeholders. They will involve themselves only when they assess that the benefits outweigh the costs.

The intervention can be targeted at any or all of the FRCs. It might be relevant to decide on one or more clusters, such as: a) FRCs sold directly and whole to consumers, e.g. meat, cocoa, coffee; b) FRCs as an ingredient in certain categories of products, e.g. palm oil in hygiene products; c) food FRCs, excluding rubber, timber and other wood-based; d) meat value chain FRCs, such as maize, soy and, meat; or e) target FRCs where the EU are importing the largest market shares and hence has the most leverage. It is recommended that the intervention is coordinated and designed to complement the launch of other interventions. The intervention concerns all three approaches, depending on design.

6.2.9 *Incubating new certification schemes via partnerships with industry and NGOs*

What it is

This intervention consists of financial, process and personnel support to develop or kick-start certification schemes or certification itself for the three FRCs for which certification levels are very low – beef, maize and natural rubber – thereby promoting sustainable supply chains for these commodities.

Demand-side action to build consumer awareness of FRC related issues (D3)

Many certification schemes grew out of partnerships or collaborations between industry and NGOs, and regulators have seldom played an important role. However, certification schemes have not yet been adopted on a large scale for some commodities, including in particular maize, beef and natural rubber. Assessments point out that for rubber and livestock there is only one or two certification schemes available, and uptake remains very low (<5%) and for maize we found no such scheme.

The EU could play a potential role in stimulating the spread of certification schemes for these commodities. While the EU, represented by the Commission, should and could not own or manage a certification scheme, it could support the development and uptake of certification schemes in various ways. Through a Call for Tenders or a PPP, the EU could finance three actions:

- Background reports on the state of certification, opportunities and barriers and detailed stakeholder and supply chain analysis for each of the three commodities
- Setting up round tables by initiating the identification and invitation of global stakeholders for a series of meetings with the main actors relevant for the each of the three commodities in separate tracks. An external consultant could be hired to serve as secretariat and report on the facilitative dialogue.
- The dialogue and round tables could be combined with grants to finance the ten first EU companies applying for support to have supply chains and producers certified.

This intervention would only become a success if owned and later driven by the sector and NGOs, and therefore key partners should be involved from the beginning. Further budgetary and strategic considerations could help decide whether a PPP or joint venture would be more suitable. If combined with the consumer country partnership intervention, the support for the round tables could be up scaled by contributions from partner countries.

The purpose and outcome of the three tracks would be slightly different, in that for rubber and beef the existing schemes should be complemented and built on, in order to avoid duplication and confusion. For maize, the purpose would be to kick-start the development the scheme. It may not be realistic to expect that operational complete schemes would result from these processes. It is more likely to result in principles and outlines that could be developed with funding from key proponents.

Considerations

The **effectiveness** of the package mostly depends on stakeholders' engagement and commitment to the round tables. The background reports and the grants cannot change much if a critical mass of stakeholders across producers, users, NGOs and civil society is not engaged and actively involved. The outcome of the round table process would be most legitimate and strongest if all parties subscribe to them and support the work.

Issues of **feasibility** would not constitute a barrier. The main issues would relate to the scoping of the incubator role and how to embed it organisationally with EU institu-

tions. The incubator would need to have a mandate and carry the credibility and leverage associated with governmental institutions in general, while not acting as an owner, regulator or opinion-maker. The neutrality and flexibility of the incubator itself will determine the feasibility.

Table 6-14: Feasibility of the intervention – **Incubating new certification schemes via partnerships with industry and NGOs**

Objectives	SO2 Demand side Theme: Encourage the consumption of sustainable and deforestation-free products through improved transparency and information	
Drivers	D3: Lack of consumer awareness of FRC-related issues	
Functional logic	This intervention presumes that lack of capacity, thought leaders or insights into the matter may act as barriers for (further) roll out of certification for the three commodities. Providing background analysis, promoting round tables and offering financial support for the first companies willing to become certified will help overcome these barriers, whereby the EU serves as an incubator.	
Intervention points	The support removes barriers for collaboration between main market actors and stakeholders	
Feasibility assessment	Contribution to objective	As such, the intervention contributes to both supply and demand side objectives, as it takes a supply chain approach. However, as the reports and the grants would target EU actors and EU demand, the main contribution is to the demand-side objectives. If combined or coordinated with the consumer partnership intervention, it could contribute not only to the demand objective in an EU context, but globally.
	Political acceptance	For this intervention, the EU takes a proactive and facilitative role, offering support without strict requirements or conditionalities. While this would be received favourably by most stakeholders, potential resistance could come from industry actors fearing that certification might cost them money or administrative hassle.
	Technical complexity	Setting up a new scheme is not trivial, but these initiatives could rely on existing schemes and the many reports and scientific work scrutinising schemes in place for other commodities
	Administrative costs and SMEs	The whole rationale for the intervention is to reduce administrative costs and upfront investments by companies in the supply chains of the three commodities. The level of administrative costs would therefore mainly be relevant for the EU itself, and depend on the size of the secretariat, the level of ambition for the round tables and EUs role as incubator and the administration of the proposed grants.
<p>The intervention covers three FRCs, but could in principle be extended to cover other FRCs with low uptake of certification, such as soy and others not covered by this study. The intervention is relevant for the legality and sustainability approaches, depending on the design of the schemes after the round table processes.</p>		

6.2.10 Promotion of trade in legal and sustainable forest risk commodities through trade and investment agreements

What it is

Clauses are included in free trade agreements between the EU and third countries (both producers and consumers) promoting trade in sustainable products. Such existing clauses include encouragement for the use of public procurement policy and the creation of processes for multi-stakeholder dialogue and the exchange of information – all encouraging the production and export of legally and sustainably produced FRCs. Possible additional elements include lower export and import duties. The EU also ensures that any bilateral investment treaties it agrees do not contain any provisions that may act as a barrier to the protection of tropical forests or the promotion of sustainable agriculture.

Supply-side action aiming to address all drivers (S1-S4) relevant to the specific objective for the supply side (SO1): Achieve a broader uptake of sustainable or deforestation-free agricultural practices in producer countries, and promote better protection of forests in tropical countries

Free trade agreements (FTAs) have increased in number in recent years; they aim to reduce barriers to trade, including tariffs, and also often non-tariff barriers such as quotas or administrative requirements. Article XXIV of the GATT permits bilateral or regional trade agreements through which more favourable conditions can be offered to parties to the arrangement than to other WTO members. Since 2007, the EU has begun to negotiate what it refers to as a 'new generation' of FTAs, extending to a broader range of issues, including, in some cases, clauses explicitly promoting trade in sustainably produced products.

The EU–Korea FTA, for example, contains a chapter on trade and sustainable development, including a commitment to 'facilitate and promote trade in goods that contribute to sustainable development, including goods that are the subject of schemes such as fair and ethical trade and those involving corporate social responsibility and accountability'.¹⁰⁵ The agreement establishes a Committee on Trade and Sustainable Development to oversee the implementation of these provisions. Each party also establishes a Domestic Advisory Group, including NGOs, labour and business organisations, to provide advice on environmental and labour issues; the two groups meet annually in a Civil Society Forum.

The trade component of the EU–Central America Association Agreement contains a similar commitment to 'facilitate and promote trade in products that respond to sustainability considerations, including products that are the subject of schemes such as fair and ethical trade schemes, eco-labelling, organic production, and including those schemes involving corporate social responsibility and accountability'.¹⁰⁶ The agreement also contains a specific article on forest law enforcement and governance.¹⁰⁷ The EU–Vietnam FTA (not yet in force) also contains provisions on sustainable forest management and trade in forest products, including the promotion of trade in forest products from sustainably managed forests and the exchange of information on actions to improve forest law enforcement and reduce trade in illegally logged timber.¹⁰⁸

While there are limits to what these kind of provisions can achieve, they do at least open up the possibility of discussion and action on the issue of facilitating and promot-

¹⁰⁵ Free Trade Agreement between the European Union, and its Member States, of the one part, and the Republic of Korea, of the other part, Article 13.6 (2).

¹⁰⁶ Agreement Establishing an Association between Central America, on the one hand, and the European Union and its Member States, on the other, Article 288 2(c).

¹⁰⁷ *Ibid*, Article 289.

¹⁰⁸ Free Trade Agreement between the European Union and the Socialist Republic of Vietnam, Chapter 15 ('Trade and Sustainable Development'), Article 7.

ing trade in legal and sustainable FRCs. In negotiating future FTAs, the EU should aim to include clauses promoting trade in sustainable FRCs, including the potential for using public procurement policy (see 6.2.2) and establishing platforms for multi-stakeholder dialogue and the exchange of information in both the EU and the partner country. The possibility of lowering export and import duties for sustainably produced FRCs is discussed under 6.2.3. Even where tariffs are to be eliminated entirely (often the overall aim of FTAs), tariffs on sustainable products could be reduced first.

The process of negotiating EU FTAs is currently informed by full sustainability impact assessments. These should play particular attention to the potential impacts of the FTA on production and trade of FRCs and, in turn, on forests.

Some of the EU's FTAs also include provisions relating to cross-border investment, though this issue is more commonly dealt with through bilateral investment treaties, of which about 1,400 currently involve the EU or its Member States. As noted in the Commission's *Trade for All* strategy of 2015, sometimes provisions in these treaties can be abused, with negative outcomes for sustainable development.

In line with the Commission's aim of leading the reform of the global investment regime, including putting a stronger emphasis on the right of the host state to regulate,¹⁰⁹ it should ensure that any bilateral investment treaties it agrees do not contain any provisions that may act as a barrier to the protection of tropical forests or the promotion of sustainable agriculture. Investment treaties currently being negotiated include, among others, agreements with China, Myanmar and Singapore.

Considerations

The inclusion of commitments to improve trade in sustainably produced FRCs and of provisions for dialogue and cooperation is clearly **feasible**; several new FTAs already include them. Negotiating reductions in tariffs for sustainably produced FRCs would be distinctly more complex (see the discussion in 6.2.3) but less so at a bilateral than a multilateral level.

The **effectiveness** of these kinds of clauses in existing FTAs remains to be comprehensively evaluated. Provisions for information-sharing and dialogue are likely to have limited impacts; nevertheless, they could be useful in the longer term in opening up discussions and exploring options. Lowering import and export duties to sustainably produced FRCs under free trade agreements could increase their market share, and incentives for their production. If tariffs are to be eliminated entirely, given the overall objective of liberalisation of substantially all trade, the impact would only be in the short term.

Ensuring that bilateral investment treaties do not hinder the protection of tropical forests or the promotion of sustainable agriculture is **feasible**; as noted above, the Commission has already undertaken to ensure that EU trade and investment policy supports sustainable development. The **effectiveness** of the measure is difficult to evaluate, as the impact of bilateral investment treaties on forest and agricultural investment has not been closely studied. Given their proliferation, however, and given the increase in recent years in investment in agriculture in developing countries, it is possible that a significant percentage of foreign investments in agricultural land now fall under the scope of a bilateral or regional investment treaty, or a free trade agreement with investment provisions, and may continue to be covered by new investment treaties.

¹⁰⁹ *Trade for all Towards a more responsible trade and investment policy* (European Commission, 2015), p. 21.

Table 6-15: Feasibility of the intervention – **Promotion of trade in legal and sustainable forest risk commodities through trade agreements**

Objectives	SO2 Demand side. Theme: Regulate EU market access to promote sustainable and deforestation-free products	
Drivers	S1: low productivity and profitability, D1: Lack of public policies promoting sustainably or legally produced commodities, D2: Lack of incentives for private sector sourcing of legal/sustainable FRCs	
Functional logic	The inclusion of clauses in free trade agreements between the EU and partner countries promoting trade in sustainable products potentially encourages the use of public procurement policy and the creation of processes for multi-stakeholder dialogue and the exchange of information. Measures to ensure that EU bilateral investment agreements do not contain any provisions that may act as a barrier to the protection of tropical forests or to the promotion of sustainable agriculture avoid any negative impacts on other EU policies and potential interventions, such as those outlined in section 6.1.	
Intervention points	When new free trade agreements are to be negotiated between producer countries and the EU, the EU should propose the inclusion of clauses encouraging the production of and trade in legally and sustainably produced FRCs. Thereby, the agreement could contribute to steer decisions of public and private actors in both partner countries. When new bilateral investment agreements are negotiated between producer countries and the EU, the EU ensures that no provisions that may act as a barrier to the protection of tropical forests or the promotion of sustainable agriculture are included, thus avoiding inhibiting their implementation.	
Feasibility assessment	Contribution to objective	General commitments to enhance trade in sustainably produced FRCs and the establishment of processes of information exchange and dialogue are useful but their impact could be limited. Reduction of export and import duties could have more of an impact in increasing the market share of sustainably produced FRCs, and therefore incentives for their production (See 6.2.3). Avoiding negative impacts from bilateral investment treaties is potentially important, depending on the country with which they are negotiated.
	Political acceptance	Several EU FTAs already include these kinds of clauses, with the exception of provisions for differentiation of tariff reductions based on sustainability criteria. Negotiating reductions in export and import duties for sustainably produced FRCs is likely to be controversial with partner countries, but easier to agree in the context of a bilateral FTA than on a multilateral level. The Commission is already committed to a new approach to promoting sustainable development through investment agreements.
	Technical complexity	Easy to draw up FTA clauses dealing with general commitments, information exchange and dialogue, but difficult to agree the details of tariff reductions (see 6.2.3). Investment provisions supporting sustainable development should not be technically complex; for example, a model agreement on investment for sustainable development was published by the International Institute for Sustainable Development in 2005.
	Administrative costs and SMEs	Administrative costs low of FTA and investment agreement provisions, and no impact on businesses, for clauses dealing with general commitments, information exchange and dialogue. For tariff reductions, see 6.2.3.
Clauses such as these could refer to legal or sustainable production of FRCs; all existing FTAs with these kinds of clauses cover sustainable and legal production, and there seems little value in restricting them to legal-only coverage. Similarly, for the reasons explored in 6.2.3, differentiation of tariff reductions should not be based on legality criteria. The FTAs could concentrate only on the FRCs of most relevance to the partner country, but it would be more logical to establish a framework covering all FRCs. Investment agreement provisions would be expected to cover all investment in agriculture, rather than be commodity-specific.		

6.2.11 Encouragement for lower consumption of forest risk commodities in food

What it is

Through this intervention, the EU aims to reduce food waste and to encourage lower levels of consumption of FRCs in food,¹¹⁰ thereby reducing overall levels of consumption and therefore deforestation. Several Member States are already implementing measures to reduce consumption of certain commodities because of their impacts on human health; stressing their impacts on deforestation and climate change could provide a reinforcement to the health message.

Demand-side action addressing the consumption levels of FRCs (D4) and inefficiencies in food supply chains (D6)

Most of the other demand-side interventions discussed here propose measures through which consumers, businesses and governments can discriminate between legally or sustainably and illegally or unsustainably produced FRCs. There is also a role, however, for policy measures aimed simply at reducing the total level of consumption of FRCs, however they are produced.

Two main sets of actions are available. The first is reducing food waste. In the EU, it is estimated that 88 million tonnes of food is wasted each year, equivalent to 170 Mt of carbon dioxide emissions.¹¹¹ Tackling food waste can therefore have a direct impact on reducing pressure on forests, since it reduces the demand for FRCs – in particular, beef, palm oil and soy – in food and animal feed. EU policy on food waste is covered in the Circular Economy package published in 2015; in particular, the Commission is to develop a common EU methodology to measure food waste and define indicators for its reduction, share best practice, clarify existing EU legislation relating to waste, food and feed, facilitate food donation and the use of former foodstuffs in feed production, and improve the use of date marking. In August 2016, the Commission established the EU Platform on Food Losses and Food Waste. Since this topic is being addressed by these policy measures, it is not considered further in the context of this intervention.

The second set of actions is aimed at reducing levels of the consumption of FRCs, in particular those linked to health problems: meat and sugar. A wide range of studies has highlighted the risks to human health posed by excessive consumption of meat, especially red meat and processed meat, including higher risks of cancer, cardiovascular disease and obesity and related diseases such as diabetes. Many medical and health organisations, and national dietary guidelines, recommend reducing the consumption of meat, particularly red and processed meat. Clearly, such a step would also be beneficial in reducing deforestation and climate change.

Similarly, there is a clear correlation between levels of sugar consumption and risks of overweight, obesity, diabetes and tooth decay. In 2015 the World Health Organisation published guidelines recommending adults and children reduce their daily intake of free sugars to less than 10% of their total energy intake; a further reduction to below 5% would provide additional health benefits.¹¹² Most EU Member States currently show higher levels of consumption, particularly for children.

Several Member States already take action in these areas, including publicising dietary guidelines, carrying out public information campaigns, labelling products, incorporating requirements for healthy food, meat-free and low-sugar options in school and hospital meals and in public procurement criteria, restricting advertising (particularly to chil-

¹¹⁰ Sugar is not a major driver of deforestation world-wide (and therefore is not covered in Part I), but is still important in some countries, particularly in Latin America.

¹¹¹ See http://ec.europa.eu/food/safety/food_waste_en

¹¹² See <http://www.who.int/mediacentre/news/releases/2015/sugar-guideline/en/>

dren) and using fiscal instruments, including taxes on sweetened drinks or other products in Finland, France and the UK and a broad 'public health product tax' in Hungary.

These topics are primarily an area of Member State rather than EU competence, but the Commission could play a role in encouraging action, spreading examples of best practice, and providing a forum for debate and discussion. In particular, it could encourage stakeholders to make clear the link between the consumption of FRCs in food and deforestation and climate change, in addition to the health impacts.

Considerations

Measures aiming at reducing the consumption of meat and sugar are clearly **feasible**; as noted above, several Member States already apply them. A report published by Chatham House in 2015 concluded that governments had more scope to influence food consumption, particularly over its impact on climate change, than they generally believed; they tended to over-estimate the risk of public backlash and their inaction signalled to their public that the issue was unimportant.¹¹³

The use of taxation is likely to be the most politically challenging, though the evidence suggests that public acceptability is higher where the revenue is used for health purposes rather simply adding to the general budget. In Denmark a 'fat duty' on all food containing more than 2.3% of saturated fat, where the revenue was not hypothecated to any purpose, was dropped after a year, in 2012. In Mexico, a tax on carbonated drinks introduced in 2013 has proved more popular, partly because the revenue has been spent on providing free drinking water in schools.

The **effectiveness** of such measures is difficult to evaluate; it depends on a wide range of factors including levels of public awareness, recognition of health impacts, the credibility of the delivery of public health messages, and so on. The evidence from the use of tax instruments suggests that they to have an impact: in Hungary, for example, the introduction of the public health product tax led to 30% of consumers reducing their consumption of pre-packaged sweets and 19% their consumption of sugar-sweetened soft drinks.

¹¹³ Laura Wellesley, Catherine Happer and Antony Froggatt, *Changing Climate, Changing Diets: Pathways to Lower Meat Consumption* (Chatham House, 2015)

Table 6-16: Feasibility of the intervention – **Encouragement for lower consumption of forest risk commodities in food**

Objectives	SO2 Demand side. Theme: Reduce EU demand for forest risk commodities	
Drivers	D4: Consumption levels of FRCs; and D6: inefficiencies in food supply chains.	
Functional logic	Actions to reduce food waste and to reduce levels of consumption of FRCs in food, particularly those with health impacts, will reduce overall levels of consumption and therefore deforestation. Several Member States are already implementing measures to reduce consumption of certain commodities because of their impacts on human health; stressing their impacts on deforestation and climate change could provide a reinforcement to the health message.	
Intervention points	<p>Food waste: measures already under way through Circular Economy package; therefore not evaluated further here.</p> <p>Food consumption: EU Member State governments, with encouragement and assistance from European Commission, increase efforts to reduce the consumption of meat and sugar because of their impacts on health, climate change and deforestation.</p>	
Feasibility assessment	Contribution to objective	Reducing average consumption levels of these would not only improve standards of health but also reduce deforestation associated with their production.
	Political acceptance	General healthy diet campaigns, the use of public procurement policy to affect public sector purchasing, and nutritional guidelines for e.g. school meals, are common and well accepted. While there is experience with the use of taxation to discourage consumption of certain products, any such a measure aimed at influencing consumers' choice and diet may prove controversial. Furthermore, taxation is a matter of MS competence
	Technical complexity	None of these suggested measures are technically complex; many are already being deployed.
	Administrative costs and SMEs	In general administrative costs of all these measures are low; highest for the use of taxation, but additional revenue is generated. SMEs not likely to be affected more than business sector in general.

These measures are aimed at reducing overall levels of consumption of FRCs in food, particularly of meat and sugar given the clear – and widely recognised – health impacts of excessive consumption; raising awareness of the impacts of the commodities on forests and climate change may help reinforce the health message. The question of legality versus sustainability approaches does not arise.

6.2.12 *Extending sustainability criteria for bioenergy feedstocks to uses other than energy*

As outlined in VITO (2014) extending sustainability criteria for biofuels provided for in the EU Renewable Energy Directive to other uses of the same crops would create a more level playing field between sectors and could promote the use of sustainable biomass in these sectors, thereby helping to reduce or halt deforestation and forest degradation. This intervention includes the 'mainstreaming' of these criteria, taking into consideration their ongoing revision, into other appropriate non-energy legislation, as it is assumed that the EU Energy Policy *acquis* does not provide the appropriate legal basis for regulating non-energy uses of the same feedstocks. By doing so, leakage between sectors within the EU could be addressed, so that feedstock not meeting the RED criteria would be less likely to be sold for other uses.

Demand-side action addressing the consumption levels of FRCs (D4)

The EU applies sustainability criteria, as specified in the 2009 Renewable Energy Directive, to the use of feedstocks for biofuels for transport. The criteria, which aim to ensure that the feedstocks are sustainably produced (as defined in the legislation) and their use represents a minimum level of carbon saving compared to the fossil fuels they replace, and mainly apply to agricultural biomass such as palm oil or soybean oil, as this is the main feedstock for biofuels and bioliquids. The proposed revision of the Renewable Energy Directive also includes criteria for solid biomass. However, the scope of the Directive remains energy producers, and hence the energy use of both agricultural and forest biomass (as well as waste and residues).

The key elements of the intervention concern identifying the appropriate legislative setting, the eligibility of compliant feedstock, the scope in terms of feedstocks, and the setting of applicable verification or certification mechanisms.

The intervention would consist of applying the same sustainability criteria as will be agreed for the revised RED to the non-energy use within the EU of the crops and products that are covered under the RED; currently, there are no such criteria. The list of FRCs to be subject to this intervention would, as a starting point, include timber and wood pellets, but also the agricultural crops that can be refined into first generation and second generation biofuels. This could extend beyond the 12 FRCs covered in this report, to include e.g. sugar and a number of crops feeding into various vegetable oils. The broader the scope, the more complex the intervention.

For each of the FRCs to be covered, appropriate existing EU legislation would have to be identified or a new regulations or directives developed. The sustainability criteria in the RED govern eligibility to financial support rather than market access. Extending the use of these criteria to similar situations – i.e. EU legislation providing financial incentives – would make most sense. One example could be to apply the sustainability criteria as the basis for setting EU import duties, as covered in more general terms in intervention 6.2.3 of this report. Other possible EU legislation that includes both a financial incentive and a mandate to address trade or use in FRCs has not been identified; therefore the intervention may require the development of new legislation. The precise functioning of the envisioned support scheme cannot be determined, nor recommendations made, at this stage, as it depends on the scope and purpose of the policy that will host the intervention or be developed for the purpose of the intervention.

The RED currently recognises a series of certification schemes and third-party verification schemes for biofuel feedstocks as fulfilling the sustainability criteria and thereby determining eligibility to financial support. It would make sense for any existing or new legislation to adopt a similar system for the recognition of sustainability certification schemes.

Considerations

Effectiveness: The intervention could increase the share of certified or verified sustainable biomass entering the EU, which could be effective in addressing the demand-side driver on sustainable consumption, all else being equal. The intervention would create a more level playing field for different users of biomass, and could promote the development of an EU bioeconomy. However, the intervention does not address the demand by the energy sector for certain FRCs and does not change the incentives driving this demand. Further, several FRCs will have substitutes for specific non-energy uses, e.g. some vegetable oils can be substituted for the same use. This means that there is a significant risk of indirect effects in play via a complex web of leakage and substitution. That said, the current situation with criteria applying only to energy uses of the biomass may lead to leakage in any case, as non-compliant biomass may find buyers in non-energy sectors. Lastly, if no other demand-side country implements similar sustainability criteria, the signal to producers will be limited and potential leakage further aggravated.

Feasibility: There are a number of issues concerning feasibility. The legal feasibility is of critical importance, and is potentially a significant obstacle for this intervention, as any use of sustainability criteria to determine market access would possibly be considered a technical barrier to trade under WTO rules. Using the sustainability criteria to determine eligibility to financial support (from the EU or Member States) as under the RED, seems a more feasible way forward. This approach, however, would rely on EU legislation that covered trade in or use of FRCs and that also governed a support system. As no such legislation has been identified (apart from import duties), new legislation would be required.

If such legislation were to be identified or new legislation developed, there would be feasibility issues in regard to certification and verification. The current and proposed revised RE Directives rely on energy operators to arrange for reliable auditing of information on compliance with the sustainability criteria. The Commission is to decide which and how voluntary national or international schemes setting standards for the production of biomass products contain accurate data and/or what certification schemes can be recognised. While this mechanism could in principle be replicated for a wide range of feedstocks, several feedstocks predominantly used for non-energy purposes do not have well-established sustainability schemes (e.g. natural rubber, meat/leather and maize) which could turn out to be a practical hindrance for applying sustainability criteria to these FRCs. It should also be noted that in July 2016 the European Court of Auditors published a report critical of several of the voluntary certification schemes recognised by the European Commission as proving compliance with the sustainability criteria, and of the Commission's recognition procedures and supervision. This would also have to be addressed.

Table 6-17: Feasibility of the intervention – **Extending sustainability criteria for bioenergy feedstocks to uses other than energy**

Objectives	SO2 Demand side. Theme: Reduce EU demand for forest risk commodities	
Drivers	D1: Lack of public policies promoting commodities produced with less impact on deforestation	
Functional logic	Apply sustainability criteria from revised Renewable Energy Directive to non-energy use of the FRCs covered under the directive in order to increase the share of sustainable feedstocks used in the EU by making adherence to the criteria a requirement for access to EU or MS support.	
Intervention points	The intervention point would be companies using energy FRCs for non-energy purposes, such as production of a range of wood-based products and food or biorefining use of a number of crops or derivative products. The intervention would influence the behaviour of companies in sourcing the FRCs in question.	
Feasibility assessment	Contribution to objective	The contribution is dependent on the scale of the intervention, in particular how many FRCs would be covered. The largest contribution would be achieved if most possible substitution products would be included, in order to prevent leakage. The risk of leakage and indirect effects such as impacts on indirect land-use change are critical for this intervention. Even so, the contribution only concerns the role of EU, and not that of other countries demand unless intervention 6.2.4 is successful in encouraging other demand side countries to set up comparable policies. It should be noted though, that the current implementation where sustainability criteria apply only to energy uses may lead to leakage, as biomass not compliant with the sustainability criteria may find buyers outside the energy sector.
	Political acceptance	The intervention requires possibly setting up new legislation with an incentive scheme linked to the sustainability criteria. It could interfere with trade flows of a large number of FRCs, but with risk of limited effectiveness. This, coupled with lack of obvious policy areas to host such an intervention and the need for new funding to support the incentive scheme, would make this intervention difficult from a political point of view.
	Technical complexity	Due to the many FRCs that might be affected, and the leakage and ILUC concerns that would have to be addressed to increase effectiveness, this intervention seems very complex from the start. Revising recognition procedures, while some FRC would lack certification schemes to rely on, only adds to the complexity.
	Administrative costs and SMEs	Preparing the policy for the intervention would take long time, and afterwards management of mutual recognition of schemes across a potentially large number of FRCs would be burdensome for MS authorities and to some extent the Commission. A large number of companies would be affected and would have to set in place due diligence systems, unless an exemption would be made for SMEs as energy operators with installations with capacity above a certain threshold is exempted from the requirements attached to the sustainability criteria under the RED. In absence of such an exemption, administrative costs for both authorities and private companies would be significant.

The intervention could cover just forest-based FRCs, a dynamic list of FRCs subject to change every year or five years, or a long list of FRCs and other commodities that can be substituted. In principle, an EU food policy or sustainable consumption policy could extend the criteria to all goods containing FRCs or derivative products from FRCs, but this is not a feasible way forward in the short term.

6.2.13 Rural Development (CAP) Focus Area dedicated to actions that reduce the protein deficit of the EU livestock sector ⁽¹¹⁴⁾

What it is

A Rural Development Programme Focus Area (FA) on resource dependency, which should explicitly target reducing protein deficiency (where relevant) and be used for non-productive investments (computers, digital equipment, IT programmes or tools), training, knowledge-sharing, or LEADER actions. The FA should be encouraged to be taken up by MS/Regions, where the SWOT analysis would reveal high dependency on imports of proteins. The FA could aim to increase use of management practices, crop rotation or multi/intercropping systems that can increase production of feed or proteins without crowding out or replacing existing crops. The actions taken by – and to be defined by – Member States should encourage farmers to shift to production of protein crops through appropriate policy measures. The Focus Area would be a new type of more problem specific FAs, possibly introduced to mirror the SDGs, in this case #15 and #2 (part on sustainable agriculture). A dedicated FA would be an alternative to creating a CAP instrument or measure that would support the production of protein crops, which would not be in line with the recent development towards decoupled support.

Demand-side action to address the high EU dependence on feed imports (D5)

EU producers import significant amounts of feed and proteins to cover their needs, mostly in the form of soy cake. This is the result of production choices made by individual farmers in EU to maximise profits. These choices are again influenced by the support that EU farmers obtain (such as through direct payments, the Common Organisation of the Markets and the European Agriculture Rural Development Programmes). The support available to farmers via the CAP is one of several factors driving land value in the EU. There are important differences and variations in the effect of support across MS. In general, infrastructure, land market regulation and taxation play important roles. The effect of CAP support is most relevant in MS with comparatively low land prices¹¹⁵ and may make farmers choose higher-value crops. The higher yields of many protein crops in climates warmer than the European climate also plays a role, and hence EU productivity per hectare should also be considered.

There would be both technical and political responses to this challenge. With regard to the former, the EIP-AGRI Focus Group on Protein Crops¹¹⁶ might play a role. One way forward on the policy side would be to let agricultural production expand into non-productive land in the EU, notably abandoned and fallow land, and thereby increase production of feed and protein crops. However, these lands are often out of production due to low quality, soil contamination or because the farmer is far from demand or the market for the crops that could be grown on this land. Furthermore, abandoned land may serve biodiversity purposes. As market access and land productivity and quality is addressed by other parts of the (current) CAP, it is not considered the purpose of a deforestation policy to address these. Alternatively, the EU could incentivise production of protein crops at the expense of other crops on existing land, but this approach might drive a chain of indirect effects causing dislocation of production of e.g. wheat to third countries where it could risk causing deforestation. Therefore, this intervention aims at driving up productivity within existing land, without crowding out existing crops. This is done by promoting intercropping and multi-cropping systems where these are not yet adopted on a large scale, by reserving a dedicated sum for support

¹¹⁴ The authors are aware that the 2020 revision of the CAP under preparation by the Commission may include changes to the elements and terminology used in this intervention text. The intervention has been prepared using existing terminology, and should be modified to fit any new policy structure. To that end, the focus area could be perceived as a mandatory envelope that MS shall set aside for actions that reduce feed import dependency, such as via productivity gains.

¹¹⁵ CEPS (Swinnen, Ciaian & Kancs; 2008), Study on the Functioning of Land Markets in the EU Member States under the Influence of Measures Applied under the Common Agricultural Policy

¹¹⁶ <https://ec.europa.eu/eip/agriculture/en/content/focus-groups/protein-crops>

(‘an envelope’) to training, knowledge sharing, cooperation and possibly applied research into such systems. As with Union Priorities and Focus Areas in the current 2nd pillar of the CAP, it is left to the discretion of Member States (or regions) to define what actions are most appropriate in a particular context, geography and within a specific agricultural production system. Agricultural systems or regions, with low or no protein deficiency or with limited potential should be subject to certain exemptions. This intervention includes elements of Policy Proposal #5 as set out in VITO (2014).

Considerations

The **effectiveness** of this intervention is linked to the size of the allocation, the uptake of the money allocated, the programming choices made in the individual RDPs and the potential for more widespread use of inter and multi-cropping systems. The size of the allocation cannot be estimated at this stage, as there are no indications of the next Multiannual Financial Framework and the overall allocation for the next CAP. The uptake, however, is linked to the potential and political willingness to prioritise this issue at implementation level. The regions and MS policy makers have no incentive to prioritise action under this FA if there is no political pressure and no benefit within the region itself. Therefore, the side effects of expanding the income base, reducing dependence on imports and supporting a noble cause should be emphasised in the legislative proposal, the programming guidelines later to be issued and in the recitals of the final legislation. Finally, but no less importantly, the impact on deforestation will be indirect: the intervention has no control over how the land previously used to produce feed or proteins in the producer country will now be used or which geographies will ultimately see a reduction in the demand-driven pressure for deforestation. It should also be considered that incentivising a shift towards more production of high-protein crops in the EU could have other positive and negative environmental impacts on areas that are not assessed here, such as biodiversity and soil quality.

The **feasibility** of the intervention is linked to both the CAP review and negotiations, and to its practical implementation on the ground. The former is complicated as it is not known if any such intervention has been part of the many evaluation studies that support the Impact Assessment for the next CAP. If not, it is difficult to have such a measure introduced and accepted late in the process. The latter concerns whether it is feasible for a critical number of farmers to shift to protein crops production inside intercropping or multi-cropping systems, given current prices, the economic margin and capacity, the quality of their land and the growth conditions. Such an assessment is necessary to determine the feasibility of the intervention in practice.

Table 6-18: Feasibility of the intervention – **Rural Development (CAP) Focus Area dedicated to actions that reduce the protein deficit of the EU livestock sector**

Objectives	SO2 Demand side. Theme: Reduce EU demand for forest risk commodities	
Drivers	D5: High dependence on feed imports	
Functional logic	The RDP measure could encourage EU farmers to shift production towards high-protein crops, thereby replacing imports of for commodities such as soy beans/meal where the EU currently has a large import surplus. To promote the shift, knowledge sharing, education and applied research could be offered.	
Intervention points	The actions designed by MS under this Focus Area should intervene on farmers when they plan their crops. If integrated into the RDP, the individual Member State would decide on whether and how to include such action, and the individual farmer would decide whether to participate.	
Feasibility assessment	Contribution to objective	The RDP measure would promote sustainable supply chains by shifting some supply chains from being transcontinental to intra-EU, hence reducing EU proteins deficiency (D5). This in itself would not halt or reduce deforestation, but it is assumed that there is no (direct) deforestation linked to EU production of protein crops, while this could be the case for South American soy. The contribution depends on the amount of soy being substituted, but this may be difficult to quantify if global demand continues to increase. Thereby it is mainly deforestation caused by EU demand that is reduced; it is uncertain to what extent the reduction in EU imports will lead to a corresponding reduction in deforestation, and to what extent the net result will be a reduced deforestation in risk areas.
	Political acceptance	A Rural Development Programme Focus Area would not impose a behavioural change onto producers. It will offer an opportunity for financial support for efforts to widen the income base of farmers. As the intervention has a high degree of complementarity with existing EU legislation (the CAP), and is voluntary, its strategic fit matches two of the principles for preferred interventions. The main risk concerning political acceptance is whether it will be perceived to crowd out other measures serving more pertinent needs of farmers, thereby being seen as a technocratic construct.
	Technical complexity	Once decided upon, the technical complexity would in principle be low. The main complexity would be determined by the process of negotiating an agreement on the concrete scope and content in the EU regulation, and deciding on the budget allocation for support, which would be up to Member States.
	Administrative costs and SMEs	It is foreseen as part of an existing policy, the CAP RDP, which exists at EU level and which is familiar to Member States. It does not involve obligations for stakeholders, but an opportunity that they can pursue if deemed relevant, and hence from their perspective 'worth the costs'. It would be left to the MS or regions with significant protein deficiency to decide how to address the programmes and make the consequent budget allocation for it. The administrative costs would be decided by the nature of the control and management system to be put in place to control farmers.

The intervention does not target a specific FRC directly, but protein crops and other feed crops would mainly substitute soy cake and perhaps maize. As most soy cake is currently imported from South America, the intervention is mainly linked to deforestation there, although the measure is dedicated to EU farmers. The intervention mainly supports the zero deforestation approach, although it could help to crowd out illegal and unsustainable commodities from the EU markets.

6.3 **Investments and finance**

6.3.1 *Financing mechanism for sustainable agriculture*

What it is

Access to finance is a constraint to agriculture producers in developing countries. Limited access to finance can constrain their ability to introduce changes to farming practices and farming technologies. This lack of available finance may be met through specific public financial instruments such as guarantees and blending mechanisms. As an example, Agriculture Financing Initiative (AgriFI)¹¹⁷ is such an initiative that contributes to closing the financing gaps through grants and a variety of financial instruments and through the provision of supporting advisory services. AgriFi concentrates on SMEs and focuses on the full domestic value chain. Put simply, the key mechanism is that of blended finance where public financial instruments such as guarantees and grants reduce the risks for the other investors, and thereby makes the investment more attractive to them. Further, an advantage is that the full package of blended finance will not just be parallel financing but put into the same pot, thus fully pulling in the same direction using the same principles. The resulting leveraging of the initial EU financing provides for a much larger reach-out of the initial public money, and at the same time ensures that the projects covered are to some extent commercially viable as they are not just grant-based, but also, and often, mainly loan-based.

In the context of deforestation, the EU could build on the same principles and play a role in establishing such a 'blended finance' mechanism to promote agricultural practices and land uses that do not result in deforestation or that support the efforts to reduce deforestation. In this, the EU could seek dialogue and collaboration with other relevant stakeholders such as the Tropical Forest Alliance (TFA) who, among their initiatives, has a financial sector engagement initiative (such as the Banking Environment Initiative). Other potential partners could be WB and REDD+ institutions and possibly also consumer companies engaged in improving standards of production.

Investment and finance action to provide finance for investment in sustainable agriculture (F1)

The establishment of a mechanism to provide blended finance targeted at halting or reducing deforestation would help to close a financing gap that exists in many developing countries, and which makes it difficult, in particular for smaller actors, to raise finance for investments that can contribute to halting or reducing deforestation, even if such investments would be economically viable. If this market failure (insufficiencies in the financial markets) did not exist, financial service providers would offer such financing in expectation of a normal return on their investment. Through a blending approach combining public financial instruments such as guarantees, grants and soft loans with finance provided through banks, the impact from the public financial instruments in support of efforts to reduce or halt deforestation can be leveraged.

The intervention holds potential to be linked with intervention 6.1.1 on support to smallholder producers.

Considerations

Effectiveness would depend on three critical factors. The first is that the stronger the relation between the selection criteria (i.e. the determination of when a specific pro-

¹¹⁷ [Agriculture Financing Initiative \(AgriFI\)](#)'s objective is to unlock, accelerate and leverage investments with a value chain approach focusing on smallholder's inclusiveness and/or MSME agri-business.

ject, action or programme is eligible for financing) and deforestation impacts, the more effective the intervention. The second is the extent to which the EU succeeds in involving a good amount of credible partners including IFIs. The higher the gearing per se, the higher the likelihood of attracting other 'hard' private financing. The third criterion is the uptake in the risk geographies: the higher the uptake the higher the effect. In that regard, as some of the financing will be provided as loans, the loans would need to be serviced, and there is a limit to how many loans can be serviced by a given borrower. So the business case needs to be sufficiently clear and attractive for project, action and programme proponents.

As regards **feasibility**, the specific design and scope plays an important role. A relatively simple, and 'modest' start, possibly based on discussions and partners in the REDD+ community and with BEI and TFA, could be a way of paving the way. This could aim to ensure that a possible EU intervention would supplement and not duplicate what already exists; would benefit from lessons learned through other schemes, and thereby also feed into the possible development of pilot schemes. These can be used to test the interests and buy-in from amongst other potential participants and possible project proponents as well as to spread the message. Based on the experience gathered in this process, the concept can be further developed and the actual facility matured including defining modalities and criteria that are suitable to the deforestation objectives and matches actual needs and gaps within concerned countries and among relevant stakeholders. Needs and gaps that could potentially be addressed could relate to such things as (group) certification of smallholders and the provision of technology and new plants to replace old and diseased ones. Another aspect relates to the challenge of 'crowding out'. It is essential that the design of the facility ensures that it ultimately provides financing for projects, actions and programmes that would not otherwise have been financed, rather than just crowd out already available financing.

Table 6-19: Feasibility of the intervention – **Financing mechanism for sustainable agriculture**

Objectives	SO3 on finance and investment. Theme: Increase availability of finance to smallholders	
Drivers	F1: Insufficient finance for investment in sustainable agriculture	
Functional logic	A blending facility will aim to provide grants and loans to agriculture producers with the aim of supporting agriculture practices that can contribute to halting or reducing deforestation. A particular focus should be paid to the needs of the SMEs as it is typically those that suffer from deficiencies in the domestic financial markets. EU will drive the initiative and make available financial instruments such as grants and guarantees. The blending approach reduces the risk of investors, thereby also enhancing the willingness of other investors to participate and leveraging the impact of the EU investment. Further, a blending approach ensures that finance provided through different sources pulls in the same direction and the combination of loans and other schemes strengthens the focus on the commercial viability of projects compared to pure grant-based schemes. The intervention should, however, not solely be conceived with SMEs in mind. Larger operators may, through access to finance, be incentivised to accelerate or move into directions that are supportive of efforts to reduce or halt deforestation if part of the financing can be provided under favourable terms, thus reducing risk and enhancing their ability to attract supplementary internal or external commercial finance.	
Intervention points	Depends on how it is designed. However, a possible mechanism would most likely be framed as a 'joint undertaking' between the country in question and participating partners where, for example, the EU would exercise administrative control over the disbursement of the grant elements provided by the EU. With regard to SMEs, it could imply that specific investments could be fairly small, and thus an intermediate such as a local bank could play a role in disbursement of loans (under the rules and selection criteria defined in the mechanism). The final intervention point would be the final agricultural producer.	
Feasibility assessment	Contribution to objective	The contribution to the objective would depend on the amount of financing made available, the extent to which selection criteria properly reflect deforestation concerns, and the uptake of the financing opportunities offered through the fund. If the grant and loan combination is implemented such that the loan needs to be serviced by the final recipient, this could constrain the uptake, but it could also provide for a strong commercial sustainability of the specific financial assistance provided.
	Political acceptance	While political <i>resistance</i> may not emerge, the intervention is highly dependent on strong political engagement and commitment. This is critical to ensure that the intervention initiated and driven by the EU will actually materialise in line with its initial aspirations. To that end, a step-wise approach is recommended where the relevant stakeholders (partners, industry, international forums such as in the context of REDD+, beneficiaries) are reached out to and involved in the design from a relatively early stage.
	Technical complexity	The critical elements would lie in the defining the concrete scope and design in a way that sufficiently addresses deforestation; is attractive to potential partners in it; and provides a relevant and realistic business case for the countries concerned and the individual agricultural producers. Further, it should align well with other existing initiatives such as AgriFI and be designed to fill a real financing gap, rather than just crowd out other commercial or less commercial financing opportunities.
	Administrative costs and SMEs	SMEs will in particular benefit from the intervention. For the beneficiaries and recipients, administrative costs are likely to be higher than under normal commercial conditions, as public grants or IFI loans are typically accompanied by stricter bureaucratic requirements. Similarly, the setting-up and operation of a facility partly funded through public money involves some administrative effort.

The intervention described here is relatively general: The underlying assumption is that a step-wise process of design and decision-making will be implemented, whereby the intervention is gradually revised and detailed to properly reflect the needs, capacities and interests of stakeholders. However, the formulation of the overall objective, purpose and necessary principal design criteria need to be made clear from the outset. For example, this relates to identifying what type of actions should be considered eligible in terms of contributing to halting or reducing deforestation and assessing in detail the existing financing gaps and opportunities in relation to that purpose. In that regard, it may also be considered whether this intervention could be somehow embedded into or linked to the existing large AgriFI, or whether it would be more feasible to design a smaller targeted facility. The target groups and specific selection criteria and management principles also need to be set out, possibly further down the development path.

6.3.2 *Mandatory disclosure of information on deforestation proofing of financial investments linked to production or processing of FRCs*

What it is

Deforestation proofing means making sure that the risk that deforestation may occur as a result of an investment is assessed and managed, i.e. mitigated, transferred or reduced. Proofing an investment can be an internal activity by the investor (i.e. a fund), and disclosure of any results or the actions taken to prevent deforestation cannot be expected. Therefore, the key part of this intervention is a reporting and disclosure element that makes it clear whether and how any proofing has taken place. It is proposed that the subject investor must disclose, at least annually, a report with information on its investments, the risks and how they have been mitigated and by whom (the proofing element), including contact information. A template for the disclosure should be developed to ensure that specific and comparable information is provided.

The context of the intervention is that disclosure of forest risk investments by the public and private sector, through mandatory or voluntary reporting and tracking, is a prerequisite to enhance the understanding of the landscape of finance and investment actors, and the design, implementation and monitoring of the effective zero-deforestation policies of financial institutions. Public and private investment information in land-use sectors should be made available through existing or new data management platforms, which will be able to connect upstream investment to producing jurisdictions and support financial institutions and investors in assessing forest risks in their portfolios.

Investment and finance action to counter inadequate controls of flows of finance and investments from EU (F2)

As mentioned previously, a number of initiatives by banks and financial institutions already address deforestation and forest degradation, including guidelines, voluntary commitments and a few examples of national regulation. However, as suggested by Picken et al (2017), these have been of limited effect, partly because the financial services sector basically competes globally and on price. Huge amounts of finance are still available without deforestation safeguards attached. Billions worth of investments are made every year that could be associated with the risk of deforestation. The scope of the intervention is targeted investments by large EU-based, public and private funds (managing more than e.g. 100 million EUR in assets, such as pension funds, asset managers, hedge funds) into the production or processing of FRCs on land or facilities situated in the risk geographies. Imposing a requirement via EU law on investors and any subsidiaries whom the fund controls to share information on the risks of and mitigation actions relating to both illegal and legal deforestation and forest degradation associated with their investments would leave the investors exposed to the scrutiny of NGOs, fund shareholders and investors, and regulators in the producer country. The intervention should be coordinated with EU Directive 95(2014) on disclosure of non-financial and diversity information, which perhaps could also serve as the legal basis.

The intervention builds on, and is inspired by, the many companies participating in the disclosure initiatives, such as the Carbon Disclosure project (cdp.net) and its more recent forest extension, which targets deforestation, and four FRCs, namely timber, palm oil, cattle and soy. The aforementioned mandatory disclosure template should, however, be simple and easy to comprehend, and could integrate content and elements from e.g. the Soft Commodities Forest Risk Assessment Tool commissioned by UN-REDD for investors.¹¹⁸

This intervention contains elements from VITO (2014) Policy Proposals #26, 27 and 28, and less so #29.

¹¹⁸ <http://www.naturalcapitalfinancealliance.org/softcommoditytool/>

Considerations

Regarding **effectiveness**, the key concern is whether information requirements by a subset of investors supposedly mainly for direct investments will do much to prevent deforestation or forest degradation. Also the limitation in scope will have direct implication on the effectiveness. Verification and compliance checks would increase effectiveness but is not foreseen due to administrative costs. The intervention should be seen as an early step towards more transparency and preparing the enabling environment. It would also give a head start to companies already engaged in disclosure and transparency on this matter.

The **feasibility** of the intervention depends on factors such as level of detail required to be disclosed and whether this conflicts with business confidentiality. Also, the number of subjects may prove to be a barrier, which is why the scope has been reduced. This could be increased over the years in a phased way.

Table 6-20: Feasibility of the intervention – **Mandatory disclosure of information on deforestation proofing of financial investments linked to production or processing of FRCs**

Objectives	SO3 on Investment and Finance. Theme: Increase transparency in financing of high deforestation risk sectors	
Drivers	F2: Inadequate controls of flows of finance and investments from EU	
Functional logic	Mandatory disclosure of information on proofing of FRC-related investments does not prevent investors from not doing any proofing, but if they choose to do so they will have to be transparent about it. The logic is therefore that disclosure will allow for public scrutiny, which again could create pressure on investors directly or through stakeholders to change behaviour in terms of: 1) how they proof their investments and/or, ideally 2) how and where they invest.	
Intervention points	Subjects of the regulation would be EU-based investors with managed assets of more than e.g. 100 M EUR, and with part of their portfolio of investments in the production or processing of FRCs taking place in risk geographies.	
Feasibility assessment	Contribution to objective	The intervention contributes to SO3 by creating public and peer pressure on investors to proof investments, not avoid deforestation in itself. The perceived behaviour change resulting from the pressure will contribute to reducing or halting deforestation or forest degradation. Recent assessment show a low commitment in the financial sector to current initiatives, so promoting these initiatives and giving support to front runner companies fits well with the objectives. Regulating the proofing itself or banning certain investments themselves could contribute more profoundly to the objective, but this would come with political downsides (see below) and practical implications.
	Political acceptance	The choice of intervention design (focus on disclosure) is in accordance with the principles for interventions set out previously, in particular the preference for building on and supporting private sector initiatives, in this case the CDP and Forest500. Hence, the intervention offers good strategic fit, which is expected to increase its acceptance by lawmakers and the sector. By reducing the scope to larger funds and requiring annual disclosure as opposed to quarterly or investment-by-investment basis, cost of implementation and reduced burdens are taken into consideration. This should improve acceptance further.
	Technical complexity	The main technical issue is setting out and agreeing what type and level of information strikes the balance between business confidentiality and practical feasibility while allowing for scrutiny of individual investments and credibility of claims of action in a comparable, transparent manner. The critical information concerns the <i>what</i> , <i>where</i> and <i>whom</i> for the proofing done for each investment. This may entail new data management systems and procedures on the part of investors, but these should not be too difficult and could be left to advisors or experts, hence it is more a cost consideration (see below). There are a number of more complicated and more or less demanding tools available that could help guide this work, so such work would not have to be started from scratch.
	Administrative costs and SMEs	The choice of reduced scope means SME investors are exempted and face no costs, and the annual reporting on proofing activities helps reduce costs, as compared to an intervention where each investment would have to be reported on and potentially verified. Main costs for subject funds relate to new internal procedures and data management necessary to produce the report each year. The design of both of these are left to the discretion of the fund and should ideally be linked to existing due diligence procedures.

The critical choice in designing this intervention is to strike two balances at the same time. One is the balance between administrative costs and contribution to objectives and effectiveness, where the proposed intervention design favours a reduced scope and indirect proofing requirements in order to reduce costs, albeit at the perceived expense of effectiveness. The second balance is that of effectiveness vs. strategic fit, i.e. a preference for support to existing private initiatives and a more nudging-based approach as opposed to banning, imposing financial penalties and command and control regimes. The intervention would fall under the sustainability approach.

6.4 Overview of interventions

The table below provides an overview of the assessed interventions. The table provides a scoring of the interventions according to the expected strength of their impact. The scoring is based on a brief comparative assessment of the contents of the preceding sections on specific interventions.

Therefore, the scoring is at this stage highly indicative, rough and tentative. A more precise scoring would assume a more specific design of each intervention and a more detailed assessment of its impacts. The scoring applies the following criteria:

Contribution to the objective: A scoring of +++ indicates that it is highly likely that the intervention, if properly designed and implemented, will provide a significant contribution to reaching the objective of contributing to halting or reducing deforestation. A scoring of + indicates that this is unlikely and/or that the contribution will be small. The term 'significant' inevitably involves some judgment and here the resulting score reflects the contribution in absolute terms as the main consideration. However, where relevant, this judgment also takes into account the scope of the intervention, i.e. how widely it aims to cover aspects such as risk geographies or forest risk commodities.

Political acceptance: A scoring of +++ indicates that the intervention is assessed to be politically feasible. This scoring reflects considerations as to whether stakeholders at large will buy in to the intervention with no major conflicting interests. A scoring of + indicates that conflicting interests or lack of buy-in is expected.

Technical complexity:

- a) **Ease of design and implementation (complexity):** A scoring of +++ indicates that the intervention is relatively simple to design and implement, whereas a scoring of + indicates a high complexity. Complexities in design and implementation could relate to clarifications of terms and methodologies, ensuring alignment with WTO rules, or aligning the intervention with other related measures that are already in existence.
- b) **Legal simplicity** assesses the extent to which the intervention demands changes to existing legislation or new legislation or whether there are no legal implications from the intervention in question. The latter is scored by +++, and a demand for new legislation is scored by +. Changes or additions to existing legislation is scored ++. Some interventions may be framed as mandatory interventions, i.e. demanding an accompanying legislation, or as more voluntary ones, not necessarily demanding a legislation. In that case, the last column would indicate the assumed approach. Also, it should be noted that medium scores are given when, for example, the realisation of the intervention does not necessarily involve new legislation, but perhaps a successful negotiation with a third partner or a change to a specific regulation.

Administrative costs and SMEs. A scoring of +++ indicates relatively low administrative costs, and a scoring of + indicates a high level. If SMEs are disproportionately affected, this counts towards lower levels.

The levels of the scores may seem counter-intuitive. However, it has been designed so that +++ is always better (i.e. easier or less costly to implement) than +, regardless of criteria.

Table 6-21 Overview of interventions and tentative assessment according to the criteria¹¹⁹

Intervention		Objective	Acceptance	Ease of design and implementation	Administrative cost	Legal simplicity
Supply side	1.1 Best-practice support to smallholder producers in risk geographies via technical assistance	+++	+++	+++	+++	+++
	1.2 Using jurisdictional REDD+ projects to promote sustainable and deforestation-free agriculture production	+++	++	++	++	+
	1.3 Support jurisdictions to strengthen sustainable forest management and land use planning, governance and land enforcement	+++	+++	+	++	++
	1.4 Support jurisdictions to improve monitoring of deforestation and illegal activities	++	+++	++	++	+++
	1.5 Bilateral partnership agreements on forest risk commodities	+++	+	+	+	+
Demand side	2.1 Due diligence regulation for forest risk commodities	+++	+	+	+	+
	2.2 Public procurement policies for sustainably produced forest risk commodities	++	+++	++	++	+
	2.3 Lower import duties for commodities complying with certain sustainable production and/or deforestation-free criteria	++	+	+	+	+
	2.4 Encouragement for similar actions by other countries	Supporting intervention, the effectiveness and efficiency of which depend on the actual contents of it				
	2.5 Support for a sustainable agricultural commodity trader platform	+	++	+++	++	+
	2.6 Encouragement for private sector initiatives on forest risk commodities	++	+++	+++	+++	+++
	2.7 Strengthen and expand existing transparency platforms through voluntary reporting and data compilation	+	++	+++	+++	+++
	2.8 Consumer information campaign in partnership with industries and NGOs	+	+++	++	++	++
	2.9 Incubating new certification schemes via partnerships with industry and NGOs	+	++	++	+++	++
	2.10 Promotion of trade in legal and sustainable forest risk commodities through trade and investment agreements	+	++	++	+++	+++

¹¹⁹ The scorings are tentative and based on the assessments in this report. A more detailed scoring would necessitate a more specific design of each of the interventions. Scorings applied: +++ indicates: high contribution, high acceptance, low complexity low administrative costs and low legal intensity, and + indicates low contribution, low acceptance, high complexity, high administrative costs and high legal intensity

Intervention		Objective	Acceptance	Ease of design and implementation	Administrative cost	Legal simplicity
	2.11 Encouragement for lower consumption of forest risk commodities in food	+	+	+++	+++	+++
	2.12 Extending sustainability criteria for bioenergy feedstocks to uses other than energy	+	+	+	+	+
	2.13 Rural development (CAP) Focus Area dedicated to actions that reduce the protein deficit of the EU livestock sector	+	++	++	+++	++
Finance	3.1 Financing mechanism for sustainable agriculture	++	+++	++	+++	++
	3.2 Mandatory disclosure of information on deforestation proofing of financial investments linked to production or processing of FRCs	+	++	++	++	+

7 CONCLUSIONS AND PROPOSALS ON OPTIONS FOR EU ACTION

This study has explored in detail the link between global deforestation and the production and trade of agricultural commodities. It has shown that, as a major importer and consumer of many commodities which include "embodied deforestation"¹²⁰, the **EU is both part of the problem and can be part of the solution** by stepping up its efforts to address the impacts of this consumption and adopt a more coherent and comprehensive EU approach to the problem of deforestation. Several areas of existing EU policy (environment, development, trade, climate, energy, etc.) can have a positive or negative impact on the problem of deforestation, and there is the potential for new policies to be adopted to tackle the problem. While it should be stressed that EU action would be insufficient in itself to address the global problem of deforestation, as in other policy domains, the **EU can provide a positive impact through showing a leadership role, mobilising its political and market leverage, and promoting broader international dialogue and cooperation**, particularly through working with other major consumer countries. This would be in line with the current Commission's priorities set out in "EU as a strong global actor", "Energy and Climate" and "Jobs, Growth and Investments", as well as with several EU policies related to Climate Change, Environment, Development Cooperation (2017 European Consensus on Development) and Trade (Trade for All communication).

Our analysis shows that there is a need to act at multiple levels (international, regional, national, and local) and to address the problem from several angles, given the complexity of the problem, its multiple underlying causes and proximate drivers and the complex dynamics of supply chains. All these factors imply that no single intervention on its own provides the potential to deliver on the proposed overall goal and specific objectives of a possible EU initiative to combat deforestation.

In order to achieve the objective of reducing or halting deforestation, a potential EU initiative would need to consist of a set or package of interventions to address, in an integrated and mutually supportive manner, the **demand** and **supply** dimensions of the deforestation challenge, particularly by promoting **sustainable value chains**, as well as by addressing the role of **finance and investments**. An EU initiative can build on and reinforce existing EU action as well as government and private sector commitments on zero deforestation and relevant international initiatives described in this report.

Reflecting this need for an EU initiative to consider, in an integrated manner, both demand and supply dimensions as well as the finance and investment dimension, the initiative could be framed to pursue three specific objectives:

- Achieve broader uptake of sustainable or deforestation-free agricultural practices in producer countries, and promote better protection of forests in tropical countries (supply-oriented objective).
- Achieve more sustainable supply chains, including reduced EU demand for FRCs associated with deforestation, and increased EU demand for sustainable and deforestation-free products (demand-oriented objective).
- Achieve improved access to public and private investment and financial support, in particular for smallholders, that promotes sustainable land use, and achieves enhanced transparency of investments in and financing of activities, which lead to deforestation and forest degradation (objective oriented towards financing and investment).

These three objectives mirror the three main categories of drivers that this report identifies. As Table 5-4 demonstrates, no single intervention is capable of addressing all the main drivers or categories, and hence no individual intervention would sufficiently address all three objectives.

¹²⁰ The EU is among the major global importers of a number of forest risk commodities, i.e. palm oil (25%), soy (15%), rubber (25%), beef (41%), maize (30%), cocoa (80%), and coffee (60%).

When putting together options and when considering their overall impacts, it is important to be aware of the inherent trade-offs involved, as well as possible combination effects. Thus, interventions with a potentially high impact are often more complex, likely to be less politically acceptable and/or involve higher administrative costs. The simpler and the more easily politically acceptable an intervention is, the quicker it can be implemented, but the less it may contribute to the objective. As regards the time dimension, some interventions may be associated with a longer time lag than others: it may take a significant length of time for a given intervention to have any effect. The time required to actually design and put in place a given intervention may be demanding in terms of calendar time. Further, once a particular intervention is in place, there may be a significant time lag until it reaches its full uptake. In this regard, it should also be noted that, for instance, the commencement of a process towards a legislative change can actually imply that current initiatives anchored elsewhere (e.g. in Member States, in NGOs or in industry) can be slowed down due to the expectation that new, but yet uncertain legislation will come. Furthermore, possible synergetic and mutually supportive effects across interventions can enhance the effectiveness and/or the efficiency of the individual interventions. For example, the impact of an intervention supporting smallholder producers through technical assistance may be enhanced through another intervention supporting jurisdictions to improve the monitoring of deforestation and illegal activities – a combination of 'carrot and stick' incentives, the former providing the carrot and the latter providing the stick. Taking the example further, the impacts of such a supply-side intervention could reinforce the impact of a demand-side intervention such as encouragement for private sector initiatives on forest risk commodities.

The proposal outlined here applies a perspective of 'legal intensity' or 'legal simplicity'. An option that makes better use of measures that already exist can be easier and faster to implement than one which requires new legislation. In the former case, there are already established procedures and forums and existing legislative frameworks in place. Similarly, an option that introduces new, but non-legislative, EU action would be easier and faster to implement than one requiring new legislation. The 'legal intensity' approach provides a means of defining options that are markedly different from one another, and at the same time, it allows each option to include interventions of relevance to all three objectives (supply, demand and finance/investment).

The analysis provided in the Part I report, discusses key elements of the 'Business-as-Usual' scenario showing that deforestation and forest degradation will remain a challenge in the future, and that further EU action will be needed to reduce the EU footprint in this regard. The Business-As-Usual scenario or 'do nothing' option¹²¹ is therefore not further analysed here. The options can then be set out as follows:

- **Option A:** Building on existing policies, measures and legislation, without requiring any new measures. This can be considered as a 'better implementation' option. Such an option could in operational terms consist of a new EU Communication on deforestation (i.e. an update of the 2008 Communication) reflecting the significant global developments over the last 10 years and presenting a coherent EU response based on current EU action as well as better use of existing policies, legislation and mechanisms to tackle deforestation.
- **Option B:** Introduction of new, non-legislative, action to complement better implementation of existing EU policies, legislation and mechanisms. This can be seen as Option A (a new EU Communication), or elements thereof plus an EU Deforestation Action Plan. Similarly to other similar EU initiatives, such as the recent EU Wildlife Action Plan, this Plan could include concrete actions and new non-legislative initiatives that the Commission and Member States could undertake to have a greater impact (i.e. contribution to the objectives) than Option A alone. This Action Plan could also include actions aimed at paving the way for

¹²¹ The Part I report discusses key elements of the 'Business-as-Usual' scenario, and the observations from that report fed into the description of problems and drivers provided in this report (Chapter 2 and Chapter 3). The key feature of the Business-as-Usual is that deforestation and forest degradation remains a challenge in the future, and that further EU initiatives can help to reduce the EU footprint in this regard.

more comprehensive analyses of specific aspects of the problem or of possible future proposals for new or amended legislation.

- **Option C:** new legislative action. This 'regulatory approach' option would combine Option A and Option B, or elements of those, with interventions requiring new legislation of regulation.

It follows from the above that the legal intensity approach assumes that Option A is most feasible, but it may also be less effective, in terms of contribution to the overall objective, and vice versa: legislative action may deliver the most on effectiveness, but probably also at a higher cost. Below, we provide an *illustrative example* of how the options outlined above could be operationalized: i.e. the interventions that they could include. The table below is for illustrative purposes only; the exact scoping of the options (e.g. which interventions would be included in the different options) is a complex exercise that, among other things, needs to rest on carefully balancing different and sometimes contradictory concerns, e.g. in regards to effectiveness and efficiency and to how different stakeholder groups are affected, and in regards to the level of ambition of the EU. Further, the categorisation proposed here to some extent also implicitly assumes a certain level of ambition of the intervention in question. Some of the interventions may be concretised in different ways ranging from for example simply providing recommendations to certain actors e.g. private sector operators or Member States, to the introduction of soft EU action or to legally binding EU legislation.

Table 7-1 Three possible options and the included interventions

Objective-orientation/ Option	Supply-side	Demand-side	Finance and investment
Option A: Better Implementation	1.1 Best practice support to small-holder producers in risk geographies via technical assistance 1.3 Support jurisdictions to strengthen sustainable forest management and land use planning, governance and law enforcement 1.4 Support jurisdictions to improve monitoring of deforestation and illegal activities	2.4 Encouragement for similar actions by other countries 2.7 Strengthen and expand existing transparency platforms through voluntary reporting and data compilation 2.13 Rural development (CAP) Focus Area dedicated to actions that reduce the protein deficit of the EU livestock sector	3.1 Financing mechanism for sustainable agriculture
Option B: Better Implementation PLUS	In additions to the interventions described under Option A above, option B might include:		
	1.2 Using jurisdictional REDD+ projects to promote sustainable and deforestation-free agricultural production	2.2 Public procurement policies for sustainably produced forest risk commodities 2.5 Support for a sustainable Agricultural Commodity trader platform 2.6 Encouragement for private sector initiatives on forest risk commodities 2.8 Consumer information campaign in partnership with industries and NGOs 2.9 Incubating new certification schemes via partnership with industry and NGOs 2.10 Promotion of trade in legal and sustainable forest risk commodities through trade and investment agreements 2.11 Encouragement for lower consumption of forest risk commodities in food	
Options C: Regulatory approach	This option would combine Option A and Option B, or elements of those, with interventions requiring new legislation of regulation such as		
	1.5 Bilateral partnership	2.1 Due diligence regulation for for-	3.2 Mandatory

Objective-orientation/ Option	Supply-side	Demand-side	Finance and investment
	agreements on forest risk commodities	est- risk commodities 2.3 Lower import duties for commodities complying with certain sustainable production and/or deforestation criteria 2.12 Extending sustainability criteria for bioenergy feedstocks to uses other than energy	disclosure of information on deforestation proofing of financial investments linked to production or processing of FRCs

APPENDIX A LIST OF REFERENCES

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APPENDIX B LIST OF STAKEHOLDERS THAT PROVIDED WRITTEN INPUTS AND CONSIDERATIONS

The below lists the stakeholders that provided written contributions after the conference 'Tackling illegal logging and deforestation: progress made and opportunities for future action', organised by EC on 21-23 June in Brussels.

Alliance Française pour une Huile de Palme Durable (The French Alliance for Sustainable Palm)
Barry Callebaut
Conservation International Europe
EFI (European Forest Institute)
Environmental Investigation Agency (UK)
ESPOAG (European Sustainable Palm Oil Advocacy Group)
EU-REDD Facility
FEDIOL (The EU Vegetable oil and proteinmeal industry association)
FEFAC (the European Compound Feed Manufacturers' Federation)
FERN (Forests and the European Union Resource Network)
FPP (Forest Peoples Programme)
Greenpeace
Golden Agri-Resources
RSPO (Roundtable on Sustainable Palm Oil)
(DG Environnement of the) Santé publique, Sécurité de Chaîne alimentaire et Environnement (Federal public Service Health, Food Chain Safety and Environment) of Belgium
Trobenbos International
UNEP-FI
WWF (World Wildlife Fund)

APPENDIX C TERMS OF REFERENCE

1. Context/General information

According to FAO estimates, some 13 million hectares of forests are lost every year. Competing and often conflicting demands for land are likely to grow further towards 2050, when 9 billion people will be sharing one planet and its limited resources, under changing climate patterns and socio-economic conditions. To date, the land on which forest grows is often considered more valuable than the standing forest itself. Deforestation accounts for some 20% of global carbon dioxide (CO₂) emissions (IPCC, 2007) – more than the total EU greenhouse gas emissions. Addressing deforestation is therefore a cost-effective way to combat climate change and, at the same time, conserving biodiversity and securing better livelihoods.

UNFCCC is gearing up towards a new legally binding climate regime 2020, applicable to all Parties, based on ambitious national contributions. In light of UNFCCC COP Decision 15/CP.19 on addressing the drivers of deforestation, the EU and Member States have endorsed the 2014 (UN Climate Summit) New York Declaration on Forests, a non-legally binding political declaration that grew out of dialogue among governments, companies and civil society.

The 7th Environment Action Programme calls for "assessing the environmental impact, in a global context, of Union consumption of food and non-food commodities and, if appropriate, developing policy proposals to address the findings of such assessments, and considering the development of a Union action plan on deforestation and forest degradation". The EU Forest Strategy, also foresees that: [...the Commission will assess the environmental impact of EU consumption of products and raw materials likely to contribute to deforestation and forest degradation outside the EU. If appropriate, it will consider policy options for limiting such impacts, including the development of an EU action plan on deforestation and forest degradation. It will do this in line with the 7th EU EAP].

The EU needs to deliver on the objective set in 2008¹²² to halt global forest cover loss by 2030 at the latest and to reduce gross tropical deforestation by at least 50 % by 2020, and, the EU Biodiversity Strategy 2020 that seeks to "help avert global biodiversity loss", foreseeing that "the EU will take measures to reduce the biodiversity impacts of EU consumption patterns, particularly for resources that have significant negative effects on biodiversity" and on the recently agreed Sustainable Development Goals targets.

To achieve these objectives, the EU needs to work on both demand and supply side measures. Particular attention should be paid to imports and consumption of certain commodities (mainly agricultural) that can contribute to deforestation and forest degradation processes by encouraging more demand for agricultural land and production of specific crop or products, mostly outside EU borders. To inform this reflection, in 2013 the Commission financed a study on "the impact of EU consumption of imported food and non-food commodities" (e.g. meat, soy, timber, palm oil, metal ores) that are likely to contribute to deforestation or forest degradation. These results are now publicly available and are informing further debate and studies on this topic. On 26 - 27 May 2014, a Conference was organised on this topic and provided useful inputs to inform the further assessment and the feasibility of developing an Action Plan on deforestation¹²³.

¹²² COM(2008) 645 final, 17.10.2008

¹²³ http://ec.europa.eu/environment/forests/impact_deforestation.htm

2. Subject of the request

A specific study is needed to further define and assess policy options available to step up EU action on deforestation and forest degradation. Among a number of cross sectorial studies and initiatives, EU thematic policies and legislation, the study can draw and build on information generated, *inter alia*, by the FLEGT Action Plan Evaluation, the EU Timber Regulation review, the ongoing work on the Circular Economy package and Trade and Investment strategy, the recently agreed UN SDG targets and the outcomes of the UNFCCC COP 21 in Paris.

The study should produce original and innovative thinking on policy options without duplicating recently completed and ongoing studies funded by the European Commission and by other entities such as NGOs, private sector operators, EU MS and international organisations. The contractor will receive a preliminary list of recent studies as reference material. In its broader approach, this assessment should be guided by the relevant existing objectives and commitments taken by the EU at international level, by the ten priorities of the Juncker Commission and the EC 'Better Regulation' agenda, which includes assessing the effectiveness, efficiency, relevance, coherence and EU added value of any proposed policy option¹²⁴.

The outcomes of this assessment will inform broader decisions by the European Commission on any future EU international forest strategy, which includes considering the feasibility of an action plan or other suitable instrument containing specific measures to tackle deforestation and forest degradation, as mentioned in the 7th EAP and the Forest Strategy.

3. Tasks to be performed, guide and details of how the tasks are to be carried out, meetings to be held

The objective of the study is broken down into 3 main tasks:

TASK 1: The first TASK aims at conducting a comprehensive mapping exercise of existing EU policy, legislation and initiative that can address, directly or indirectly, the drivers of deforestation and forest degradation within and outside EU borders. The exercise includes mapping actions undertaken at national level by MS and/or relevant stakeholders, including private sector operators and main industrial players. All relevant policy areas and main legislative acts should be considered, such as those concerning Trade and Investment, Common Commercial Policy, Development and International Cooperation, Internal Market, Agriculture and Fisheries, Environment, Consumer Protection, Energy, Climate Change, Sustainable Production and Consumption, EU and international forest policies, including the FLEGT Action Plan. The mapping exercise will result in a reasoned and analytical inventory of existing and forthcoming policy and legal instruments and describe how any identified item has potential to, and how it can, address deforestation and forest degradation. The analysis should also indicate where the responsibilities to implement and enforce the policy/legislation lay, and its nature (voluntary, regulatory, market based instrument etc.). It is expected that TASK1 would use about 30% of the budget and will be carried out within the first three months of the contract.

TASK 2: Based on the result of TASK1 and relevant literature review (desk based), to identify and assess the policy options that can address the drivers of deforestation and forest degradation at global scale. The options will be tested in qualitative and – to the extent possible – in quantitative terms including the likely economic (as well as administrative), social and environmental impacts within time periods that cover until 2030 and, using existing foresight scenarios, until 2050 if possible. The role played by pri-

¹²⁴ http://ec.europa.eu/smart-regulation/index_en.htm

vate sector operators should be subject to a specific analysis in order to assess cost and benefits of any identified policy option. Each option should consider how mainstreaming into existing policies and legislation could be achieved and through which instruments and coordination mechanisms within the EC and at EU level. The report should propose concrete recommendations on the priorities, subsequent steps, risks and opportunities that any action/policy could address. TASK2 would use about 50% of contracted resources.

TASK 3: The third TASK focusses on preparing information material {for future stakeholders' consultations (that will be organised by the Commission at a later stage)} and dissemination of the results. A first deliverable consists in preparing a comprehensive questionnaire with open and closed questions, based on the results of the previous tasks and on the assessment of the proposed policy options,. The second deliverable is to present the partial or complete results of the overall study in at least four meetings in Brussels (mission costs for the contractor should be budgeted for) for dissemination purposes and for coordination with the responsible EC services. The contractor should also budget for a kick off meeting in Brussels where the methodology will be presented and discussed with the Commission services. If necessary to maximise efficiency and best use of resources, the Commission may propose amendments to the proposed methodology. This TASK would use about 20% of contracted resources. Organisational costs such as hiring meeting rooms, interpretation, ancillary service and travel costs for the participants are not covered under this contract.

4. Estimated expertise requirement

The contractor is expected to provide technical assistance and expert analysis/assessment by deploying a team of at least three specialists on: policy impact assessment and EU policy making in relevant EU thematic policy areas, the economics of relevant commodity supply chains (such as palm oil, cocoa, coffee, soy, meat,) including the role of finance and financial markets and chain of custody/traceability systems. Given the wide range of EU policies that needs to be analysed, at least two experts shall have 10 years of proven experience in performing thematic policy analysis and policy options assessment at EU level. Legal expertise in the team is a prerequisite; experience in development cooperation and support to third countries is an asset. The work will be carried out over a period of 8 months and does not foresee missions other than to Brussels for the activities specified in these Terms of Reference.

5. Deliverables

The deliverables would consist of:

- One inception report outlining TASK1 (up to 20 pages +inventory and Annexes, if needed);
- One interim report on TASK2 (up to 30 pages + annexes);
- One interim report on TASK3 (up to 10 pages + annexes);
- One final report summarising the findings of the three TASKS (up to 50 pages).

6. Estimated timetable

Months from signature of the contract	Deliverable	TASK
1	Kick off meeting in Brussels	-
3	TASK1 report	1
5	TASK 2 report	2
5	TASK 3 – delivery of questionnaire	3
7	TASK 3 - report	3
5 -8	TASK 3 presentation of partial or complete study outcomes	3
8	Final report	1/2/3

7. Budget

The maximum budget available is 150.000 Euro.

8. Award criteria

Award criteria 1 –Methodology (maximum points: 50)

This criterion assesses the suitability and strength of the proposal as measured against the requests in terms of the technical content, completeness, originality of ideas (where appropriate) and proposed effort..

Award criteria 2 – Project management and availability (maximum points: 30)

This criterion relates to the quality of project planning, the organisation of the team with a view to managing a study of this nature and the availability of the resources for the completion of the contractual tasks

Award criteria 3 – Quality control measures (max points: 20)

This criterion will assess the quality control system applied to the service foreseen in these illustrative tasks concerning the quality of the deliverables, such as the language quality check, and continuity of the service in case of absence of a member of the team. The quality system should be detailed in the tender and specific to the tasks at hand; a generic quality system will result in a low score.

A maximum of 50 points will be attributed to criterion 1, a maximum of 30 points will be attributed to criterion 2, and a maximum of 20 points will be attributed to criterion 3¹²⁵. In addition a minimum threshold will be set up under this system of points:

- Technical sufficiency levels: Selected companies will have to score a minimum of 25, 15 and 10 points under criteria 1, 2 and 3 respectively, with a minimum total of 65 points.

¹²⁵ While this is a typical standard approach, the Commission may apply different weighting for specific services.

Tenders scoring less than 65 in the overall points total or less than 50% in the points awarded for a single criterion will be excluded from the rest of the assessment procedure. Since assessment of the tenders will focus on the quality of the proposed services, tenders should elaborate on all points addressed by these specifications in order to score as many points as possible. The mere repetition of mandatory requirements set out in these specifications, without going into details or without giving any added value, will only result in a very low score. In addition, if certain essential points of these specifications are not expressly covered by the tender, the Commission may decide to give a zero mark for the relevant qualitative award criteria.

The bid offering the best value for money will be chosen, provided that the minimum number of points cited above is achieved. Best value for money will be calculated as follows:

All bids that do not reach the stated technical sufficiency levels for each individual award criteria will not be considered for contract award.

All bids that have passed the individual levels and score 65 or higher are deemed to be technically sufficient. Then the price is divided by the total number of points awarded to obtain the price-quality ratio. The award of the contract will be made in accordance with the lowest ratio.

The Commission reserves the right not to select any tender if the amounts tendered exceed the budget envisaged for the particular piece of work or to reject any offers that do not comply with the pre-agreed rates in the framework contract.

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The final study report shall include:

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- The following standard disclaimer:

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¹²⁶ The Visual Identity Manual of the European Commission is available upon request. Requests should be made to the following e-mail address: comm-visual-identity@ec.europa.eu

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